

Promoting Resilience in High-risk Children in Jamaica: A Pilot Study of a Multimodal Intervention

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Abstract

Objective: To assess the effectiveness of a multimodal afterschool and summer intervention called the Dream-A-World (DAW) Project for a cohort of school-aged Jamaican children from an impoverished, disadvantaged inner-city community in Kingston, Jamaica. Children were selected by their teachers based on severe disruptive disorders and academic underachievement and compared with a matched control group. The pilot was a child focused therapeutic modality without parental intervention for disruptive conduct and academic failure. **Method:** A group psychotherapeutic intervention of creative arts therapies and remedial academic support adapted for the Jamaican context was implemented with 30 children from an inner-city primary school. The intervention was implemented over 2½ years spanning grade three to six with evaluation of outcomes using the ASEBA Teacher Report Form (TRF) and end of term grades for the intervention group versus matched controls who were offered usual school supports. **Results:** The intervention group made significant improvements in school social and behavior adjustment measured by the TRF, with more successful outcome amongst boys for behavioral gains. No significant improvements were made by the girls. Limitations of cohort size, lack of parent data and questions of gender disparities in outcome were unresolved interpretative issues. **Conclusion:** This multi-modal health and academic intervention for high-risk children living in an impoverished, violent neighbourhood, improved global functioning of boys more than girls, and raised questions for design of further preventive planning.

Key Words: children, multimodal, social disadvantage, resilience, disruptive disorders

Résumé

Objectif: Évaluer l'efficacité d'une intervention multimodale parascolaire en été, nommée Projet Dream-A-World (DAW, rêver un monde), pour une cohorte d'enfants d'âge scolaire jamaïcains issus d'une communauté pauvre défavorisée du centre-ville de Kingston, en Jamaïque. Les enfants ont été choisis par leurs enseignants en fonction de graves troubles perturbateurs et d'un mauvais rendement scolaire, et comparés avec un groupe témoin apparié. Le pilote était une modalité thérapeutique axée sur les enfants sans intervention parentale pour les conduites perturbatrices et l'échec scolaire. **Méthode:** Une intervention psychothérapeutique de groupe basée sur des thérapies d'activités créatrices et un soutien de redressement scolaire, adaptée au contexte jamaïcain, a été mise en œuvre auprès de 30 enfants d'une école primaire du centre-ville. L'intervention a duré plus de 2,5 ans et a été appliquée de la 3^e à la 6^e année. Les résultats ont été évalués à l'aide du formulaire d'évaluation des enseignants (FEE) ASEBA et des notes de fin de session pour le groupe de l'intervention contre les groupes témoins appariés à qui des soutiens scolaires usuels ont été offerts. **Résultats:** Le groupe de l'intervention s'est amélioré significativement en ce qui concerne le redressement scolaire social et comportemental mesuré par le FEE, les résultats étant plus réussis chez les garçons pour ce qui est des améliorations du comportement. Aucune amélioration significative n'a été observée chez les filles. Les limitations de la taille de cohorte, l'absence de données des parents et les questions de disparité des résultats selon le sexe sont demeurées des questions interprétatives non résolues. **Conclusion:** Cette intervention multimodale et théorique en santé mentale, destinée aux enfants à risque élevé vivant dans un quartier défavorisé violent, améliorerait le fonctionnement général davantage chez les garçons que chez les filles, et soulevait des questions quant à la méthode de futures planifications préventives.

Mots clés: enfants, multimodal, désavantage social, résilience, troubles perturbateurs

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Introduction

This Jamaican pilot project was a university and school action research partnership focused on high risk school-aged children, within a severely disadvantaged inner-city area documented for high rates of school dropout, crime, early pregnancy, poverty, unemployment and gang violence as significant longstanding social stressors (Leslie, 2010; Social Development Commission, 2009). The literature notes that low socioeconomic related risk factors in childhood increase the likelihood that these children will have higher rates of externalizing behavior disorders, poor social skills and educational underachievement with delays in school readiness (Gupta, de Wit, & McKeown, 2007; Webster-Stratton & Reid, 2010). Furthermore, disruptive symptoms in early childhood are found unlikely to change without therapeutic intervention and are prodromal signs of long term mental health problems and poorer outcomes, particularly after age eight years (Domitrovich & Greenberg, 2003; Esser, Schmidt, & Woerner, 1989). The challenge then for regions in conflict or adversity is providing mental health interventions with scarce resources to promote school achievement and global social functioning. Recommended multimodal interventions for these high risk populations often involve intensive family and psychosocial intervention for extended periods (Glisson et al., 2010), and social and intragenerational family stressors remain more difficult to rectify than direct intervention with the children (Tremblay et al., 1992).

