

Building Protective Factors to Offset Sexually Risky Behaviors among Black Youths: A Randomized Control Trial

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Objectives: To test the effectiveness of the CHAMP among black South Africans in KwaZulu-Natal, South Africa.

Methods: A randomized control trial was conducted in KwaDedangendale, South Africa, among youths (ages 9–13) and their families (245 intervention families rearing 281 children and 233 control families rearing 298 children). The CHAMPSA intervention targeted HIV risk behaviors by strengthening family relationship processes as well as targeting peer influences through enhancing social problem solving and peer negotiation skills for youths.

Results: Among caregivers in the control and experimental conditions, significant intervention group differences were revealed regarding HIV transmission knowledge, less stigma toward HIV-infected people, caregiver monitoring—family rules, caregiver communication comfort, caregiver communication frequency and social networks. Among youths, data revealed that control and experimental groups were significantly different for children in AIDS transmission knowledge and less stigma toward HIV-infected people.

Conclusions: CHAMPSA enhances a significant number individual, family and community protective factors that can help youths avoid risky behaviors leading to HIV-positive status.

Key words: South Africa ■ HIV/AIDS ■ prevention

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When the current research project began 5 years ago, South Africa had an estimated 5 million adults and children living with HIV/AIDS.¹ Despite numerous deaths, in 2005, this number had increased to an estimated 5.5 million.² Adolescents and young adults are at a particularly high risk of infection, as they evidence alarmingly high rates of both HIV prevalence and incidence.^{3–6} For example, the HIV prevalence rate for males 15–19 years of age is 3.2%. For females in the same age range, it is 9.4%. For males 20–24 years, the HIV prevalence rate is 6.0%; the female rate is 23.9%.³ As South-African youths are at particularly serious risk for HIV exposure, prevention efforts with preadolescent children prior to sexual debut are important to ensure that newly sexually active cohorts do not become infected.

Recent studies suggest that behavioral interventions developed in western countries may be effectively implemented as a means of reducing the spread of HIV in South Africa.^{7,8} The current study examines an adaptation of the Collaborative HIV Adolescent Mental Health Program (CHAMP),⁹ which was developed in the United States, as a means of HIV prevention in South Africa. This adaptation of the CHAMP Family Program, entitled CHAMP South Africa (CHAMPSA), followed the same format as the CHAMP Family Program implemented in the United States. Specifically, within the CHAMP Family Program youth HIV risk

behaviors are impacted by strengthening family relationship processes, as well as targeting peer influences through enhancing social problem-solving and peer negotiation skills for youths. Given the evidence of the important protective role that families can play in reducing risk behavior in adolescents,⁹⁻¹² there is a clear need for programs that strengthen the protective roles of families toward reducing HIV infection risk in South-African adolescents. In addition to these protective factors, ethnographic information gathered to adapt CHAMP to South Africa¹³⁻¹⁵ suggested that the dynamics of child abuse, stigma, grief from loss (from AIDS), and social capital were important risk and protective factors to consider. Thus, CHAMPSA was designed to benefit from pro-social peer and support networks by using multiple-family groups.^{9,16-19}

Given the success of the CHAMP Family Program in the United States,^{9,20} we hypothesize South-African adolescents in the CHAMPSA experimental condition will evidence enhanced outcomes on study measures relative to the youths in the comparison condition.

Theoretical Basis

The Theory of Triadic Influence (TTI)²¹ was used to guide the CHAMPSA program. Specifically, 7 commu-

nity field principles were developed from the TTI^{12,22,23} (Figure 1) to underpin CHAMPSA. These 7 field principles were designed to guide academic/community partnerships to actualize the TTI and to base their intervention on sound scientific theory. Bell⁹ suggests these 7 universal field principles of behavior change have been found to be effective in promoting resiliency and behavior change in youths in a number of community-based projects.^{12,24,25}

Adaptation of CHAMP for South Africa

Two distinct stages characterized the adaptation of CHAMP for the South-African context. The first stage was an ethnographic process of adapting the U.S. CHAMP for the South-African context and is described elsewhere.^{13,14} This stage created the first manual. Synergy between ethnographic data and TTI led CHAMPSA to develop a person/situation-centered matrix representing individual, interpersonal/family and community levels of influence (Figure 2). These levels of influence were the targets of CHAMPSA. The second stage involved piloting the adapted manual on 94 families and used formative evaluation involving focus group discussions with participants about each session to inform

