Research Article

Measuring the Effectiveness of the Connect Parent Group Within CAAMHPP

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Study Background: The Connect Parent Group (CPG) is an attachment-based, trauma informed, psychoeducational supportive group for parents of preteens (ages 8 to 12) and teens (ages 13 to 17) that was adopted by the Child and Adolescent Addiction Mental Health Psychiatry Program (CAAMHPP) in Alberta in 2008. Although evaluated by its developers in British Columbia, the effectiveness of implementation had not been evaluated in Alberta.

Purpose: This quality assurance study assessed the effectiveness of the CPG on the relationship quality between the treated parents and the youth, identified the clinical characteristics of youth with and without CPG participating parents, and justified the need for further CPG services in CAAMHPP.

Methods: Pre-and-post CPG parent self-reports were assessed using the Parenting Relationship Questionnaire (PRQ) over a 3-year period. The clinical severity of youth with participating and non-participating parents was compared based on standardized clinical screening and outcome measurement instruments, as well as the referral rates for CPG exposed and unexposed youth. The need for further services was examined based on repeated referrals of the youth before and after parental exposure to CPG, in comparison to the base rate of repeat referrals of youth from non-participating families over the same 6-year time period.

Results: Youth with CPG-exposed parents had greater clinical severity pre-exposure and lower severity post-exposure compared to youth of non-exposed parents. CPG parents post-exposure reported improvement on items of the PRQ measures. Post-exposure, the youth with CPG-exposed parents had a 61% decrease in referrals to further mental health services.

Conclusions: The results support the application of the CPG within clinical settings. The CPG-exposed parent-child relationship improvement reported in the PRQ appeared to be validated in that CPG-exposed youth were both distinct in clinical severity of mental health issues on presentation and had greater improvement on discharge with less readmission to mental health services.

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Background and Purpose

The Connect Parent Group (CPG) is an attachment theory informed, group-based parental intervention focusing on the improvement of parent-child relations. The CPG program was developed in British Columbia to support parents of pre-teens (ages 8-12) and teens (ages 13-17) with behavioral and emotional problems by Moretti and Braber[1]. The CPG program has been evaluated in British Columbia and has been found to be very effective in parental skill development and improving parent-child attachment[2].

Cornwell and Hamrin[3] reviewed studies about therapeutic interventions to treat attachment disorders in adolescents and found that psychoeducation and psychotherapeutic treatments were effective with the parents identified as a key part of the therapy. The relationship between adolescents' behavioral problems and their attachment styles is described by Keskin and Cam[4]. A correlation was found between pathological attachment styles, maladaptive behavioral patterns, and the risk of mental illness (including anxiety, depression, conduct disorders, suicidality, drug use, aggressive and antisocial behavior, attention and hyperactivity disorders, etc.). Interventions that foster a secure attachment are the key for healthy emotional and social childhood development. A limitation of this study was that although 384 adolescent boys and girls aged 11-16 years old completed three types of questionnaires, the study was only conducted in one province in Turkey and cannot be generalized to other populations[4]. The authors promote the nurse as a team member in a position to provide evidence-based interventions to families (biological, foster, or adoptive) with attachment issues[3][4].

Ozcan, Boyacioglu, Enginkaya, Bilgin, and Tomruk[5] described a tragic cycle where mothers with psychiatric disorders who have experienced trauma, develop insecure attachments, and have symptoms that cause them to be inattentive, avoidant, and neglectful of their children. In turn, their children experience parental neglect, trauma, and insecure attachments. The increased awareness of this issue informs psychiatric nurses working with children and adolescents of the need to intervene to decrease the negative impact of the intergenerational transfer of childhood trauma and insecure attachment[5].

The CPG is a well- researched and effective attachment-based trauma informed parent group developed based on the principles and practices of Attachment Theory[6][7] for parents of preteens and teens. CPG is delivered by trained facilitators with backgrounds in psychology, social work, and nursing. The Child and

Adolescent Mental Health Psychiatry Program (CAAMHPP) leadership team elected to train and offer this novel attachment-based group to parents in order to evaluate the efficacy and translatability of CPG to subsequently implement CPG locally beginning in 2008. Although the CPG had been evaluated in British Columbia[2], its effectiveness had not been established locally in Alberta. The CPG in Alberta was first implemented in the hospital-based children's day treatment program and then expanded to other regional mental health services. The goal for this study was to measure the effectiveness of the implementation of the CPG in respect to improving the parent-child relationship when applied within clinical settings.