A variety of creative arts programs including music therapy, art, role playing, drama and sociodrama, have been added to school curriculums for children integrating educational and mental health programs (Rousseau & Guzder, 2008), with the aim of improving behavioral and educational outcomes. Programs based solely in creative arts promote children's development of social skills, capacity for trust and social reciprocity with peers and teachers, increase resilience and reduce internalizing and externalizing behaviors by improving academic skills, communication skills and social problem-solving (Gold, Voracek, & Wigram, 2004; Hunter, 2005; McLennan & Smith, 2007). Long term benefits of early school intervention offer a foundation of non-aggressive skills and promotion of intellectual development (Huesmann, Eron, & Yarmel, 1987).

Cultural Therapies in Jamaica

The aim of this study was to provide an inner-city Jamaican primary school cohort of children exhibiting behavioral and academic problems with economically feasible interventions promoting social adaptation and resilience. With concerns expressed by the school's principal about limited resources, violence and difficulty with parental participation, the intervention was designed to be child focused and address school-related social and academic skills. It was implemented over 2½ years and assessed for its effectiveness in reducing the children's behavioral problems

and improving their academic performance using culturally syntonetic therapeutic modalities. The 'Dream-a-World' (DAW) multimodal intervention (Hickling, 2007) was adapted from 1970's Jamaican adult group psychotherapy with cultural activities such as story-telling, poetry, music, dance, and theatre, as a de-institutionalization intervention to stimulate therapeutic change in asylum cohorts (Hickling, 1989; 2004).

Method

Participants

Teachers at the school selected the study cohort of thirty black Jamaican, eight to nine year-old students who had just completed grade three, and were identified as being at-risk based on their poor academic performance and motivation to learn, and behavioral problems. The teachers also selected a control cohort of thirty (30) black Jamaican students matched exactly for age and gender, and closely for functioning (non-blind design).

The Intervention Team

Tutoring was done by teachers from the school, while the cultural therapy workshops were guided by artists - a female visual artist, two male musicians and a female dance choreographer - and two master's level clinical psychologists. Weekly supervisory sessions were held between the psychologists and a psychiatrist to discuss issues relevant to the intervention.

Measures

The ASEBA (Achenbach System of Empirically Based Assessment) Teacher Report Form (TRF) (Achenbach & Rescorla, 2001) was used to evaluate behavior changes at baseline and end of the intervention. Changes in academic performance were measured using the children's grades for language art, mathematics, science, and social studies, obtained at the end of each academic year.

Procedure

Following approval by the Ethics Committee of the Faculty of Medical Sciences of the University of the West Indies, parents of all the children provided written informed consent granting the researchers access to grade sheets and behavior ratings from the teachers, and to conduct and videotape the Cultural Therapy workshops.

Students in the study group attended the workshops over 2½ years (June 2006 - December 2008). Approximately 204 contact hours were provided through: three 40-hour summer workshops; seven semesters of an afterschool program; and, three field trips. The control cohort attended the regular school program only.

The summer workshops consisted of three components, provided four days a week for three weeks: a meal together;

academic tutoring with basic computer skills; and, cultural therapy. Each day began with breakfast, which was followed by two hours of language arts and mathematics tutoring. The children worked in groups of eight under the supervision of three teachers at the school. The children then walked with escorts to the research centre (five minutes from the school) for cultural therapy sessions, which included a 45 minute creative arts and guided discussion session, a one hour lunch and free play period, followed by another creative arts and discussion session for 1½ hours. Each summer workshop culminated with a 15 minute performance staged by the children at a church within their school community, for an audience of parents, teachers, community members, staff and students from the local university, and media representatives.

The cultural therapy component - not including the academic tutoring - was continued on a fortnightly basis during the school semesters as 'refuelling' sessions. These sessions included a meal and two hours of creative arts therapies, building on the "Dream-a-World" theme developed in the first summer workshop. The intervention was discontinued in December 2008 to allow the students to attend tutoring focused on their Grade Six Achievement Test scheduled for March 2009.