Figure 1. Seven field principles derived from the Theory of Triadic Influence^{9,22-24}

Field Principle	Activities to Actualize Principle
Rebuild the village	Involves bringing stakeholders together to agree upon a shared vision of developing social capital (social networks, relations, trust and power, as a function of either the individual or a geographical entity, e.g., a city neighborhood) to create an interdependent network of people, functions and services designed to create connectedness between stakeholders, safety, security and synergy.
Provide access to modern technology	Transporting evidence-based technology to care for individuals, families and groups, e.g., multiple-family group, psychological first aid, ⁶¹ frameworks for empowerment evaluation and related enabling activities, ⁶² stages and tasks of coalition development ⁶³ technologies, etc.
Facilitate connectedness on various levels	Facilitate attachment of youths to caregivers, caregivers to youths, youths to schools, caregivers to schools, caregivers to their neighbors and their communities. Attach stakeholders to positive, proactive community and organizational systems to improve self-esteem.
Help development of social skills	Communication skills (e.g., "I messages"), parenting skills, refusal skills, negotiation skills, leadership and management skills, etc.
Facilitate improvement of self-esteem	Improve individual's sense of power (self-efficacy), uniqueness, models and connectedness ⁶⁴
Re-establish the adult protective shield	Developing caregiver monitoring systems for youths and developing community systems that protect youths.
Minimize trauma	Developing an individual's sense of self-efficacy, ⁶⁵⁻⁶⁷ creating a sense of safety, social networks and social fabric; turn "learned helplessness" into "learned helpfulness." ¹²

the final CHAMPSA, cartoon-based, graphic prevention manual.^{15,17}

METHODS

Study Site and Sample

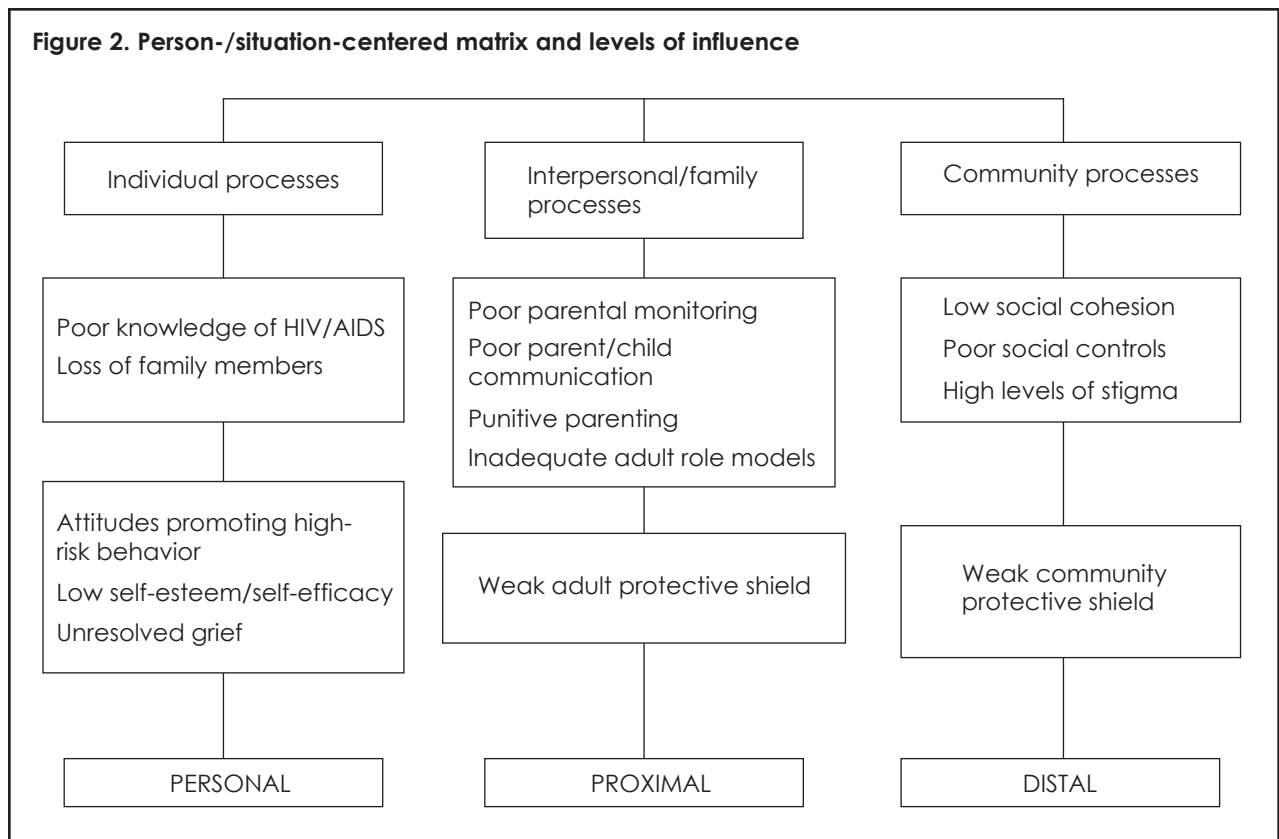
The current study was conducted in KwaDedangendlale, which is 40 km outside of Durban on the eastern seaboard of South Africa. KwaDedangendlale's population is black South Africans. Among the current sample, the majority of the 478 caregivers speak Zulu, 64% are Christian, and 59% are unemployed. Migration rates are low, with 74% of the sample living in the area for ≥ 5 years. Province-wide HIV infection rates are high. For example, in 2006 the antenatal clinic HIV rate was 39.1% positive.²⁶ Forty-nine percent of caregivers in the current sample reported receiving a pension/disability grant, and 67% reported receiving a child support grant. Nineteen percent of caregivers reported having no formal education, 46% had a level of education between grades 1–5, and 35% reported having a formal education between grades 6–12. Among the 557 children that comprised the current sample, 59% were female and the average child was 11 (SD=2.9; range=9–13) years old. Sixty-four percent of children attended either fourth or fifth grade, while 13% attended either second or third grade, and 23% attended either sixth or seventh grade.