Method

Study and Design

The research design is a prospective non-randomization observational quality assurance project. Quantitative data were gathered in two ways. Firstly, pre and post surveys of the Parenting Relationship Questionnaires (PRQ)[8] were collected in a sub-sample of the parents participating in the CPG. The sub-sample arose from the accumulation of the voluntarily completed and submitted anonymous PRQ questionnaires. Secondly, standardized clinical assessment and outcome data[9] of enrolled youth whose parents participated in the CPG were compared pre- and post-CPG exposure, as well as to youth whose parents were not exposed to the CPG over the same period of time.

Setting and Training

The Alberta Children's Hospital's (ACH) mental health services operate within the Child and Adolescent Addiction, Mental Health, and Psychiatry Program (CAAMHPP). CAAMHPP is a region-wide program in Calgary, Alberta that provides inpatient and outpatient services to assess and treat the full range of mental health disorders by multi-disciplinary teams for patients and their families. The training and supervision of the CPG for CAAMHPP was provided by the CPG developers. The CPG clinician training model is standardized to facilitate translation in order to maintain the integrity of the program. The CPG group was presented as a free 10-week parent group that ran for 90 minutes once a week in the early evening with supper and childcare provided.

Sample and Procedures

The sample consisted of families who were registered in services within the Child Adolescent Addiction and Mental Health Psychiatry Program (CAAMHPP). The accessible population were parents, stepparents, grandparents, foster parents and other caregivers who were informed of the CPG and chose to participate in the CPG and the accompanying evaluation. The attrition was historically small (1-2 parents of a 10-12 parent group). The self-selecting enrollment procedure includes the parents being informed of the CPG by the family therapist and the parents agreeing to participate in the next available CPG. A referral was then sent to a CPG coordinator to attend a CPG at the site closest to their home. A pre-interview was set up between the parents and the CPG leaders to make introductions, share information about the group, and to sign consent forms to participate in the treatment and the evaluation. Finally, the parents attended the first CPG group session of 10 sessions and brought their completed pre-PRQ to the CPG leaders. The post-PRQ was returned to the CPG leaders upon the final session.

The dependent variable was the data representing the CPG pre/post differences in the 138 PRQ questionnaires completed by parents between 2015 and 2018. Only the 48 questionnaires adequately completed in the fall and winter sessions in 2015 and 2016 were used in the analysis. A psychometrist scored the anonymous raw data from the PRQ using a PRQ software system. The second dependent variable was the comparison of the clinical characteristics of CAAMHPP registrants whose parents were CPG-exposed compared to non-exposed. Approximately 93 patients exposed to the CPG had registrations with discharges in the Regional Access and Intake System (RAIS)[9] both before and after CPG exposure. Ethics approval was not required for this quality assurance project. The CAAMHPP directors and the Connect Steering Committee fully apprised of this quality assurance project to ensure effectiveness of the CPG program. The participating parents were all informed of the evaluation and signed consents in agreement to complete the pre- and post-PRQ. The collected information was kept confidential by removing the parent's name and entering only non-identifying information into an encrypted database and storing the hard copy in a locked filing cabinet at a designated secure site.

Data Source and Instrumentation

Regional Access and Intake System (RAIS): This database, developed in 2002, was used throughout CAAMHPP to keep track of all the referral registrations, admissions, and discharges to the various services in the program. In addition to system data (e.g., readmission rates), the RAIS-embedded baseline and outcome clinical measures (as described below) were also included.

Western Canada Waiting List Child Mental Health Priority Criteria Score (WCWL-CMH PCS): This instrument measured clinical urgency and severity and was demonstrated to be valid and reliable in clinical settings[10][11]. It contains 17 items that sum up a possible range from 1 to 100, where the higher number indicates the greater urgency and severity of the referral. The 17 items in WCWL-CMH-PCS represent independent variables such as age and gender[10][11].

