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## A randomized-control trial for the teachers' diploma programme on psychosocial care, support and protection in Zambian government primary schools

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### ABSTRACT

Orphaned and vulnerable children (OVC) experience poverty, stigma, and abuse resulting in poor physical, emotional, and psychological outcomes. The Teachers' Diploma Programme on Psychosocial Care, Support, and Protection is a child-centered 15-month long-distance learning program focused on providing teachers with the knowledge and skills to enhance their school environments, foster psychosocial support, and facilitate school-community relationships. A randomized controlled trial was implemented in 2013–2014. Both teachers ( $n=325$ ) and students ( $n=1378$ ) were assessed at baseline and 15-months post-intervention from randomly assigned primary schools in Lusaka and Eastern Provinces, Zambia. Multilevel linear mixed models (MLM) indicate positive significant changes for intervention teachers on outcomes related to self-care, teaching resources, safety, social support, and gender equity. Positive outcomes for intervention students related to future orientation, respect, support, safety, sexual abuse, and bullying. Outcomes support the hypothesis that teachers and students benefit from a program designed to enhance teachers' psychosocial skills and knowledge.

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Sub-Saharan Africa; orphaned and vulnerable children; psychosocial support; randomized controlled trial; schooling and education

## Introduction

Globally, over 20 million children have been orphaned by AIDS including nearly 700,000 children in Zambia (AVERT, 2012). Literature suggests complex interactions between multiple stressors including children's exposure to poverty, violence, and familial HIV/AIDS (Cluver et al., 2013; Cluver, Boyes, Orkin, & Sherr, 2013; Kaljee & Stanton, 2015; Orkin, Boyes, & Cluver, 2014). These orphaned and vulnerable children (OVC) can experience stigma and discrimination, psychological distress, poor educational outcomes, and increased

risk of chronic and infectious diseases including HIV and other sexually transmitted infections (Birdthistle et al., 2008; Chi & Li, 2013; Kirkpatrick, Rojjanasrirat, South, Sindt, & Williams, 2012; Oettgen & Mathur, 2015; Pascoe et al., 2010; Poirrojkul, n.d.; Skinner et al., 2006; Zhao et al., 2009). However, evidence indicates negative outcomes among some OVC can be ameliorated through protective factors such as social support and implementation of policies and programs designed to increase access to healthcare, education, and psychosocial support networks (Lee et al., 2014; Wang et al., 2012).

Areas of on-going concern in sub-Saharan Africa are OVCs' lack of access to education, intermittent school attendance, and high drop-out rates. The Situation Analysis of Orphans and Other Vulnerable Children and Youth in Southern Africa found that although access to school has improved, a number of barriers remain (Strategic Framework & Programme Action, 2008–2015). Children and youth interviewed for this situation analysis prioritized education and identified education as key to their psychosocial health and long-term success. Literature suggests a range of factors associated with school attendance and other educational indicators in Africa including food-insecurity, violence and sexual abuse against girls, corporal punishment, caring for sick relatives, teenage pregnancy and early marriage (Buguy, Ndugwa, & Kabiru, 2013; Devries et al., 2013; Kunnuji & Esiet, 2015; Marston, Beguy, Kabiru, & Cleland, 2013; Zhang et al., 2009).

Psychosocial support addresses physical, economic, educational, health and social needs and builds internal and external resources to help children and their families cope with adversity. While all children need psychosocial support, children who have experienced traumatic events may need additional support (Maughan-Brown & Spaul, 2014). For many of these children, responsibilities such as caregiving and supporting other household members can be emotionally and physically demanding and result in insufficient time to attend to school requirements (Becker, 2007; Zhang et al., 2009). However, scientific evidence suggests that children and adolescents can be resilient. Factors associated with resiliency among children affected by HIV/AIDS include good physical health, better caregiving quality, food security, better peer relationships and less exposure to violence, bullying, and stigma. (Collishaw, Gardner, Lawrence Aber, & Cluver, 2015; Hong et al., 2010)

In 2009, a systematic review of interventions to improve the psychosocial well-being of children affected by HIV/AIDS found no evidence of rigorous monitoring or evaluation studies within the literature. (King, De Silva, Stein, & Patel, 2009) More recently, evaluations of family-based economic and psychosocial programs indicate positive impact on the well-being and educational attainment of OVC (Ssewamala, Nabunya, Ilic, Mukasa, & Ddamulira, 2015; Eloff et al., 2014). Other interventions have focused on keeping OVC in school through both financial (e.g. providing school fees) and social support (Cho et al., 2011).