Community Engagement

CHAMPSA was initiated understanding the importance of working with community members in the design, delivery and evaluation of a HIV prevention initiative.^{9,27} When CHAMP was first introduced in South Africa, a steering committee was initially formed, comprising researchers and traditional and political leaders from the target site. This steering committee oversaw the entry of the CHAMPSA program into the area as well as the initial adaptation and piloting of the CHAMPSA manualized intervention. Following the piloting and revisions to the first manual, a CHAMPSA collaborative advisory board was formed comprising the original steering committee as well as trained parent facilitators who had been exposed to the pilot intervention. This collaborative advisory board oversaw the main study.

School Selection and Randomization

Schools were randomly assigned to an experimental or control condition through the following process. A meeting of schools in 1 of 4 school sites was called by the CHAMPSA board member responsible for that area. Typically, the meeting would comprise teachers and principals. CHAMPSA staff would then explain the CHAMPSA program and schools were then requested to indicate if they wished to participate. A school was then assigned an experimental school status on the basis of a random pick of all the participating schools. A second pick was done of the remaining schools in the area



for a control school. The schools were all public schools with similar resource allocation by the education department. Three schools used in piloting the intervention were excluded, and 2 schools refused participation (total number of KwaDedangendlale primary schools is 25). Each school received a school improvement stipend of \$1,000. The intervention was free of charge, while a stipend of \$8 was given to each family for attending each session and \$30 for attending all 10 sessions.

Participants

Participants were students enrolled in second-to-seventh-grade classes in the 20 primary schools located within the 4 community areas (Molweni, KwaNyusawa, KwaNgcolosi and Qadi) of KwaDedangendlale. Potential study participants were required to meet the following criteria: children between the ages of 9–13 years old, being reared by an adult caregiver age >18 years that fulfills parenting responsibilities, enrolled in school, and

Table 1. Parameter estimates for intervention effects on scale change scores—caregiver data