Child Global Assessment Scale (CGAS): The scale ranges from 0 to 100, where the lower numbers indicate poorer functioning, and the higher numbers indicate healthier functioning[12]. This clinician rated scale is a valid and reliable instrument[11] used in clinical settings to measure the function of the child or youth at the time of initial assessment and then again at the time of discharge from care.

Problem Severity Scale (PS): The scale ranges from 1-10 with one representing 'serious problems' and 10 representing 'no problems'. Of note is that the problem severity scale is one component of a full range strength-concern scale where the upper end of the scale contains the strength domain range from the value 11 'no adaptation' to 20 'full adaptation' as a measure of resilience. Taken together, the CGAS and the PS represent what was termed the 'Measurable Treatment Plan'[11]. However, the strength domain was rarely employed as a measure on admission or discharge in CAAMHPP. Hence, the strength domain of the measurable treatment plan was not included as a covariate in this analysis.

Adverse Childhood Experience Survey (ACES): This survey consists of 10 questions related to possible trauma experiences in childhood including neglect, abuse, parental divorce, and the capacity of a parent to meet the child's needs (presence of excessive alcohol/drug use, domestic violence, mental illness, or incarceration). The higher the score, the more adverse childhood experiences were endured by the child[13]. The correlation of ACES to child and adolescent mental health has been well documented[14][15].

Parenting Relationship Questionnaire (PRQ): This questionnaire consists of 71 questions, covering seven items including Attachment, Discipline, Involvement, Parenting Confidence, Satisfaction with School, Relational Frustration, and Communication. The questionnaires are completed by parents as a self-report perspective of their parent-child relationship. It has an internal consistency of.76 to above.80 (.70 is considered good) and test-retest reliability of 0.72 to 0.89. The questionnaire asks questions about common parent child relationship situations and then provides a Likert-type scale including the options of "never, sometimes, often, and always" to respond to the questions. A score of 40 is considered average[8].

Analysis

The clinical and PRQ data were analyzed based on comparing non-overlapping 95% and 80% confidence intervals, respectively. Eighty per cent confidence intervals were employed in the PRQ data unless otherwise reported to control for Type 2 error, given the relatively small sample size.

Results

For participating families there were 93 patients (39% male) having on average 9.7 admissions and discharges (Standard Deviation: 7.7, range 1-55), from a total of 1225 registrations. Over the same period, from the years 2011 to 2017, there were approximately 91,945 registrations for 40,536 patients with an average of 2.28 admissions (Standard Deviation 2.33, range 1-37) whose parents were not registered in the CPG. Of the 93 patients with 1,143 admissions and discharges both before and after CPG exposure, there were on average 6.0 admissions (Standard Deviation 4.8) before and 3.7 admissions (Standard Deviation 4.6) after CPG exposure.

The youth of the parents exposed to the CPG group had a mean age of 11.5 years for males and 12.7 years for females. The CPG served proportionately more female registrations (n= 658) than male registrations (n = 446). The CPG served proportionately more scheduled patients (32%) than urgent/emergency patients (68%). The youth of the parents who were enrolled in the CPG had lower functioning CGAS admission scores (35.1 for males and 28.2 for females) and improved higher functioning CGAS discharge scores (62.2 for males and 65.2 for females). The patients of the parents who attended the CPG had higher ACE scores (3.6/10 for males and 4.53/10 for females) than patients who parents did not attend the CPG (2.81 for males and 3.43 for females). The youth were most often from biological or stepfamilies (49% for males and 60% for females), then from single parent families (27% for males and 22% for females), or from foster/adopted/kinship homes (23% for males and 18% for females).

Table 1 illustrates the comparison of CPG- unexposed and exposed groups based on available discharge-related measured clinical variables for males and females. Exposed males were significantly more urgent (WCWL-CMH-PSC) and had more severe problem severity on admission with significantly poorer admission function (CGAS). Exposed males had significantly more improved problem severity on discharge but were not different on discharge CGAS or ACE total score. Exposed females were significantly more urgent (WCWL-CMH-PSC), had greater on admission problem severity and significantly poorer function (CGAS) on admission, and like males, exposed females had significantly

more improved discharge problem severity, and discharge function (CGAS). Unlike males, exposed females had more severe ACE Total Scores than unexposed females.

