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# A Scoping Review of Sport-Based Health Promotion Interventions With Youth in Africa

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## Abstract

Africa has the highest rates of child mortality and diseases in the world. Research suggests that sport can be an effective way to enhance health knowledge and behaviors among at-risk youth in Africa. Scoping reviews explore both the breadth and depth of a research topic, which allows researchers to conduct a detailed analysis and synthesis of studies to understand how, why, and under what circumstances sport-based interventions are effective. The purpose of this scoping review was to specifically examine the study design, theoretical foundations, sample characteristics, measured and observed outcomes, intervention characteristics, and funding sources identified in previous studies that examined sport as a platform for health promotion with youth in Africa. A total of 916 articles were retrieved from 10 electronic bibliographic databases; 28 studies met the inclusion criteria. Of these, four were randomized controlled trials, while the remaining were open trials with pre-posttest assessments, both with comparison conditions and without. Only 10 studies included a theoretical framework to specifically inform the sport-based intervention implemented. Targeted health outcomes included knowledge and behaviors related to a myriad physical and mental health concerns, such as HIV, clean water use, vaccinations, physical activity, and fitness. Statistically significant improvements were observed in 82% of the studies examined. Our results suggest that sport-based interventions may be effective in improving health knowledge and behaviors among youth in Africa. Recommendations for future research, including methodology and the importance of global partnerships with nonprofit organizations, are discussed.

### Keywords

sport for development; community; school; disease; HIV

Infectious diseases, such as pneumonia and malaria, are the primary cause of child mortality in Africa (Liu et al., 2015). More than 10 million children under the age of 5 years die every year, and nearly all these deaths occur in poor, developing countries (Black et al., 2003). Approximately 63% of child deaths caused by disease could have been prevented by implementing known and effective interventions, such as vaccines (Bryce et al., 2003).

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SUPPLEMENTAL MATERIAL

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However, many poor and middle-income African countries do not have access to essential health resources (Bryce et al., 2003).

Sport for development initiatives, which use sport as a vehicle to promote positive social change, are a popular approach to improving health outcomes in developing countries (Schulenkorf et al., 2016). These initiatives use the popularity of sport to attract and introduce groups of individuals to strategies for disease management and prevention and by nurturing the development of important, and protective, life skills through a form of physical activity that is highly engaging and fun (Jones et al., 2017; Schulenkorf et al., 2016). Life skills that are deliberately taught and learned through sport, such as self-efficacy, leadership, and adaptive coping, can prevent risk-taking behaviors with long-term consequences (e.g., substance abuse, unprotected sexual activity, crime; Balfour et al., 2013; Whitley et al., 2016), while encouraging healthy behaviors in youth (e.g., positive peer relationships, physical activity; Schulenkorf et al., 2016). For example, in their review of sport for development initiatives, Jones et al. (2017) found that sport involvement was strongly linked to confidence and positive identity in youth, which may lessen risk-taking behaviors that are often associated with poor self-esteem and susceptibility to peer pressure. Sport for development programs for youth may therefore be essential to building healthier communities in developing countries.

Given the worrying statistics on infectious diseases, specifically in Africa, researchers have used sport for development initiatives to provide youth with resources to protect themselves (Fuller et al., 2010). The results of a meta-analysis showed a strong main effect for sport-based health promotion interventions on HIV-related knowledge, attitudes, stigma, self-efficacy, and communication in youth (Kaufman et al., 2013). However, additional reviews and analyses are warranted to help researchers understand how, why, and under what conditions sport-based health promotion interventions with youth in Africa are effective (Kaufman et al., 2013). Furthermore, interventions designed to address other health outcomes beyond HIV must also be examined. Scoping reviews are ideally suited for this purpose because they provide researchers with a descriptive analysis of the breadth and depth of a research field and provide justification for future systematic and quantitative reviews (Levac et al., 2010). The purpose of this scoping review was to provide a detailed and critical analysis of published studies that investigated the use of sport as a platform for health promotion with youth in Africa. Specifically, we examined study design, theoretical foundations, sample characteristics, measured and observed outcomes, intervention characteristics, and funding sources to inform future directions for research and practice.

## METHOD

Consistent with Levac et al. (2010), steps for the current scoping review were to (1) identify the research question, (2) identify relevant studies, (3) select studies, (4) chart data, and (5) synthesize data. We followed PRISMA Extension for Scoping Reviews guidelines and completed a checklist according to Tricco et al. 2018 (see Supplemental Material).