The Cultural Therapy Component

This component combined group therapy with creative arts (art, drama, dance, and music). At the outset, the study group children were provided with picture identification tags which they wore at the research centre. Discussions with the children were facilitated by the project coordinator/psychologists in a large group circle, with the aim of validating their competencies and facilitating collective sharing and reflection, building social skills, empathy, identity formation, self-esteem, negotiation skills, and understanding of their social and school realities. The children were asked to imagine a new world on another planet, name it and conceive its inhabitants, decide what to take or eliminate from their known world to this new one, how they would look and what role they would play in governing the new world. They worked with a facilitator in groups of six to record this information, including all ideas regardless of peer consensus. The artists assisted the children with various art projects, taught them to play musical instruments, compose songs, poems and dances about their new world. These performance songs, dances and script were refined and performed over the 2½ years of the project.

Data Collection

Despite four attempts to meet the parents through requests from the school, minimal attendance and participation resulted in the exclusion of ASEBA CBCL parent ratings from the analysis. Teachers having the most contact with the 60 students completed ASEBA TRF ratings at the start and end of the cultural therapy intervention. The children's

grade three end-of-year results were used as baseline academic performance which was compared with end-of-year grades in 2007, 2008, and 2009.

Data Analysis

Independent and paired samples *t*-test analyses were conducted using the Statistical Package for the Social Sciences (SPSS version 17) at the $p \leq .05$ significance level to identify differences between the study and control groups on TRF scores at the start and end of intervention. Stata/IC version 11.2 for Windows was used to assess each language, mathematics, science, social studies scores separately then, single between-subjects factor ANOVA design was used to assess scores of the students nested within experimental groups (study and control) over four assessment times, with these assessment times representing repeated measures on each student.

Results

There were 17 (57%) boys and 13 (43%) girls in each group, with a mean age of 9.1 years (SD = 0.41) at the start of the program.

Behavioral Changes

Analysis of TRF scores found no behavioral differences between the two groups at the start of the program ($p > .05$). By the end of the intervention, the study group children had significantly lower scores for aggressive behaviors ($t(58) = -2.18, p = .033$), attention-deficit/hyperactivity problems ($t(58) = -2.16, p = .035$) and oppositional defiant behavior ($t(58) = -2.27, p = .027$). This was supported by significant within-group improvements in ratings of aggressive behaviors, oppositional defiant problems, social problems, conduct problems, academic performance and learning (see Table 1). There were no significant within-group changes for the control group.

There were no significant between-group gender differences in behavior ratings for either group at the start or end of the intervention. However, within-group improvements in teacher ratings were found for the study group boys on their academic performance, learning, and behaving, rule-breaking behavior, aggressive behavior, oppositional defiant problems and conduct problems (see Table 2). There were no significant within-group changes for the boys in the control group.

There were no behavioral differences between the study group boys and the girls at the start of the intervention, but by the end the boys received significantly better teacher ratings of their academic performance ($t(27) = 2.35, p = .026$), ability to work hard ($t(25) = 2.49, p = .019$), their behavior ($t(25) = 2.65, p = .014$), and affective ($t(28) = -2.11, p = .044$) and somatic problems ($t(28) = -2.04, p = .051$). In fact, ratings of affective behaviors worsened for the girls.

Table 1. Paired samples <i>t</i> -test of TRF for the study and control groups						
ASBEA (TRF) Scale	Study group			Control group		
	2006 Mean (SD)	2009 Mean (SD)	<i>t</i>	2006 Mean (SD)	2009 Mean (SD)	<i>t</i>
Adaptive Functioning Scale						
Academic performance	37.88 (4.1)	42.04 (9.6)	-3.12**	39.59 (6.4)	41.52 (8.3)	-1.45
Learning	39.19 (4.6)	41.58 (6.8)	-2.24*	40.67 (5.6)	42.88 (7.9)	-1.80
Syndrome Scale						
Social problems	56.43 (7.1)	53.50 (5.8)	2.18*	57.75 (8.6)	56.24 (6.8)	1.22
Aggressive behavior	57.80 (10.0)	53.83 (5.9)	2.51*	59.34 (9.7)	57.31 (7.9)	1.44
Externalizing problems	56.30 (11.3)	50.90 (11.1)	3.32**	57.76 (12.1)	54.9 (11.5)	1.44
DSM-Oriented Scale						
Oppositional defiant problems	58.50 (9.4)	55.03 (7.5)	2.13*	58.55 (14.4)	59.62 (9.7)	-0.39
Conduct problems	59.57 (11.3)	56.53 (7.4)	2.07*	61.07 (11.8)	58.34 (9.3)	1.67
TRF = Teacher Report Form						
* <i>p</i> <.05, ** <i>p</i> <.01						