Items	Estimated Impact	Std Error	P Value	Adjusted P Value P*	Treatment Group (Mean)	Control Group (Mean)	Pooled SD	Effect Size
General health	1.75	0.79	0.0391	0.5672	0.684	2.960	7.507	0.303
Global indicator of well-being	0.53	0.21	0.0199	0.3443	-0.057	0.581	2.176	0.293
Child behavior checklist	0.97	0.93	0.3078	0.9996	1.901	3.315	9.929	0.142
HIV transmission knowledge	1.07	0.25	0.0004	0.0084	0.190	1.336	1.817	0.631
Less stigma toward HIV-infected people	1.87	0.47	0.0009	0.0187	0.207	1.991	4.427	0.403
Caregiver involvement	0.38	0.22	0.0962	0.8805	0.138	0.215	3.180	0.024
Psychological autonomy	-0.07	0.63	0.9113	1.0000	-0.532	-0.102	5.438	0.079
Caregiver strictness	0.65	0.41	0.1347	0.9521	0.036	0.538	2.927	0.171
Punitive parenting	0.15	0.08	0.0647	0.7545	0.088	0.239	0.825	0.184
Family decision making	1.11	0.49	0.0360	0.5370	-0.085	0.496	3.480	0.167
Caregiver monitoring 2—knowing where the child is	0.14	0.06	0.0177	0.3127	0.079	0.227	0.931	0.159
Caregiver monitoring 3—family rules	2.02	0.61	0.0036	0.0729	0.849	2.742	6.157	0.307
Caregiver monitoring 4—empathy	0.27	0.16	0.1208	0.9330	0.114	0.264	1.442	0.104
Caregiver communication comfort	3.10	0.58	0.0001	0.0021	1.025	3.423	5.897	0.407
Caregiver communication frequency	1.98	0.55	0.0020	0.0412	1.966	2.969	5.095	0.197
Social networks—primary	1.67	0.51	0.0041	0.0827	0.000	1.572	5.927	0.265
Social networks—secondary	2.12	0.73	0.0099	0.1886	-0.496	2.382	6.352	0.453
Social networks—tertiary	1.19	1.29	0.3677	0.9999	1.915	1.198	8.609	-0.083
Neighborhood disorganization	-1.07	0.45	0.0284	0.4539	0.127	-0.986	3.551	-0.313
Neighborhood social control	2.02	0.78	0.0186	0.3258	0.502	2.261	7.780	0.226

indicated agreement to participate in the study via caregiver consent and child assent. As 30% of study youths lived with a caregiver other than a parent, the adults in the youths' lives are referred to as caregivers rather than parents in this report. Data were collected over 4 years (May 2003 to April 2006) from a total of 579 youths and 478 caregivers in KwaDedangendlale.

Intervention

The final adapted CHAMPSA manualized program [AmaQhawe (Champions) program], comprises 10–90-minute sessions delivered over 10 weekends. Given the amount of time families are required to devote to the program, they were paid a stipend of \$8 for each session attended as well as \$30 incentive for attending all 10 sessions. The sessions were designed to increase HIV knowledge and decrease stigma surrounding HIV infections; increase authoritative parenting, caregiver decision-making and caregiver monitoring of children; increase family frequency and comfort discussing hard-to-discuss subjects (e.g., sexuality and risky behaviors); increase connectedness to caregiver social networks; decrease neighborhood disorganization, and increase social control and cohesion. The manual introduces these skills through dramatic depiction in a cartoon-based storyline. In addition to teaching application of these skills, to avoid negative parenting strategies and increase youths' social skills, the CHAMPSA program provides the necessary group context for caregivers collectively to renegotiate caregiver norms and practices towards health-enhancing alternatives.¹⁸ Together with the formation of the collaborative board, these processes provide the opportunity for the program to strengthen the

“community protective shield” and “rebuild the village,” promoting ownership and sustainability of these efforts on completion of the project.²² The existing school-based HIV prevention curriculum served as the control condition for the proposed study. The vast majority of youths in the study were exposed to this prevention curriculum consisting of HIV prevention messages delivered by school teachers or health educators.