Variable	Obs.	Mean	LCI	UCI	Obs.	Mean	LCI	UCI
Unexposed Males to CPG Exposed Males to CPG								
Problem Severity Admission*	26,329	2.57	2.55	2.59	552	1.94	1.84	2.04
Problem Severity Discharge*	25,911	6.87	6.83	6.9	549	7.49	7.34	7.65
Admission CGAS*	37,537	41.11	40.97	41.24	571	34.07	33.29	34.85
Discharge CGAS	37,145	60.12	60	60.24	571	60.9	60.16	61.64
ACE Total Score^{ns}	11,754	2.95	2.91	3	342	3.04	2.8	3.27
WCWL-CMH-PSC*	24,052	39.91	39.72	40.09	372	45.57	44.39	46.75
Unexposed Females to CPG Exposed Females to CPG								
Problem Severity Admission*	34,196	2.59	2.57	2.61	660	1.66	1.57	1.74
Problem Severity Discharge*	33,468	6.71	6.68	6.74	660	7.47	7.32	7.63
Admission CGAS*	45,267	40.47	40.35	40.59	660	29.44	28.54	30.34
Discharge CGAS*	44,739	61.99	61.89	62.09	660	66.05	65.37	66.72
ACE Total Score*	16,926	3.45	3.4	3.49	486	4.46	4.19	4.73
WCWL-CMH-PSC^{ns}	25,617	39.24	39.05	39.42	381	39.03	37.99	40.07

Table 1. Comparison of clinical variables for unexposed and exposed males and females.

*Non-overlapping 95% Confidence Intervals (p <.05); ^{ns} Not significant.

Table 2 compares pre- and post-CPG Parent Relationship Questionnaire (PRQ) scores across various parenting dimensions (Attachment, Communication, Discipline, Involvement, Confidence, School Satisfaction, and Relational Frustration). The only significant decrease representing improvement was in the PQR dimension relational frustration at a p-value of less than.05. The data indicated significant

improvement in 4 more of the seven PRQ dimensions post-intervention at a p-value of less than.10, with particularly strong gains in communication, involvement, and attachment. Decreases in discipline practice are also a noteworthy trend, suggesting that parents felt less stressed and used more positive discipline strategies after attending the CPG. The changes across the parenting dimensions five of the seven domains confirm that CPG is effective in enhancing the parent-child relationship, which is critical for youth development and mental health. Parents experienced less Relational Frustration and demonstrated more positive Discipline practices post-intervention, suggesting a shift toward more supportive parenting techniques. These improvements highlight the effectiveness of CPG in fostering better parental engagement and reducing stress in managing their child's behavioral and emotional challenges.

	Pre-Connect Parent Group					**Post-Connect Parent Group**				
PRQ Items	Obs.	Mean	SE	LCI	UCI	Obs.	Mean	SE	LCI	UCI
Attachment$^{\phi}$	48	40.21	1.41	37.89	41.97	48	44.17	1.34	41.97	46.37
Communication$^{\phi}$	48	37.71	1.6	35.08	40.4	48	42.92	1.53	40.4	45.44
Discipline Practice ^{ns}	48	41.02	1.58	38.42	35.89	45	38.36	1.5	35.89	40.83
Involvement$^{\phi}$	48	40.27	1.1	38.46	42.19	48	44.23	1.24	42.19	46.27
Parenting Confidence$^{\phi}$	48	35.29	1.46	32.89	37.03	48	38.92	1.15	37.03	40.81
School Satisfaction ^{ns}	46	41.04	1.11	39.21	41.71	47	43.77	1.25	41.71	45.83
Relational Frustration*	48	67.48	1.45	64.56	70.4	47	61.02	1.21	58.59	63.46

Table 2. PRQ Results

*Non-overlapping: 95% Confidence Intervals (p <.05); $^{\phi}$90% Confidence Intervals (p <.10) ^{ns} Not significant

In summary of Table 2, the youth of the parents exposed to the CPG were more clinically severe, impaired, and urgent compared to the youth of non-exposed parents. The PRQ results showed statistically significant improvements in the parent child relationships within all seven items. The most

remarkable outcome was a 61% reduction rate of new referrals of the youth whose parents completed the CPG to any other service in this Alberta Child and Adolescent Addiction and Mental Health Psychiatry Program.