Table 2. Paired samples <i>t</i> -test of TRF scores for boys						
ASBEA (TRF) Scale	Study group			Control group		
	2006 Mean (SD)	2009 Mean (SD)	<i>t</i>	2006 Mean (SD)	2009 Mean (SD)	<i>t</i>
Adaptive Functioning Scale						
Academic performance	38.25 (3.7)	45.06 (10.8)	-3.52**	40.33 (7.5)	41.26 (7.9)	-0.46
Behaving	46.73 (9.1)	50.07 (7.1)	-2.23*	47.85 (7.8)	50.08 (8.8)	-0.88
Learning	39.87 (4.8)	43.33 (7.6)	-2.22*	41.62 (5.4)	44.77 (9.2)	-1.44
Syndrome Scale						
Rule-breaking behavior	58.00 (8.8)	55.53 (8.4)	2.40*	55.31 (7.3)	53.81 (5.3)	0.85
Aggressive behavior	58.59 (12.0)	52.71 (5.1)	2.63*	56.06 (8.4)	53.81 (5.8)	-1.11
Externalizing problems	55.76 (13.0)	48.18 (10.6)	3.72**	52.62 (11.3)	50.00 (9.7)	0.82
DSM-Oriented Scale						
Oppositional defiant problems	58.24 (10.5)	53.06 (6.2)	2.17*	56.50 (8.7)	55.56 (6.8)	0.46
Conduct problems	60.06 (13.3)	55.35 (7.9)	2.43*	56.75 (9.3)	53.63 (6.1)	1.48
TRF = Teacher Report Form						
* <i>p</i> <.05, ** <i>p</i> <.01						

Changes in Academic Performance

There were no significant between-group differences in overall academic performance over the years 2006-2009, as both groups generally improved at a similar rate. Within the study group, the *F* statistic found strong evidence of differences in the mean of language scores across the four assessment times, $F(3, 27) = 6.17$, $MSE = 7.78$, $p = .0015$. This was not the case for the control group, $F(3, 25) = 0.84$, $MSE = 7.84$, $p = .4820$. Post-hoc regression estimates for the study group showed regression coefficients relative to the final testing in 2009 to be significantly less in 2006 and 2008 suggesting improvements in scores over the four-year period, although it was not significant in 2007. Post-hoc regression coefficients for the control group were non-significant consistent with the overall *F*-test in the ANOVA.

Similar *F* statistic and post-hoc regression coefficient results were also found for social studies (study group, $F(3, 27) = 6.71$, $MSE = 13.25$, $p = .0009$; control group $F(3, 25) = 1.37$, $MSE = 17.62$, $p = .2689$).

Mean differences in mathematics (study $F(3, 27) = 10.35$, $MSE = 10.37$, $p < .001$; control $F(3, 25) = 6.48$, $MSE = 9.89$, $p = .0015$) and science scores (study, $F(3, 27) = 7.69$, $MSE = 11.88$, $p = .0004$; control, $F(3, 25) = 8.60$, $MSE = 11.19$, $p = .0002$) were found for both groups across the four assessment times. Post-hoc regression coefficients were all negative and borderline to highly significant for each test year relative to final testing in 2009. Similar results were also found for scores in science with post-hoc regression coefficients, that were all negative and highly significant for

2006 and 2008 and borderline significant for 2007 relative to final testing in 2009.

The significant difference in overall average language arts ($p = 0.0028$), science ($p < .001$), mathematics ($p < .001$), and social studies ($p = 0.0018$) scores across the four assessment times was likely influenced by the significant difference seen in the study group. However, post-hoc regression coefficients relative to final testing in 2009 were not significant in 2006, 2007 or 2008 suggesting that group assignment, both overall and for each assessment time, did not contribute significantly to the variability in academic scores.