Citations were retrieved from 10 electronic bibliographic databases (Academic Search Complete, CINAHL, eHRAF, ERIC, Google Scholar, Physical Education Index, PsycInfo,

PubMed, SportDiscus, and Web of Science). Keywords included sport, health promotion, Africa, youth, children, adolescents, youth development, disease, community, mortality, and intervention. A range of health terms and disease processes, including HIV, AIDS, malaria, and clean water, were used in this search. Relevant Medical Subject Headings terms (MeSH) identified by the U.S. National Library of Medicine's thesaurus (1999) were also considered. All searches were conducted in consultation with a librarian. To gain a comprehensive assessment, studies were not bound by a specific date range. However, all the interventions included in our review occurred between 2006 and 2017.

The first author then reviewed the titles, abstracts, and keywords for all articles generated through the database searches. After removing duplicate articles, the first author read the full-length manuscripts and selected those that met the following inclusion criteria: They (1) used sport or physical activity as the intervention method, (2) were conducted in Africa, (3) included participants aged 24 years and younger, (4) examined quantitative data before and after an intervention, and (5) were available in English. The first author then developed a coding template to chart and synthesize the data. In the initial round, the first author coded the selected studies according to the author(s), journal publication and year, study design, theoretical foundations, sample characteristics, measured and observed outcomes, intervention characteristics, and funding sources. In the second round, the first author reread the studies for coding accuracy and recorded thematic similarities across them to frame the current results.

## RESULTS

A total of 916 articles were initially identified and screened for eligibility and 594 articles remained after duplicates were removed. Following the final review process, 28 articles met the inclusion criteria. Study and intervention characteristics are organized by article in Tables 1 and 2. Major findings across studies are summarized below. All percentages were calculated from the 28 articles included in our review.

### Study Characteristics and Results

**Study Designs.—**Four interventions (14.3%) incorporated randomized controlled trial procedures using a team ($n = 1$), a school ($n = 1$), and participants ($n = 2$) as the unit of randomization; of these, one blinded investigators to participant status during data collection. The remaining studies were characterized by the authors as quasi-experimental ($n = 9$; 32%), pretest–posttest designs that included nonrandomized comparison conditions ($n = 7$; 25%), prospective cohort studies ($n = 3$; 10.7%), and mixed methods ($n = 3$; 10.7%). The authors of two articles did not mention a specific design, but a quasi-experimental approach could be deduced based on their description of the methods.

**Theoretical Foundations.—**The authors of 10 studies (35.7%) discussed a specific theoretical framework that guided their research, including social learning theory ($n = 3$), the social-ecological model ($n = 1$), self-determination theory ($n = 1$), the theory of planned behavior ($n = 1$), and psychosocial theory ($n = 1$). However, among those that mentioned a theoretical framework, the authors of only five studies described how that framework specifically informed their intervention. For example, Tian et al. (2017) explained how self-

determination theory guided decisions to provide participants with extrinsic rewards. Other authors described how their use of interactive soccer-based activities, led by slightly older peer coaches or role models, aligned with social learning theory (Clark et al., 2006; Hershow et al., 2015; Kaufman et al., 2016) and the social influences encompassed in the theory of planned behavior (Awotidebe et al., 2014).

**Participant Samples.—**The average sample size across studies was 704 participants; a mean of 199 participants (28.3%) dropped out, leaving a mean of 505 participants who completed the interventions ($n$ = 280 males, $n$ = 225 females). Sample size was highly variable across studies, ranging from 27 to 3,814 participants. The average age of participants across studies was 14.08 years, ranging from 7.8 to 30.8 years.

**Measured and Observed Outcomes.—**Measured outcomes included those related to physical fitness ($n$ = 9; 32.1%), HIV ($n$ = 8; 28.6%), physical activity levels ($n$ = 6; 21.4%), life skills ($n$ = 3; 10.7%), physical health ($n$ = 3; 10.7%), injury prevention ($n$ = 2; 7.1%), and mental health ($n$ = 3; 10.7%). Three studies examined a compilation of essential health behaviors (i.e., physical activity, clean water, sanitation, substance abuse, nutrition, malaria prevention, vaccinations, prescription medications, and HIV awareness) as well as gender equality and social support ($n$ = 3; 10.7%). In 82.1% ($n$ = 23) of included studies, at least one of the measured outcomes yielded statistically significant improvements (see Table 1).