Limited attention has been paid to the potential of teachers to provide needed psychosocial support for OVC within the contexts of their school environments. In response to this need, Regional Psychosocial Support Initiative (REPSSI) designed the Teachers' Diploma Programme on Psychosocial Care, Support, and Protection (hereafter referred to as Teachers' Diploma Programme). As part of the Teachers' Diploma Programme roll out in Zambia, REPSSI conducted a wait-listed randomized controlled trial (RCT) to assess impact on both participating teachers and their students. In this paper, we present longitudinal quantitative data to assess hypothesized positive outcomes of the Teachers' Diploma Programme on teachers' and students' perceived psychosocial well-being, skills and performance, school environments, and interpersonal relationships.

## The teachers' diploma programme framework and implementation

The 15-month six module Teachers' Diploma Programme is designed as situated supported distance learning. The program is 'situated' in that the teachers do not need to leave their communities and current teaching positions to participate. The program is 'supported' through monthly Community of Practice meetings, whereby teachers in the program meet to review and discuss program content. 'Distance learning' refers to the role of Zambian teachers' colleges assessment of participants assignments.

The Teachers' Diploma Programme materials were developed by REPSSI in collaboration with MiET and the Children's Institute at the University of Cape Town with feedback from teachers and members of the Ministry of Education guidance and counselling departments from Swaziland, Tanzania, Zambia, and Zimbabwe.

The Teachers' Diploma Programme defines psychosocial as the relationship, influence and interaction between the psychological and social aspects of individuals' lives. The psychological components include cognitive, emotional and spiritual factors while the social components include interpersonal relationships as well as the broader social environment. Module topics include: (1) understanding the importance of self-care and teachers' own psychosocial well-being; (2) enhancing psychosocial support skills and use of those skills to improve student well-being; (3) enriching and creating a safe and equitable school environment; and (4) developing stronger and more positive interschool (e.g. teacher-student, teacher-teacher), school-family, and school-community relationships.

Beginning in 2013, the Teachers' Diploma Programme was implemented in six districts within three Zambian provinces (Eastern, Western, and Lusaka). These sites were selected by the Ministry of Education, Science, Vocational Training, and Early Education based on high prevalence rates of HIV. Participation by a school required selection of two to four teachers to enroll in the Teachers' Diploma Programme with the end goal of enrolling 1000 teachers by 2015.

## Methods

### *Research sites and populations*

As part of program implementation, a waitlisted randomized-controlled trial (RCT) was conducted to assess impact for both teachers and students. The RCT was conducted in four districts in Lusaka Province (Kafue and Luangwa districts) and Eastern Province (Katete and Lundazi districts). Within the four districts there were a total of 47 school zones which were randomly assigned as 'intervention' or 'waitlisted'. Research populations included: (1) students in the 3rd and 4th grades (at baseline) in government primary schools within Kafue and Katete districts; and (2) teachers in primary government schools within the four study districts.

### *Randomization procedures for teachers and students*

All teachers in the intervention zones within the four study districts were invited to participate in the RCT. Control teachers were randomly selected from waitlisted zones in Katete and Kafue Districts.

Intervention schools in Katete and Kafue Districts were identified which had 3rd and/ or 4th grade teachers in the Teachers' Diploma Programme. A total of 20 intervention

schools meeting these criteria were identified and students in the 3rd and/or 4th grade classes in 2013 were randomly selected from class registers. As the program is designed to encourage changes within the *whole school*, students in all 3rd and 4th grade classes were selected to participate. In 20 schools in the zones waitlisted for the programme, 3rd and 4th grade students were randomly selected from class registers to participate in the RCT as ‘control’ students.