Discussion

The main results of this study show that the Connect Parent Group (CPG) intervention had a significant positive impact on both parent-child relationships and clinical outcomes for youth whose parents participated in the program. Youth of CPG-exposed parents had more severe clinical issues at baseline, evidenced by lower CGAS (Child Global Assessment Scale) scores and higher ACE (Adverse Childhood Experience) scores compared to non-exposed youth. Despite the higher severity, the CPG-exposed youth showed significant improvement in their CGAS scores at discharge, nearly matching the outcomes of the non-exposed group. Of greatest significance, there was a 61% reduction in new service referrals for youth whose parents completed the CPG, indicating that the intervention effectively reduced the need for further mental health services.

The main goal of this project was to provide quality assurance that the CPG intervention was effective in its application within CAAMHPP. The two methods of analysis were able to provide evidence that the application of the CPG is an effective intervention within CAAMHPP because of the improvement of 5 of 7 items of the PRQ, and because of the 61% reduction of further referrals to any other CAAMHPP services for the youth whose parents participated in the CPG.

The most comparable study of this kind is from the outcomes of the evaluation in British Columbia (BC) completed by Moretti and Obsuth[2] at the Simon Fraser University to ensure the effectiveness of the CPG in the originating province. Their results show a number of measurable benefits for parents who complete the CPG and their youth. These benefits included: increased understanding of their child and themselves, increased sense of competence as a parent, increased sense of effectiveness as a parent, reduction in caregiver's stress or strain, decrease internalizing problems among youth (e.g. depression and anxiety), decreased externalizing problems among youth (e.g. conduct problems), decrease in aggression between child and parents, and an increase in the child's emotional regulation[2]. These parent child relationship benefits identified in BC are comparable to the parent child relationship results found in Alberta (AB).

The setting of the application of the CPG in both provinces has been varied. The CPG in BC is offered by trained mental health professionals at a provincial residential adolescent mental health center as well as in multiple community centers throughout BC. At the start of the CAAMHPP pilot project the CPG was offered at one site. At the point of most integration, the groups expanded to four sites within CAAMHPP. The data for this study has been provided about patients by parents from all four sites which included an acute adolescent residential program, a children's mental health day treatment program, a specialized tertiary care service, and a community mental health clinic.

The different settings and different program aims may involve patients of differing severity of mental health issues. The BC residential sample focused on patients with aggressive externalizing oppositional and conduct disorder issues and the CAAMHPP sample included both externalizing and internalizing male and female patients. The BC community center youth were clinically less severe, but parents still reported incidents of harm to self or others by their child. CPG run in BC community centers had a parent self-refer process, whereas the BC residential treatment center and AB CAAMHPP services parents were invited into the CPG by a currently involved mental health professional[2]. These differences may interfere with the generalizability of the study.

On the other hand, the CPG evaluation has indicated an overall effective outcome throughout all the settings for patients of lesser or greater severity of mental health issues, which may support generalizability. The question raised from the literature asking if the CPG is a measurably effective intervention in general pediatric psychiatric nursing is, therefore, positive. The need identified by past research for effective interventions to interrupt the trauma cycle is also answered. The CPG leaders (who may be nurses, psychologists, or family therapists) offered an intervention that specifically facilitated the effective parenting skills that have been absent through the generations in families who experience trauma. These adaptive skills include proximity, eye contact, sensitivity, empathy, emotional regulation, and collaboration within the relationship so that the attachment needs of the child can be met, and the trauma cycle can be interrupted[1].

The CPG is standardized, but variance occurs among the CPG trainers, the CPG supervisors, the CPG leaders, the parents in the group, and the youth of the parents in the group. Bias may have occurred due to the referral process and the Hawthorne effect[16]. The parents were selected for the CPG and the parents completed the self-reporting PRQ questionnaires. In this situation the parents were seeking help, choose to be involved in the parent group, and were motivated to do well. These factors may have influenced the parents while they were completing the parenting questions on the PRQ.