## Intervention Characteristics

Interventions were conducted across 10 African countries with over half ($n$ = 19; 67.9%) in South Africa alone. The average intervention duration was 20.39 weeks, ranging from 4 hours to 156 weeks. Fifteen interventions (53.6%) were conducted with youth in a school setting as part of the existing school curriculum or immediately after school, and 12 interventions (42.9%) were conducted in community settings such as gyms, sporting venues, and health centers. One intervention (3.6%) included both in-school and community-based components. The most common sport-based platform for health promotion was soccer ($n$ = 14; 50%); interventions were typically delivered by local community members trained in the protocol ($n$ = 12; 42.9%).

**Funding Sources.—**Most studies (78.6%; 22/28) cited a funding source, including Elimu, Michezo Na Mazoezi Kicking AIDS Out Program ($n$ = 3); Fédération Internationale de Football Association ($n$ = 3); KwaZulu-Natal Department of Health and Education ($n$ = 2); National Research Foundation ($n$ = 2); Bill and Melinda Gates Foundation ($n$ = 1); Dphil Scholarship, University of Oxford ($n$ = 1); International Development Research Center, Ottawa, Canada ($n$ = 1); Medical Research Council of South Africa ($n$ = 1); Nelson Mandela Metropolitan University ($n$ = 1); South African National Research Foundation ($n$ = 1); 3ie ($n$ = 1); University of Cape Town Research Committee ($n$ = 1); Universidad Politécnica de Madrid ($n$ = 1); VLIR-UOS ($n$ = 1); and World Diabetes Foundation ($n$ = 1). The authors of one study mentioned receiving four sources of funding, including Imago Dei, Elton John AIDS Foundation, MAC AIDS Fund, and USAID–New Partnerships Initiative. The authors of another study reported using their own research funding to finance their intervention but did not cite a specific source.

## DISCUSSION

The results of this scoping review inform various methodological and practical considerations for examining sport-based health promotion initiatives. The results of the 28 studies included in our review suggest that sport can be an effective platform for health promotion with youth in Africa. Conclusions may be strengthened, however, with improved methodological rigor relative to study design and theoretical foundations. Importantly, the potential ethical dilemmas associated with this line of inquiry, which involves the teaching and learning of vital health information with a vulnerable population, must be considered. Major findings from our review are discussed in turn.

### Study Characteristics and Results

**Study Designs.—**Few studies in our review used randomized controlled trials, which are often considered the gold standard for intervention effectiveness research. Without randomization, researchers cannot control for preexisting differences between experimental and control conditions, which limits both internal and external validity (West & Spring, 2017). Although the authors of several studies acknowledged this as a limitation, they explained that randomizing participants was not always logistically possible and adjusted their designs accordingly. For example, when participants could not be randomized across classrooms due to school structure policy and scheduling conflicts, the authors instead assigned clusters of classrooms to an experimental or control condition (Awotidebe et al., 2014; Fuller et al., 2010, 2011, 2015). This flexibility in study design is critical given the nature of field research. In the future, researchers may also consider alternative randomization procedures, such as using wait-list comparison groups or cluster randomizing by region in larger trials to maximize the validity of their findings. Critically, researchers must also weigh the benefits of improving the scientific quality of their research against the unique concerns of the communities they intend to serve. For example, at-risk youth may benefit immediately from receiving essential health information, which poses ethical dilemmas relative to including a control group.

**Theoretical Foundations.—**Using empirical theory to inform study design and methodology allows researchers to examine social and psychological phenomena systematically (Anfara & Mertz, 2014). A considerable body of literature suggests that interventions guided by theory are more effective (Glanz & Rimer, 2005) because they provide researchers with a framework, or lens, from which they can interpret findings and draw conclusions (Rapport et al., 2018). Fewer than half the studies included in our review cited a theoretical framework, and even fewer linked a theory specifically to their intervention design, content, and delivery. In a review of peer-led HIV prevention initiatives, Maticka-Tyndale and Barnett (2010) reported similar findings and hypothesized that many interventions were based on researchers' or practitioners' personal experience alone. Integrating theoretical foundations derived from the literature with valuable experiential knowledge is likely the most ideal approach to developing, planning, and evaluating sport-based health promotion interventions. This balance may be best achieved by intentionally collaborating with stakeholders in existing nonprofit organizations whose mission and goals are often already grounded in a theoretical framework. For example, Grassroot Soccer has