Staff Training and Implementation

Community caregivers trained as facilitators delivered the intervention on the weekends. Randomizing conditions to schools in the 4 community areas prevented contamination—a problem discovered in the pilot.¹⁵ To ensure fidelity of implementation across schools and times, the intervention was manualized and facilitators were trained, supervised and guided by use of a step-by-step facilitator manual. Training entailed attending detailed workshops covering the purpose and content of each session and participatory experiential methods, including facilitation skills. Prior to delivery of the intervention, facilitators rehearsed the various sessions. Further, the previous week's activities were reviewed through observing and evaluating each facilitator. These weekly meetings also included debriefing sessions and workshops on stress management, dealing with grief and bereavement, and the importance of boundaries and containment when working as facilitators.

Design and Procedure

A treatment verses no treatment repeated-measures design was used. Measures were obtained before and once after participation in the intervention. Active care-

Table 2. Parameter estimates for intervention effects on scale change scores—child data

Items	Estimated impact	Std Error	P Value	Adjusted P Value	Treatment Group (Mean)	Control Group (Mean)	Pooled SD	Effect Size
Revised children's manifest anxiety	0.62	0.65	0.3527	0.9800	1.00	0.23	5.12	0.15
AIDS transmission knowledge	0.82	0.27	0.0074	0.0647	0.88	0.12	1.54	0.50
Less stigma toward HIV infected people	3.86	0.92	0.0005	0.0045	3.96	-0.25	6.03	0.70
Caregiver involvement	0.48	0.35	0.1839	0.8394	1.69	0.80	4.41	0.20
Psychological autonomy	1.60	0.66	0.0261	0.2118	0.45	-0.93	6.00	0.23
Caregiver strictness	0.70	0.40	0.0982	0.6055	0.90	0.08	3.67	0.23
Caregiver monitoring 3—family rules	0.96	0.68	0.1788	0.8302	2.54	1.83	6.43	0.11
Caregiver communication comfort	1.30	0.66	0.0651	0.4544	2.08	1.58	6.48	0.08
Caregiver communication frequency	1.64	0.64	0.0188	0.1570	2.24	0.93	5.42	0.24

giver consent and student assent were obtained before study participation. The research, a 4-institution collaborative effort (Community Mental Health Council, Inc; Human Sciences Research Council; University of KwaZuluNatal; and the Mount Sinai School of Medicine), was approved by their institutional review boards.

Assessment and Measures

The General Health Questionnaire,²⁸ a Global Indicator of Well-Being Question, Revised Children's Manifest Anxiety Scale,²⁹ Child Problem Behavior Checklist,³⁰ AIDS Myth Knowledge,³¹ AIDS Transmission Knowledge Scale,¹⁵ Stigma Scale,¹⁵ Parenting Styles Scales (Parental Involvement, Psychological Autonomy, Strictness and Punitive Style),^{31,32} Family Decision-Making Questionnaire,³³ a Caregiver Monitoring Interview consisting of 4 parameters,³⁴⁻³⁷ two Hard-to-Talk-About Scales (comfort and frequency),³⁸ and Social Capital [3 Social Network Analysis Scales (for each of 3 important people to the caregiver),¹⁵ Neighborhood Disorganization Scale, Neighborhood Social Control Scale, and Neighborhood Social Cohesion Scale]^{39,40} were administered to caregivers and youths.

Data Collection

While considerable attention was paid to cultural and language differences in the wording of particular measures in the community consultation and pilot phases, low literacy levels of caregivers (just under 50% had fifth-grade education) required facilitators to provide assistance by reading aloud the items and responses to adult participants. The data were collected in additional sessions before and after the program sessions.

Statistical Methods

Cronbach's alpha was used to assess the internal consistency of the items for each scale, before and after the intervention with scales with ratings <0.7 being excluded from analysis. The significance of intervention regarding pretest versus posttest change scores was assessed using a mixed-effects regression model⁴¹ that adjusted for the nesting of students within schools. The impact of treatment was estimated adjusting for pretest scores and demographic variables (age, gender and youth group affiliation for child data and education, gender and religion for adult data). Bonferroni correction was applied to adjust significance probabilities (P values) for multiple comparisons. The adjusted probabilities were computed as $P^* = 1 - (1 - P) / k$, where P is the raw probability and k is the number of statistical comparisons (i.e., k=21 for adults and k=9 for children). All probability values reported in the results section are adjusted for multiple comparisons as described.

RESULTS

Descriptive Statistics

Ninety-four percent of families who began the CHAMPSA HIV prevention intervention completed the entire program. Twenty children and 14 adults did not finish.