A third model which added gender effects revealed no significant contribution from gender to the variability of any of the four component scores.

Discussion

The objective of this evidence-based study was to identify whether the DAW multimodal cultural therapy intervention would influence capacity for self-control, pro-social behaviors (Moffit et al., 2010) and academic performance of high-risk children from an inner city community in Kingston, Jamaica. Significant changes in the behavior of the study group children were found, with overall improvements in teacher ratings of their aggressive, oppositional defiant behavior and attention-deficit/hyperactivity problems as compared to the control group. This was supported by significant within-group improvements in ratings of aggressive, oppositional defiant behavior, social problems and conduct problems. Teachers' assessments of the study groups' academic performance and learning were also significantly improved. Improvements in teacher ratings were significant for boys whereas girls only improved marginally.

The intervention was not successful in producing significant gains in academic performance of the study group when compared to the control group. It is likely that limitation of academic tutoring to the summer workshops minimized the gains that could have been achieved if consistently maintained. Furthermore, positive outcomes reported to the school at the end of the first workshop supported incentives within the school for provision of additional literacy support to all students. This increase in academic support may explain the uniform increase in academic performance for both the study and control groups, which may be a limitation of outcome assessment.

Behavioral improvements of the study group are consistent with research identifying the positive impact that multimodal and art therapies have on behavior (Hunter, 2005). The cultural therapy intervention provided the children with a safe space for dialogue through the guided group discussions or art media to reflect on their current life circumstances, relationships and behaviors, supporting validation, positive reinforcement, self-expression, structure and social skills. The team acted as a stable support system for the

children, with positive interactions and teachers were exposed to a mental health team.

Supervised care outside of the home provides supportive, stable, and nurturing relationships at the critical developmental periods, fostering positive cognitive and behavioral development and is a protective strategy where parents are stressed, absent or unavailable (National Research Council and Institute of Medicine, 2000). The significant finding in this study is the positive behavior changes without parent involvement, since this an area of high crime and disrupted attachment (Leslie, 2010; Social Development Commission, 2009). In poverty settings with overburdened or absent parents who may be unavailable or reluctant to participate, this study indicates a multimodal program can be useful to not only effect behavioral change in children but also to engage their parent.

In Jamaica, a large percentage of families consist mainly of mothers as sole caregivers, with little or no involvement from male parental figures (Meeks-Gardener, Powell, & Grantham-McGregor, 2007). It is possible that through their daily interactions with the children, the male mentors in this intervention played an integral supportive role for the boys. The mentor may have provided an important developmental element and could have contributed to better behaviour gains of boys.

Through the multimodal cultural therapy intervention, boys and girls were given the opportunities for learning and self-exploration that are likely to not have been otherwise available. However, the greater improvement in the behaviors of the boys as compared to girls raises unanswered questions. Further studies need to look at the early impact of gender on development divergences (Cote, Tremblay, Nagin, & Zoccolillo, 2002; Schaeffer et al., 2006). The implementation of multimodal programs for high risk childhood may enhance social and emotional development are crucial to supporting linguistic and cognitive competence and fostering resilience to alter the impact of environmental disadvantage (National Research Council and Institute of Medicine, 2000).

Conclusions

This multimodal cultural therapy intervention provided high-risk children with both traditional and alternative learning opportunities by pairing academic tutoring and cultural activities, with improvements in behaviors and literacy of high risk children particularly benefitting boys in this cohort. Though it is suggested that interventions should target children by the critical age of five years (National Research Council and Institute of Medicine, 2000), this multimodal cultural therapy intervention targeted children of eight to nine years who were seen as high-risk for failing the academic divergence of high school. It is possible that the implementation of multimodal interventions at an earlier age or with separate gender cohorts might result in more salient changes for both genders.

Limitations of the study

The inclusion of parent behavior ratings and more information on familial risk and protective factors, would have informed the findings by identifying etiological factors and behavior changes across environments. The collection of both sets of teacher ratings at the end of the intervention introduced significant bias both in the accurate recall of the children's behaviors and lack of double blind design. Ideally ratings should have been provided at the start of the program and at the end.

Acknowledgements / Conflicts of Interest

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