increasingly used social learning theory to inform peer-led HIV prevention initiatives in Africa (Maticka-Tyndale & Barnett, 2010; Simoni et al., 2011). Eight studies included in our review were similarly administered in collaboration with Grassroot Soccer, several of which involved experienced staff members training new facilitators or delivering the intervention themselves (e.g., Fuller et al., 2010, 2011, 2015; Hershow et al., 2015). The knowledge, experience, and resources of existing organizations can and should be used to enhance the development, implementation, and evaluation of sport-based health promotion interventions.

**Participant Samples.—**Given the variability of sample sizes across interventions, our findings suggest that sport-based health promotion interventions can be implemented on both small and large scales. Aligned with recommendations from the sport for development literature (Schulenkorf et al., 2016), it is advantageous for researchers to continue using the popularity of sport in order to attract larger groups that increase sample size and maximize participants' exposure to the benefits of sport-based interventions. It has also been suggested that the scholastic setting, often a safe space for students to engage in organized activities, is ideal for conducting interventions with youth in Africa due to the high number of youth that can be reached (Struthers, 2011; World Health Organization, 1997). Although our findings support that schools can be an effective setting for sport-based health promotion interventions, we found that attrition is a significant barrier. Absenteeism in schools throughout Africa is one plausible explanation (Plummer et al., 2007), but drawing conclusions is difficult when reasons for attrition were rarely reported. Collecting data on participant attrition could help researchers identify and address barriers that may inhibit participants from completing the intervention. Furthermore, considering that many youth in Africa do not attend school at all, researchers should also consider conducting sport-based interventions in settings where youth spend time performing activities they value, such as popular community centers or sport fields (Maro et al., 2009). Importantly, recommendations for increasing sample size should not negate efforts to work with special populations, such as incarcerated youth or youth with disabilities (Bloemhoff, 2006, 2012; Chetty & Edwards, 2007) or small schools (Ferguson et al., 2015; Kemp & Pienaar, 2009) where a critical need exists but larger sample sizes are not feasible.

Due to the high variability in participant age observed across interventions, our results suggest that sport-based health promotion interventions can be effective with young children, adolescents, and young adults. It was also promising that an approximately equal number of males and females were examined across studies. However, it was unclear how the interventions were specifically aligned with participants' developmental level to maximize teaching and learning, especially in a mixed-age sample. Visek et al. (2013) highlighted the unique developmental challenges that accompany working with youth. The researchers suggested that scientists and practitioners who interact with youth participants should have a comprehensive understanding of child and adolescent development. For example, adjusting interventions to be more concrete (e.g., hands-on and movement-based) when working with children in the mid-childhood stage of development, versus abstract (e.g., incorporation of greater discussion) when working with adolescents, would be appropriate as cognitive abilities change over the lifespan (Visek et al., 2013).

**Measured and Observed Outcomes.—**Our results suggest that sport-based health promotion interventions can be effective in addressing multiple aspects of a single health concern. For instance, eight interventions assessed the knowledge, attitudes, communication skills, awareness, and uptake of preventative treatments specifically for HIV; all these interventions identified statistically significant improvements. Our results also suggest that sport-based health promotion interventions can effectively target multiple health concerns concurrently. Fuller et al. (2010, 2011, 2015) conducted an intervention to improve participants' knowledge and awareness of nine essential health practices as well as outcomes related to social cohesion and gender equality; participants in these studies demonstrated statistically significant improvements across most outcomes. These findings suggest that researchers should conduct thorough needs assessments to gain a comprehensive understanding of the health concerns of communities and cater their intervention to address the most relevant health topics and concerns.

The most common specific health concern addressed by the interventions in our review were related to HIV. In a meta-analysis examining the effectiveness of sport-based HIV prevention with both youth and adults globally, Kaufman et al. (2013) found that the interventions were linked only to attitudinal changes among participants, and none measured behavioral outcomes. However, research published since this meta-analysis, and subsequently included in our review, suggests that sport-based interventions can significantly improve the uptake of HIV-related behavioral and mental health treatment services (Hershow et al., 2015; Kaufman et al., 2016). Sport-based health promotion initiatives are thus a promising avenue for attitudinal and behavioral changes that may prevent HIV.