Analysis of Intervention Effects

With only 2 time points (e.g., pre and post), only complete analysis was feasible. With probability set at $p < 0.05$, to achieve 80% power without adjusting for multiple comparisons, we can detect an effect size of 0.25 standard deviation (SD) units. Adjusting for multiple comparisons, 80% power is achieved for an effects size of 0.36 SD units for adults and 0.33 SD units for children. Table 1 highlights the analysis of the adult data and provides unadjusted and adjusted probability values, group means and effect sizes. Following adjustment for multiple comparisons, the following variables exhibited significant intervention effects: HIV transmission knowledge ($P^* < 0.0084$, ES=0.631), Less stigma toward HIV-infected people ($P^* < 0.0187$, ES=0.403), Caregiver monitoring 3-Family rules ($P^* < 0.0729$, ES=0.307), caregiver communication comfort ($P^* < 0.0021$, ES=0.407), caregiver communication frequency ($P^* < 0.0412$, ES=0.197) and social networks—primary (1) ($P^* < 0.0827$, ES=0.265).

Table 2 highlights the analysis of the child data, revealing that control and experimental groups were significantly different for children following adjustment for multiple comparisons in 2 areas, AIDS transmission knowledge ($P^* < 0.0647$; ES=0.496) and less stigma toward HIV-infected people ($P^* < 0.0045$; ES=0.698).

DISCUSSION

CHAMPSA is a family-based, HIV universal prevention intervention based on ethnographic study and health behavior change theory developed from a service/academic/periurban community collaborative partnership. The caregiver results indicate CHAMPSA's multiple level intervention led to manifold, significant changes with robust effect sizes in the intervention cohort when compared to the control cohort. With respect to individual-level processes, exposure to the program led to an improvement in improvement in AIDS transmission knowledge and less-stigmatizing attitudes towards HIV positive people.

In relation to interpersonal and family processes, the intervention group reported increased comfort and frequency in talking about sensitive issues such as HIV, AIDS, sexuality and substance abuse with their children. Other researchers^{42,43} have underscored the importance for adults to talk about sex to youths. Further, exposure to the program also resulted in improved caregiver monitoring and control of children's whereabouts

and behavior suggesting improvement in the caregiver “protective shield.”

With regard to community-level processes, the social network analysis—primary (a measure of connectedness to the most meaningful person in caregiver’s life) showed a difference between intervention and control caregivers. This suggests that with regard to support networks, CHAMPSA was successful in strengthening primary support networks, which are central for the development of social capital. Social capital emerges from social networks and can assist individuals and communities through increased social support to cope with daily problems.⁴⁴ Social networks can provide social capital in the form of social leverage for individuals and groups through facilitating socioeconomic advancement and access to information. Thirdly, social networks can facilitate individual and collective informal social controls, another form of social capital, to help keep neighborhoods safe. Finally, networks can facilitate the development of more formally organized groups to address issues of neighborhood concern, thus the development of social networks forms of the basis of the development of more socially cohesive communities that have greater “collective efficacy”⁴⁵ to ensure a safer environment. This in turn strengthens the “community protective shield” for youths.

With regard to the findings for children, an increase in HIV knowledge in the experimental compared to the control group indicates HIV education in school curriculums and/or community education alone does not transmit optimal knowledge about HIV. Experimental youths also experienced significantly lower levels of stigma toward people with HIV/AIDS promoting greater openness and discussion of HIV/AIDS issues among young people. CHAMPSA had more influence on caregivers developing protective factors at the level of individual, interpersonal and family, and community level than on youths.

Programs that concentrate singularly on one area of change are likely to have less impact, e.g., education only, often resulting in an increase in knowledge without attendant behavioral change. In the United States, primary prevention programs for school-based youths have led to greater AIDS knowledge, more realistic beliefs about susceptibility and self-efficacy, and positive perceptions concerning the benefits and barriers of risk behavior.⁴⁶⁻⁴⁹ However, because many omit family and peer influences,^{50,51} with few exceptions, they have not dramatically reduced adolescent sexual risk-taking.⁴⁶⁻⁴⁹