It is important to learn from the process of this quality assurance project because the CPG will continue to be evaluated in the future. Suggestions for further PRQ data collection from the psychometrist included ensuring that each parent participant complete only one form about one child (the identified patient in care), and that each parent complete the PRQ forms independently about their child. Suggestions for future data analysis include comparing parents PRQ forms based on the age of the youth, on their relationship to the child (father, mother, stepfather, stepmother, grandparent, etc.), and on the parent's sex. Aswell, to compare the parents PRQ forms based on the site the CPG occurred.

Future considerations of additional characterization data could include more information about the differences of the parents of the youth who did and did not require further services within CAAMHPP, how many service referrals occurred before the intervention of the CPG, and the estimated cost savings for the reduced services after the CPG intervention.

Other changes to be made going forward in the evaluation process to reduce bias include developing a formal referral process with identified criteria for potential participating parents and providing formal documentation to all CPG leaders with consistent guidelines of how to complete consent forms and how to instruct parents in the completion of the PRQ forms. Obtaining a quality assurance coordinator to ensure the data was efficiently captured and organized would also be beneficial.

Another study aspect that would be beneficial is the qualitative experiences of the parents who complete the CPG. Post CPG interviews are always conducted by two neutral interviewers at the end of each CPG, but these responses have not been categorized and analyzed to date. It would be especially valuable to track the families one year after they have completed the CPG and to find out the critical success factors of the families who do not require further CAAMHPP resources after they have completed a CPG.

Overall, this is a highly feasible measurable study that addresses the question of the effectiveness of the CPG with instruments that are sustainable, aims that are manageable, and findings that are translatable and implementable. The greatest benefit of this outcome is that the CPG will serve youth and families clinically. The conclusive significant outcomes of the effectiveness of the CPG promotes the continued efforts to provide this intervention for families.

Limitations

The main limitation of the study was the sample size of the PRQ data (n=48 pre/post surveys) which was marginal given the PRQ contains seven distinct domains of measurement. To address this issue and

empirically identify trends in the data, up to and including 80% confidence intervals ($p < .20$) was employed for making pre/post comparisons within each domain. Further sample size foreclosed on examining sex differences within the exposed group.

Strengths

The strength of the study comes from the design the fact that the routine clinical data collected *via* RAIS[9]. Staff completing the raft of demographic and clinical survey components in RAIS (See Table 1: minimum n>760 in the WCWL survey) were blind to parents' participation in the CPG survey. Additionally, based on these data, the children of parents electing to participate in the CPG were more clinically affected at the point of admission and had greater improvement over the course of treatment, which may be in some measure attributed to the Connect Parent Group, other variables being largely equal.

Conclusion

The study demonstrates that the CPG is a highly effective intervention for parents and their children, especially for families facing severe mental health challenges. The program not only enhances parenting skills and the quality of the parent-child relationship but also leads to significant clinical improvements for the youth. These outcomes are substantial given that the youth with CPG-exposed parents began with more severe issues yet showed marked progress by the end of the intervention. This study supported the continued use and expansion of the CPG within CAAMHPP to be accessible to families for 10 years. The results also provide compelling evidence that CPG can serve as an effective parenting intervention model that could be beneficial in other mental health programs.

The program evaluation completed on the CPG intervention within CAAMHPP is also valuable information for other child and adolescent mental health programs who may be seeking an effective parenting intervention. CPG has evidence-based evaluations that bring confidence in its ability to improve the parent-child relationship as the outcome. The results of this CPG program evaluation within CAAMHPP were presented at the International Association for Child and Adolescent Psychiatry and Allied Professionals (IACAPAP) Congress in Prague, Czech Republic in July 2018, with keen interest expressed of the possible use of the CPG by the attendees in their home countries. During the Covid 19 pandemic, an online version of CPG was developed by the original creators to reach isolated families[17].

Currently, CPG is actively provided in several countries around the world including Canada, US, Mexico, United Kingdom, Sweden, Italy, China, Netherlands, South Africa, Kenya, and Australia[18].

Statements and Declarations

More Information

For more information about the CPG please contact Dr. Marlene Moretti at Moretti@sfu.ca or go to the website at https://www.connectattachmentprograms.org/

Conflicts of interest

The author has no potential conflicts of interest to report.

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Declarations

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