Other targeted concerns were related to physical activity and mental health. It has been well documented that physical activity is associated with improved fitness outcomes in youth (Armstrong et al., 2011) and can reduce disease and promote wellness (Booth et al., 2000). A strong positive relationship also exists between physical activity and improved mental health with children and adolescents, including decreased symptoms of depression and anxiety and improved self-esteem and cognitive functioning (Biddle & Asare, 2011). The improvements observed in various aspects of physical (e.g., improved fitness) and mental health (e.g., improvements in depressive symptoms) across studies included in our review suggest that the physical activity component of sport-based interventions may have inherent physical and mental health benefits for youth. Furthermore, participants across several studies reported positive experiences with sport-based health promotion interventions (Fuller et al., 2010, 2011, 2015), which suggests that youth enjoy participating in sport while learning about essential health practices.

## Intervention Characteristics

Given that soccer is considered the most popular sport in Africa (Fuller et al., 2010), it was unsurprising that half the interventions included in our review used soccer to engage youth in health education. However, the results of our review suggest that selecting specific activities within popular sports, such as soccer, should be intentional. Kaufman et al. (2016), for example, described using a penalty kick shoot-out scenario to initiate discussions on

sensitive health-related topics. Specifically, the goalie represented an individual who did not use condoms and saving penalty kicks metaphorically represented protecting himself from HIV. As participants identified strategies to prevent HIV transmission, the goal became smaller and the penalty kicks became easier for the goalie to save (Kaufman et al., 2016). This activity represents a creative approach to connecting sport-related themes to social change and health promotion. Furthermore, researching the cultural and historical context of specific populations is vital prior to initiating a sport-based intervention. Richards et al. (2014), for example, heeded caution when implementing a sport-based intervention with youth in Uganda who, following a 20-year civil war, experienced increases in anxiety and depression and may not have responded well to a competitive sport environment due to their previous experiences with armed conflict. Consistent with Maticka-Tyndale and Barnett's (2010) findings, effective interventions involve community stakeholders, prioritize community needs, and are designed with intentionality.

Although the average length of sport-based health promotion interventions was approximately 20 weeks, 75% of interventions were administered in 12 weeks or less. Three interventions were conducted in less than 1 day, and all resulted in statistically significant improvements from baseline to postintervention (Bloemhoff, 2006, 2012; Kaufman et al., 2016). Our review also included three interventions that were 48 weeks or longer and resulted in statistically significant improvements from pre- to posttest (Hershow et al., 2015; Naidoo & Coopoo, 2012; Uys et al., 2016). These results suggest that short- and long-term interventions may be similarly effective, but it is unclear whether any of these interventions have long-lasting impact without follow-up over weeks, months, or years. Researchers should aim to measure the sustainability of their intervention by collecting longitudinal data at specified time points after the intervention has terminated. Sport-based health promotion interventions that are incorporated as part of a school curriculum may be one way by which researchers can more easily measure participants over time due to the structure offered by school systems. Finally, although the interventions included in our review were concentrated in South Africa, other communities with specific needs throughout Africa should be increasingly considered.

## Funding Sources

Most studies included in our review were funded, predominantly by a collaborating nonprofit organization. Sport-based health promotion interventions thus appear to be a priority funding area for organizations desiring to serve youth in Africa. Furthermore, the cost-effectiveness of sport-based health promotion initiatives may be an attractive selling point to funding sources, as significant improvements in health knowledge and behavior can occur with relatively low financial investment. Kaufman et al. (2016) reported that the costs associated with their sport-based intervention was approximately $1.99 per participant, and Walter (2014) estimated costs between $0.40 and $0.55 per participant. Our results suggest that researchers should forge community partnerships instead of, or in addition to, traditional research grants, as partnering organizations often have experience and an existing program structure that can significantly enhance sport-based interventions.

### Implications for Research and Practice

Our review contributes to the extant body of literature in several ways. In addition to providing empirical support for the use of sport for health promotion initiatives, our findings provide programmatic suggestions for future practitioners to enhance sport-based initiatives in the future. Specifically, our findings suggest that practitioners should involve community members in the development and implementation of sport-based interventions, align their intervention with an empirically supported theoretical foundation to provide a structured framework in order to guide and inform the development and implementation of the intervention, and evaluate the long-term sustainability of their byfindings by collecting longitudinal data. For researchers and practitioners who are newer to the field, partnering with existing nonprofit organizations may be a useful and innovative way to understand the inner workings of Sport for Development and Peace organizations. Last, our review supports the breadth of health topics that can be effectively targeted through sport-based interventions, making it a versatile and cost-effective option to consider for public health practitioners working with at-risk youth.