### **Data collection for teachers and students**

All participating teachers completed paper-pencil self-administered evaluation assessments. Student data were collected on programmed tablets during face-to-face interviews with trained enumerators. Surveys were available in English, Nyanja, and Chewa. Teachers and students were assigned a unique identification number to allow for matching of baseline and post-intervention data sets. Baseline data was collected between January and March 2013 and post-intervention data between May and July 2014.

### **Outcome measures**

The outcome measures for both teachers and students were based on primary tenets of the curriculum including teachers’ well-being, development and employment of psychosocial support skills, creating a safe and equitable school environment, and enhancing positive relationships within the school and community. Student scales were also matched to the Teachers’ Diploma Programme tenets and adapted from studies of OVC in other socio-cultural settings (Table 1) (Rosenberg, 1965; Tu et al., 2009; Whitaker, Miller, & Clark, 2000; Zimet, Dahlem, Zimet, & Farley, 1988).

### **Data management and analysis**

Variables were created for multi-item scales and rescored in order that all hypothesized changes occurred in a positive direction. Ranges and data consistency checks were conducted to screen for missing cases, outliers, and normality of distributions. Descriptive statistics were performed for frequency distribution of demographic characteristics at baseline. Bivariate analysis included: (1) chi-square tests and student *t*-tests to determine statistical differences in demographic characteristics between control and intervention groups at baseline; and, (2) student *t*-tests to assess significant mean differences in outcome scores between baseline and post-intervention groups by intervention condition.

Since these data are hierarchical (e.g. analytical units include students and schools) and longitudinal, VARSTOCASES command in SPSS was used to restructure the repeated variables and multilevel linear mixed effect model (MLM) procedures were performed. For the student outcomes model, students’ age, gender, intervention assignment, time of data collection, and the interaction of time with intervention assignment were assessed simultaneously. For the teachers’ model, teachers’ age, gender, education, intervention assignment, time of data collection and the interaction of time with intervention assignment were assessed. MLM effect model variables included those with *p*-value <.10 in the bivariate analysis. All statistical analyses were performed using SPSS 21.0 for Windows.

**Table 1.** Teacher and student assessment scales' characteristics.

Teachers' Diploma Programme	Teacher Assessment Scales			Student Assessment Scales		
	Scale	#Items/Range	alpha	Scale	#Items/Range	alpha
Teachers' PS well-being	'Self care' (emotional)	4/0–12	.51	No scales on teachers' PS well-being for students		
	'Self care' (physical)	5/0–15	.39			
	'Self care' (psychological)	6/0–18	.52			
	'Self care' (social)	3/0–9	.59			
	Positive feeling about teaching	9/0–27	.72			
Teachers' Engagement in Psychosocial Support & Students' PS well-being	'Self efficacy' (school environment)	7/0–21	.77	Self-esteem	4/0–8	.36
	'Self efficacy' (child's well-being)	7/0–21	.66	Emotional literacy	14/0–28	.50
School Environment (safety and equity)	'Self efficacy' (community engagement)	10/0–30	.86	Self-assessment (school performance)	6/0–12	.71
	Use of resources	5/0–5	.63	Perceived social support	9/0–18	.71
	Teaching approaches	4/0–12	.53	Future orientation-1	6/0–12	.52
	Providing psychosocial support	11/0–11	.83	Future orientation-2	3/0–6	.64
	Providing HIV support	7/0–7	.57			
	Classroom safety	4/0–4	.47	Perceived respect	3/0–6	.62
	School safety	8/0–8	.69	School safety	5/0–10	.81
Relationships	School physical environment	8/0–8	.68	School physical environment	6/0–12	.58
	Observed bullying (classroom)	8/0–24	.88	Being bullied (physical)	9/9–27	.62
	Observed bullying (school)	5/0–15	.85	Being bullied (emotional)	6/6–18	.78
	Actions to stop bullying	14/0–42	.62	Bullying others (physical)	3/3–9	.56
	Gender equity (girls)	6/0–18	.74	Bullying others (emotional)	6/6–18	.70
	Gender equity (boys)	6/0–18	.72	Gender equity	6/0–6	.38
	Equitable school environment	5/0–15	.70	Response to sexual abuse	5/0–5	.64
Relationships	Interschool relations (teacher–teacher; teacher student; teacher–caregiver)	13/0–39	.88	Student–teacher relationship	13/0–26	.51
	Perceived school support	5/0–5	.42	Caregiver school involvement	6/0–6	.60
	Teacher–caregiver relationship	9/0–18	.76			
	School–caregiver relationship	10/0–30	.86			