Use of community consultants rather than professionals or paraprofessionals as components of the intervention represents certain challenges (e.g., additional training costs and concerns related to the fidelity of the intervention⁵²). By involving community representatives, these impediments can be addressed resulting in benefits, far outweighing obstacles.⁵³⁻⁵⁷ Reliance on community consultants enhances ongoing recruitment

efforts and family involvement. Having trained community consultants made it possible to move the service/academic/community collaborative, universal prevention research from “science to service” in an efficient manner when the research ended. We obtained a donation from a private nonpharmaceutical source to provide CHAMPSA to 750 families in KwaZulu-Natal in 2007.⁵⁸ The involvement of community members in every aspect of CHAMPSA, from design of the intervention, pilot-testing, delivery and research, enhances the likelihood CHAMPSA is relevant and capable of delivering HIV universal prevention infrastructure to families in underserved communities.

Limitations

CHAMPSA targeted families before their youths were likely to engage in behaviors we seek to prevent. This is a limitation and strength. CHAMPSA is a researched intervention based on adolescent development suggesting proximal factors at the child, family and community levels that can alter risk trajectories, e.g., true universal prevention. Thus, our reported outcomes are the only ones appropriate given the age of the youths.

Due to a long history of neglect of health and well-being of black South Africans, it is possible that the subjects were so deprived, it was not CHAMPSA, but having any intervention that caused the good outcomes. However, as there are quite a few interventions, e.g., DRA-MAIDS, Love Life, etc., we propose it was the uniqueness of CHAMPSA’s small group, depth intervention that made the impact.¹⁷

As KwaDedangendlale is a poor area, paying participants to be involved in the study was a motivating factor in their involvement. However, the genuine involvement of local community residents (who signed confidentiality statements) in the design and delivery of the intervention were also very strong motivators of research subjects’ participation. Another strong motivator of participation was, at the outset, the investigators’ clearly expressed objective: if CHAMPSA proved to strengthen already existing protective factors that could protect youths from engaging in HIV risky behaviors, we would provide CHAMPSA as a community service. Thus, by following Covey’s principle⁵⁹ of “begin with the end in mind,” we created a “shared vision,”⁶⁰ creating public will to be involved. This is born out by the continued participation of families from the area in the service delivery dissemination phase in which families are not being paid to participate.

The impact of the intervention is measured over a short time span, i.e., 12 weeks, which may reflect the effects of participation in the study; thus, longer-term evaluation of these effects is needed. The relative absence of effects on family processes for children who participated in the CHAMPSA program compared to caregivers is understandable given the focus of the intervention, which was

to strengthen the protective role of caregivers.

One of the major limitations of the study is we did not test for youths' HIV status at the start of the study. Thus, we cannot compare HIV seroprevalence between the control and experimental youths to determine if there was a difference in seroconversion rates between groups. As the study was designed in 2001, the lack of easy access to HIV testing in South Africa, the greater stigma toward HIV-infected persons, and the youth of the students prevented obtaining this useful information. However, considering the robust results of CHAMPSA's outcome findings and considering the current greater ease in obtaining HIV seroprevalence status, the next task is to replicate the intervention while collecting HIV baseline seroprevalence of youths in the intervention.

CONCLUSIONS

The caregiver data indicate the adapted CHAMPSA program has served to increase the caregiver protective shield for preadolescent children compared to the comparative condition. Due to the universal prevention intervention being conducted in a typical randomized control design, the internal validity of our findings are considered strong, as the major difference in variables impinging on the experimental and control subjects was CHAMPSA. Further, we suggest that, while the target population was largely drawn from the Zulu ethnic group in South Africa, they are generally representative of black South Africans and that the external validity of the findings of the study for the South-African population is generally robust. Further, the findings mirror the CHAMP program in Chicago's Southside and Westside; the Bronx, NY; and in Trinidad,^{9,16,20,27} suggesting universality of the CHAMP effects. We suggest that central to ensuring the transportability and universality of the CHAMP program effects is to engage in a community collaborative approach to the adaptation and delivery of CHAMP ensuring cultural relativity in the application of universal principles of strengthening protective factors associated with less-risky behaviors for adolescents. It is also important to use business strategies^{59,60} on academic research to ensure science goes to service in a timely manner.

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PROTECTIVE FACTORS TO OFFSET SEXUALLY RISKY BEHAVIORS

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