### Limitations

Several limitations pertain to this review. It is possible that articles regarding the use of sport for health promotion with youth in Africa are available in research databases outside the 10 selected for this review. Furthermore, studies such as theses, dissertations, presentations, and other forms of grey literature were excluded but may yield additional insight. It is also possible that relevant articles have been published in the time elapsed since our initial search. Although not the purpose of a scoping review, our study is limited in that we did not quantitatively analyze our results. However, the value of conducting this scoping review was to explore both the breadth and depth of existing literature, which can be used to inform future quantitative reviews.

### Conclusion

The results of our scoping review suggest that sport-based health promotion interventions may offer an effective and afforable health promotion platform for youth in Africa. Considering that every intervention included in this review was conducted in the past 20 years, the scientific evidence supporting the use of sport-based health promotion initiatives is in its infancy. Future researchers have a promising body of literature to expand on while addressing methodological limitations. Specific factors influencing the validity and effectiveness of sport-based health promotion interventions include study design, theoretical foundations, sample size and composition, intervention setting, delivery, duration, and sources of funding. Critically, decisions pertaining to research with youth in Africa must prioritize ethics and community needs. If sport-based interventions continue to result in statistically significant improvements in health outcomes with youth, advocacy may improve for implementing similar interventions across more schools and communities in Africa.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## REFERENCES

Anfara VA Jr., & Mertz NT (2014). Theoretical frameworks in qualitative research. Sage.

Armstrong N, Tomkinson G, & Ekelund U (2011). Aerobic fitness and its relationship to sport, exercise training and habitual physical activity during youth. British Journal of Sports Medicine, 45(11), 849–858. 10.1136/bjsports-2011-090200 [PubMed: 21836169]

Awotidebe A, Monyeki A, Phillips J, & Lens W (2014). The outcomes of a sport-based intervention on risky sexual behaviours among rural school-going adolescents. African Journal for Physical Health Education, Recreation & Dance, 20(4), 1436–1454.

Balfour L, Farrar T, McGilvray M, Wilson D, Tasca GA, Spaans JN, Mathews C, Maziya L, Khanyile S, & Dalgleish TL (2013). HIV prevention in action on the football field: The WhizzKids United program in South Africa. AIDS and Behavior, 17(6), 2045–2052. 10.1007/s10461-013-0448-6 [PubMed: 23504231]

Biddle SJH, & Asare M (2011). Physical activity and mental health in children and adolescents: A review of reviews. British Journal of Sports Medicine, 45(11), 886–895. 10.1136/bjsports-2011-090185 [PubMed: 21807669]

Black RE, Morris SS, & Bryce J (2003). Where and why are 10 million children dying every year? Lancet, 361(9376), 2226–2234. 10.1016/S0140-6736(03)13779-8 [PubMed: 12842379]

Bloemhoff HJ (2006). The effect of an adventure-based recreation programme (ropes course) on the development of resiliency in at-risk adolescent boys confined to a rehabilitation centre. South African Journal for Research in Sport, Physical Education and Recreation, 28(1), 1–11. 10.4314/sajrs.v28i1.25927

Bloemhoff HJ (2012). High-risk adolescent girls, resiliency and a ropes course. African Journal for Physical Health Education, Recreation & Dance, 18(Suppl. 4), 128–139.

Booth FW, Gordon SE, Carlson CJ, & Hamilton MT (2000). Waging war on modern chronic diseases: Primary prevention through exercise biology. Journal of Applied Physiology, 88(2), 774–787. 10.1152/jappl.2000.88.2.774 [PubMed: 10658050]

Bryce J, el Arifeen S, Pariyo G, Lanata CF, Gwatkin D, & Habicht JP (2003). Reducing child mortality: Can public health deliver? Lancet, 362(9378), 159–164. 10.1016/S0140-6736(03)13870-6 [PubMed: 12867119]

Chetty J, & Edwards SD (2007). An investigation into the use of exercise as a medium for mental health promotion among institutionalized children. South African Journal for Research in Sport, Physical Education and Recreation, 29(2), 1–10. 10.4314/sajrs.v29i2.25963