### Research ethics

This study was approved by the Social Sciences Ethics Board at the University of Zambia and the Institutional Review Board at Wayne State University. Teachers provided written informed consent. Students provided verbal assent following parents' written informed consent.

## Results

### Demographics

A total of 583 teachers and 2168 teachers were randomly selected to participate in the RCT. Overall, 447 teachers and 1792 students completed base line surveys for response rates of 76.7% and 82.7% respectively. At follow up, data was collected from 325 teachers (72.7%)

**Table 2.** Baseline demographics of participants (teachers and students).

		Total	Control	Intervention
Teachers ( <i>N</i> = 447)	Gender (Female)	48.9% (218)	59.9% (109)	41.3%***
	Mean age	36.0 (SD 7.3)	35.9 (SD 7.9)	36.2 (SD 6.8)
	Years teaching (current position)	4.7 (SD 4.6)	5.2 (SD 5.2)	4.4 (SD 4.2)
	Education- Grade 9–12	79.4% (331)	89.9% (142)	73.0% (189)***
	Education- GCE 'A' Level	9.6% (40)	10.1% (16)	9.3% (24)
Students ( <i>N</i> = 1792)	Education Certificate/Diploma	11.0% (46)	0	17.8% (46)
	Gender (Female)	55.8% (1000)	52.4% (327)	57.6% (673)*
	Mean age	10.9 (2.0)	10.6 (2.1)	11.0 (1.9)***
	Grade (3rd)	49.2% (881)	51.6% (322)	47.9% (559)
	Orphaned	9.9% (178)	10.7% (67)	9.5% (111)

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

and 1378 students (76.9%). At baseline, there were more female teacher respondents in the control group and intervention teachers had completed a higher education level. For students at baseline, intervention respondents were older and more likely female (Table 2).

### **Program Impact for Teachers**

Between baseline and post-intervention, independent *t*-tests on mean differences indicate significantly greater positive changes for intervention teachers on seven outcomes scales including self-care emotional ( $p = .008$ ), use of resources ( $p = .021$ ), teaching approaches ( $p = .002$ ), classroom safety ( $p = .002$ ), school safety ( $p < .001$ ), school physical environment ( $p = .010$ ) and perceived school support within the school ( $p = .005$ ) (Table 3). Conduct of a MLM effect model with teachers' data eliminated 'teaching approaches' as a significant outcome but gender equity for boys and girls were significant. These analysis also indicate scales for 'self-efficacy for children's well-being' and 'engagement in actions to stop bullying' positively increased more for control teachers than for intervention teachers (Table 4).

### **Program impact for students**

Between baseline and post-intervention, independent *t*-tests on mean differences indicate significantly greater positive change for intervention students compared to control for future orientation-1 ( $p < .001$ ), perceived respect in schools ( $p = .031$ ), school safety ( $p < .001$ ), school physical environment ( $p = .003$ ), physically bullying others ( $p = .007$ ), emotionally bullying other ( $p < .001$ ), and students' ability to seek help and respond to sexual abuse ( $p = .008$ ). Perceived social support within schools was marginally significantly greater ( $p = .051$ ) at post intervention for intervention students (Table 3). These outcomes are supported through the multi-level linear mixed model simultaneous assessment of time with intervention assignment assessment (see Table 4).

## **Discussion**

In recent years, increasing evidence has indicated that providing community-based programs and social support to children is a vital component of increasing resilience and decreasing negative sequelae associated with orphanhood, parental illness and disability, and poverty (Eloff et al., 2014; Ssewamala et al., 2015). In sub-Saharan Africa, school attendance,

**Table 3.** Teacher and student mean scores (standard deviations) at baseline and post-intervention by condition with *p* values comparing mean differences between baseline and post-intervention for control and intervention groups (independent student *t*-tests).

Teacher data	Scale	Baseline		Post-intervention	
		Control	Intervention	Control	Intervention
Teachers' PS well-being	'Self care' (emotional)	<b>8.1 (SD 2.2)</b>	<b>7.5 (SD 2.1)</b>	<b>8.2 (SD 2.0)</b>	<b>8.7 (SD 2.2)<sup>b</sup></b>
	'Self care' (physical)	10.3 (SD 2.3)	10.2 (SD 2.0)	10.8 (SD 2.1)	11.0 (SD 2.1)
	'Self care' (psychological)	11.4 (SD 3.0)	11.9 (SD 2.5)	12.1 (SD 2.5)	11.4 (SD 3.3)
Teachers' engagement in psychosocial support & students' PS well-being	'Self care' (social)	7.0 (SD 1.7)	7.2 (SD 1.6)	7.4 (SD 1.2)	7.6 (SD 1.4)
	Positive feelings about teaching	22.0 (SD 4.4)	22.6 (SD 3.5)	22.7 (SD 3.1)	23.6 (SD 3.3)
	'Self efficacy' (school environment)	18.4 (SD 3.1)	19.3 (SD 2.1)	19.3 (SD 2.1)	19.5 (SD 1.9)
	'Self efficacy' (child's well-being)	19.5 (SD 2.0)	19.8 (SD 1.7)	20.0 (SD 1.5)	19.3 (SD 2.0)
	'Self efficacy' (community engagement)	23.9 (SD 5.4)	26.5 (SD 3.3)	25.1 (SD 4.6)	26.8 (SD 3.7)
	<b>Use of resources</b>	<b>2.0 (SD 1.7)</b>	<b>2.6 (SD 1.6)</b>	<b>2.4 (SD 1.7)</b>	<b>3.7 (SD 1.3)<sup>a</sup></b>
	<b>Teaching approaches</b>	<b>8.7 (SD 2.2)</b>	<b>10.0 (SD 1.7)</b>	<b>9.0 (SD 1.9)</b>	<b>10.5 (SD 1.9)<sup>b</sup></b>
	Providing psychosocial support	4.3 (SD 3.0)	4.6 (SD 2.8)	5.0 (SD 3.4)	6.3 (SD 2.8)
	Providing HIV support	4.2 (SD 1.6)	4.6 (SD 1.4)	4.5 (SD 1.6)	5.4 (SD 1.3)
	<b>Classroom safety</b>	<b>3.6 (SD 0.8)</b>	<b>3.6 (SD 0.7)</b>	<b>3.7 (SD 0.7)</b>	<b>3.9 (SD 0.4)<sup>b</sup></b>
School environment (safety and equity)	<b>School safety</b>	<b>3.0 (SD 1.2)</b>	<b>2.7 (SD 1.2)</b>	<b>3.2 (SD 1.2)</b>	<b>3.6 (SD 0.8)<sup>c</sup></b>
	<b>School physical environment</b>	<b>5.2 (SD 1.8)</b>	<b>4.6 (SD 2.1)</b>	<b>5.3 (SD 1.9)</b>	<b>5.4 (SD 1.7)<sup>a</sup></b>
	<b>Observed bullying (classroom)<sup>^</sup></b>	<b>16.6 (SD 5.5)</b>	<b>14.2 (SD 5.3)</b>	<b>16.7 (SD 6.1)</b>	<b>17.1 (SD 5.0)<sup>c</sup></b>
	Observed bullying (school)	11.2 (SD 3.4)	9.3 (SD 3.3)	11.2 (SD 3.6)	9.9 (SD 3.5)
	<b>Actions to stop bullying<sup>^</sup></b>	<b>34.8 (SD 6.2)</b>	<b>36.4 (SD 5.7)</b>	<b>35.7 (SD 6.7)</b>	<b>36.4 (SD 4.0)<sup>a</sup></b>
	Gender equity (girls) <sup>*</sup>	12.2 (SD 4.0)	12.5 (SD 3.9)	14.2 (SD 3.8)	15.2 (SD 3.0)
	Gender equity (boys)	11.8 (SD 3.8)	12.1 (SD 3.8)	13.7 (SD 4.1)	14.8 (SD 3.2)
	Equitable school environment	10.6 (SD 3.8)	10.5 (SD 4.1)	11.6 (SD 4.1)	12.4 (SD 3.4)
	Interschool teachers' relations	28.6 (SD 6.0)	29.1 (SD 5.4)	31.7 (SD 5.3)	28.3 (SD 8.7)
	<b>Perceived school support</b>	<b>3.6 (SD 1.1)</b>	<b>4.0 (SD 1.0)</b>	<b>3.8 (SD 0.9)</b>	<b>4.5 (SD 0.8)<sup>b</sup></b>
Relationships	Teacher-caregiver relationship	11.9 (SD 3.8)	12.6 (SD 3.1)	13.5 (SD 3.1)	14.7 (SD 2.6)
	School-caregiver relationship	23.6 (SD 5.9)	23.9 (SD 4.8)	25.3 (SD 4.4)	26.3 (SD 3.9)