Clark TS, Friedrich GK, Ndlovu M, Neilands TB, & McFarland W (2006). An adolescent-targeted HIV prevention project using African professional soccer players as role models and educators in Bulawayo, Zimbabwe. AIDS Behavior, 10(4), 77–83. 10.1007/s10461-006-9140-4

Ferguson GD, Naidoo N, & Smits-Engelsman BC (2015). Health promotion in a low-income primary school: Children with and without DCD benefit, but differently. Physical & Occupational Therapy in Pediatrics, 35(2), 147–162. 10.3109/01942638.2015.1009230 [PubMed: 25984808]

Fuller CW, Junge A, DeCelles J, Donald J, Jankelowitz R, & Dvorak J (2010). "Football for Health": A football-based health-promotion programme for children in South Africa: A parallel cohort study. British Journal of Sports Medicine, 44(8), 546–554. 10.1136/bjsm.2010.072223 [PubMed: 20547667]

Fuller CW, Junge A, Dorasami C, DeCelles J, & Dvorak J (2011). "11 for Health," a football-based health education programme for children: A two-cohort study in Mauritius and Zimbabwe. British Journal of Sports Medicine, 45(8), 612–618. 10.1136/bjsm.2011.084905 [PubMed: 21504962]

Fuller CW, Junge A, Amaning J, Kaijage RR, Kaputa J, Magwende G, Pambo P, & Dvorak J (2015). FIFA 11 for health programme: Implementation in five countries in sub-Saharan Africa. Health Education Journal, 74(1), 103–119. 10.1177/0017896914523152

Glanz K, & Rimer BK (2005). Theory at a glance: A guide for health promotion practice (2nd ed.). U.S. Department of Health & Human Services, National Institutes of Health, and National Cancer Institute https://cancercontrol.cancer.gov/brp/research/theories_project/theory.pdf

Hershow RB, Gannett K, Merrill J, Kaufman EB, Barkley C, DeCelles J, & Harrison A (2015). Using soccer to build confidence and increase HCT uptake among adolescent girls: A mixed-methods study of an HIV prevention programme in South Africa. Sport in Society, 18(8), 1009–1022. 10.1080/17430437.2014.997586 [PubMed: 26997967]

Jones GJ, Edwards MB, Bocarro JN, Bunds KS, & Smith JW (2017). An integrative review of sport-based youth development literature. Sport in Society, 20(1), 161–179. 10.1080/17430437.2015.1124569

Kaufman ZA, DeCelles J, Bhauti K, Hershow RB, Weiss HA, Chaibva C, Moyo N, Mantula F, Hatzold K, & Ross DA (2016). A sport-based intervention to increase uptake of voluntary medical male circumcision among adolescent male students: Results from the MCUTS 2 cluster-randomized trial in Bulawayo, Zimbabwe. Journal of Acquired Immune Deficiency Syndrome, 72(Suppl. 4), S297–S303. 10.1097/QAI.0000000000001046

Kaufman ZA, Spencer TS, & Ross DA (2013). Effectiveness of sport-based HIV prevention interventions: A systematic review of the evidence. AIDS Behavior, 17(3), 987–1001. 10.1007/s10461-012-0348-1 [PubMed: 23096999]

Kemp C, & Pienaar AE (2009). Effect of an aerobic-based physical activity programme on physical fitness of 10–15-year-old girls. African Journal for Physical Activity and Health Sciences, 15(4), 527–542. 10.4314/ajpherd.v15i4.50012

Lennox A, & Pienaar AE (2013). Effects of an after-school physical activity programme on aerobic fitness and physical activity levels of adolescents from a disadvantaged community: PLAY study. African Journal for Physical Activity and Health Sciences, 19(1), 154–168.