(Continued)



**Table 3.** (Continued).

Student data	Teachers' engagement in psychosocial support & students' PS well-being	Baseline		Post-intervention	
Self-esteem		6.7 (SD 1.5)	6.5 (SD 1.6)	6.6 (SD 1.4)	6.6 (SD 1.4)
Emotional literacy		20.9 (SD 4.1)	20.1 (SD 4.0)	21.2 (SD 3.6)	20.8 (SD 4.0)
Self-assessment (school performance)		10.2 (SD 2.1)	10.1 (SD 2.0)	10.7 (SD 1.5)	10.5 (SD 1.8)
Perceived social support <sup>a</sup>		14.1 (SD 3.9)	13.1 (SD 4.0)	13.7 (SD 3.6)	14.1 (SD 3.5)
<b>Future orientation 1</b>		<b>10.2 (SD 1.9)</b>	<b>9.8 (SD 2.3)</b>	<b>10.5 (SD 1.8)</b>	<b>10.7 (SD 1.7)<sup>c</sup></b>
Future orientation 2		5.6 (SD 0.9)	5.7 (SD 0.8)	5.7 (SD 0.9)	5.7 (SD 0.8)
<b>Perceived respect</b>		<b>3.3 (SD 1.8)</b>	<b>3.4 (SD 1.8)</b>	<b>3.2 (SD 1.7)</b>	<b>3.6 (SD 1.8)<sup>a</sup></b>
<b>School safety</b>		<b>7.8 (SD 3.0)</b>	<b>6.7 (SD 3.2)</b>	<b>7.4 (SD 2.9)</b>	<b>7.2 (SD 3.0)<sup>c</sup></b>
<b>School physical environment</b>		<b>6.3 (SD 2.2)</b>	<b>6.2 (SD 2.3)</b>	<b>5.6 (SD 2.1)</b>	<b>5.9 (SD 2.2)<sup>c</sup></b>
Being bullied (physical)		7.3 (SD 1.5)	7.5 (SD 1.5)	7.2 (SD 1.5)	7.3 (SD 1.5)
Being bullied (emotional)		15.6 (SD 2.6)	15.6 (SD 2.6)	15.3 (SD 2.6)	15.5 (SD 2.6)
<b>Bullying others (physical)</b>		<b>8.7 (SD 0.7)</b>	<b>8.6 (SD 0.8)</b>	<b>8.5 (SD 0.9)</b>	<b>8.6 (SD 0.8)<sup>b</sup></b>
<b>Bullying others (emotional)</b>		<b>17.4 (SD 1.2)</b>	<b>17.1 (SD 1.6)</b>	<b>17.1 (SD 1.6)</b>	<b>17.3 (SD 1.5)<sup>c</sup></b>
Gender equity		4.5 (SD 1.9)	4.1 (SD 1.3)	5.0 (SD 1.0)	4.6 (SD 1.5)
<b>Response to sexual abuse</b>		<b>4.1 (SD 1.1)</b>	<b>3.8 (SD 1.4)</b>	<b>4.3 (SD 1.1)</b>	<b>4.3 (SD 1.1)<sup>b</sup></b>
Student-teacher relationship		17.0 (SD 3.3)	16.8 (SD 3.5)	17.3 (SD 3.1)	17.3 (SD 3.2)
Caregiver school involvement		3.2 (1.4)	3.4 (SD 1.5)	3.1 (SD 1.4)	3.3 (SD 1.5)

<sup>a</sup> $p < 0.05$ ; <sup>b</sup> $p < 0.01$ ; <sup>c</sup> $p < 0.001$ ; \* $p = 0.051$ .

<sup>^</sup>Significant difference in opposite direction of hypothesized change.

**Table 4.** Results from MLM models for teachers' and students' outcomes.

		Fixed Effects				Random Effects
		Age	Gender	Education	Time *Intervention	School variance
		$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Teacher data	Outcomes					
	Self-care (emotional)	-0.029 (0.014)*	0.777 (0.201)***	-0.379 (0.254)	<b>0.714 (0.319)*</b>	0.559 (0.268)*
	Self-efficacy (child's well-being)	-0.011 (0.012)	0.113 (0.170)	-0.383 (0.229)	<b>-1.108 (0.311)***</b>	0.050 (0.211)
	Use of resources	0.006 (0.010)	-0.149 (0.147)	-0.352 (0.196)	<b>0.827 (0.258)**</b>	0.310 (0.123)*
	Teaching approaches	0.013 (0.012)	0.010 (0.173)	0.026 (0.227)	0.550 (0.301)	0.439 (0.194)*
	Classroom safety	0.003 (0.004)	-0.020 (0.057)	-0.216 (0.076)**	0.134 (0.100)	0.008 (0.013)
	School safety	-0.004 (0.007)	-0.098 (0.100)	-0.243 (0.133)	<b>0.663 (0.172)***</b>	0.008 (0.043)
	School physical environment	-0.016 (0.011)	0.534 (0.160)**	-0.216 (0.215)	<b>0.622 (0.270)*</b>	1.296 (0.264)***
	Observed bullying (classroom)	0.045 (0.035)	0.236 (0.509)	-0.757 (0.661)	<b>2.150 (0.867)*</b>	2.203 (1.231)
	Actions to stop bullying	0.064 (0.031)*	-0.208 (0.451)	0.103 (0.612)	<b>-1.983 (0.841)*</b>	0.000 (0.000)
	Gender equity (girls)	-0.033 (0.023)	0.149 (0.339)	-0.976 (0.442)*	<b>1.304 (0.573)*</b>	0.775 (0.524)
	Gender equity (boys)	-0.038 (0.024)	0.238 (0.352)	-0.616 (0.462)	<b>1.592 (0.609)**</b>	0.908 (0.513)
	Perceived school support	-0.004 (0.005)	-0.208 (0.079)**	-0.072 (0.111)	<b>0.433 (0.152)**</b>	0.182 (0.045)***
School-caregiver relationship	0.050 (0.028)	0.503 (0.413)	-1.803 (0.547)**	0.744 (0.716)	1.021 (0.823)	
Student data	Perceived social support	-0.031 (0.043)	0.106 (0.153)	N/A	0.535 (0.274)	0.404 (0.151)**
	Future orientation 1	0.069 (0.021)**	-0.177 (0.076)*	N/A	<b>0.577 (0.147)***</b>	0.073 (0.035)*
	Perceived respect	0.016 (0.020)	-0.161 (0.072)*	N/A	<b>0.328 (0.134)*</b>	0.075 (0.029)*
	School safety	-0.020 (0.034)	-0.293 (0.119)*	N/A	<b>0.945 (0.228)***</b>	0.708 (0.202)***
	School physical environment	-0.012 (0.027)	-0.031 (0.093)	N/A	<b>0.395 (0.159)*</b>	0.320 (0.102)**
	Bullying others (physical)	0.005 (0.010)	0.131 (0.034)***	N/A	<b>0.156 (0.060)**</b>	0.014 (0.006)*
	Bullying others (emotional)	0.017 (0.017)	0.049 (0.061)	N/A	<b>0.414 (0.110)***</b>	0.037 (0.017)*
	Response to sexual abuse	0.018 (0.014)	0.215 (0.048)***	N/A	<b>0.250 (0.094)**</b>	0.076 (0.024)**

Note. Scales with  $p$ -value < .10 in the bivariate analysis were included in the multilevel mixed modeling analysis. \* $p < 0.05$ ; \*\* $p < .01$ ; \*\*\* $p < 0.001$ .

as well as the quality of school environments have been associated with decreased risk for OVC in terms of age of sexual initiation, attitudes supporting early sex, early marriage, positive attitudes regarding gender equity, prosocial bonding, and general psychosocial well-being (Cho et al., 2011; Hallfors et al., 2011; Pufall et al., 2014). However, limited attention has been given to the potential role of teachers as providers of psychosocial support and actors in improving the social, cultural, and physical environments within their classrooms and schools. School systems provide an established physical and social infrastructure for change – an essential component for sustainability and broader implementation of programming at national and regional levels (Hallfors, Cho, Mbai, Milimo, & Itindi, 2012). Primary government schools provide a space to reach children from multiple socio-cultural and economic backgrounds. Furthermore, a school-based program which can benefit all students as opposed to a targeted program for OVC or HIV affected families decreases likelihood of stigma or discrimination based on intervention participation.

The RCT of the Teachers' Diploma Programme in Zambia has provided rigorous scientific evidence that educational interventions for teachers can make a difference both for the teachers themselves as intervention participants as well as students in their classrooms and the school as a whole. Of particular importance are the range of changes. Data suggests

that teachers in the intervention group are taking better care of themselves emotionally, they are using more resources to improve students' well-being and educational experiences, they are creating environments within their classrooms and schools that are safer, cleaner and more conducive to learning, and they are perceiving greater social support from their peers within the school system. Among students in the intervention teachers' schools, data indicate children are more positive about their future, perceive more respect within the school, are engaged in less bullying behaviors, feel increased efficacy for addressing sexual abuse, and perceive their school environment as safer and cleaner.

## Limitations

These evaluation data provide support for on-going research and further development, implementation, and evaluation of the Teachers' Diploma Programme. However, there are limitations to the study including: (1) the research was conducted in four districts in two provinces in Zambia - and therefore the generalization of these findings outside of these contexts should be done with caution; (2) as with all longitudinal studies, we experienced attrition in our samples between baseline and post-intervention; (3) for some scales, mean scores were high at baseline and therefore only limited improvement could be anticipated; (4) some of the scales had low Cronbach's alphas for this population. These scales may need to be further adapted or alternative scales identified for future research; and (5) in the teachers' evaluation, two outcome measures indicated greater improvement in the control group compared to the intervention group. These unanticipated outcomes may reflect the need to revise the scales or alternatively could indicate an assessment effect from completing the baseline and post-intervention evaluation surveys.

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