Levac D, Colquhoun H, & O'Brien KK (2010). Scoping studies: Advancing the methodology. Implementation Science, 5(1), Article 69. 10.1186/1748-5908-5-69

Ley C, Leach L, Barrio MR, & Bassett S (2014). Effects of an exercise programme with people living with HIV: Research in a disadvantaged setting. African Journal of AIDS Research, 13(4), 313–319. 10.2989/16085906.2014.961937 [PubMed: 25555097]

Liu L, Oza S, Hogan D, Perin J, Rudan I, Lawn JE, Cousens S, Mathers C, & Black RE (2015). Global, regional, and national causes of child mortality in 2000–13, with projections to inform post- 2015 priorities: An updated systematic analysis. Lancet, 385(9966), 430–440. 10.1016/S0140-6736(14)61698-6 [PubMed: 25280870]

Maro CN, & Roberts GC (2012). Combating HIV/AIDS in sub- Saharan Africa: Effect of introducing a mastery motivational climate in a community-based programme. Applied Psychology: An International Review, 61(4), 699–722. 10.1111/j.1464-0597.2011.00482.x

Maro CN, Roberts GC, & Sørensen M (2009). Using sport to promote HIV/AIDS education for at-risk youths: An intervention using peer coaches in football. Scandinavian Journal of Medicine & Science in Sports, 19(1), 129–141. 10.1111/j.1600-0838.2007.00744.x [PubMed: 18248549]

Maticka-Tyndale E, & Barnett JP (2010). Peer-led interventions to reduce HIV risk of youth: A review. Evaluation and Program Planning, 33(2), 98–112. 10.1016/j.evalprogplan.2009.07.001 [PubMed: 19647874]

Monyeki MA, De Ridder JH, Preez SMD, Toriola AL, & Malan DDJ (2012). The effect of a ten month physical activity intervention programme on body composition of 9–13-year-old boys. African Journal for Physical Activity and Health Sciences, 18(2), 241–250.

Naidoo R, & Coopoo Y (2012). The impact of a primary school physical activity intervention in KwaZulu-Natal, South Africa. African Journal for Physical Health Education, Recreation & Dance, 18(1), 75–85.

Owoeye OB, Akinbo SR, Tella BA, & Olawale OA (2014). Efficacy of the FIFA 11+ warm-up programme in male youth football: A cluster randomised controlled trial. Journal of Sports Science & Medicine, 13(2), 321–328. [PubMed: 24790486]

Parker R, Jelsma J, & Stein DJ (2016). Managing pain in women living with HIV/AIDS: A randomized controlled trial testing the effect of a six-week peer-led exercise and education intervention. Journal of Nervous and Mental Disease, 204(9), 665–672. 10.1097/NMD.0000000000000506 [PubMed: 27002748]

Peacock-Villada P, DeCelles J, & Banda PS (2007). Grassroot Soccer resiliency pilot program: Building resiliency through sport-based education in Zambia and South Africa. New Directions for Youth Development, 2007(116), 141–154. 10.1002/yd.241

Plummer ML, Wight D, Wamoyi J, Nyalali K, Ingall T, Mshana G, Shigongo ZS, Obasi AI, & Ross DA (2007). Are schools a good setting for adolescent sexual health promotion in rural Africa? A qualitative assessment from Tanzania. Health Education Research, 22(4), 483–499. 10.1093/her/cyl099 [PubMed: 17018766]

Rapport F, Clay-Williams R, Churruca K, Shih P, Hogden A, & Braithwaite J (2018). The struggle of translating science into action: Foundational concepts of implementation science. Journal of Evaluation in Clinical Practice, 24(1), 117–126. 10.1111/jep.12741 [PubMed: 28371050]

Richards J, Foster C, Townsend N, & Bauman A (2014). Physical fitness and mental health impact of a sport-for-development intervention in a post-conflict setting: Randomised controlled trial nested within an observational study of adolescents in Gulu, Uganda. BMC Public Health, 14, Article 619. 10.1186/1471-2458-14-619

Schulenkorf N, Sherry E, & Rowe K (2016). Sport for development: An integrated literature review. Journal of Sport Management, 30(1), 22–39. 10.1123/jsm.2014-0263

Simoni JM, Franks JC, Lehavot K, & Yard SS (2011). Peer interventions to promote health: Conceptual considerations. American Journal of Orthopsychiatry, 81(3), 351–359. 10.1111/j.1939-0025.2011.01103.x [PubMed: 21729015]

Sørensen M, Maro CN, & Roberts GC (2016). Gender differences in HIV related psychological variables in a Tanzanian intervention using sport. International Journal of Sport and Exercise Psychology, 14(2), 135–151. 10.1080/1612197X.2015.1121511

Starzak D, Konkol K, & McKune A (2016). Twelve weeks of soccer-specific training: Effects on mucosal immunity, salivary alpha-amylase and body composition in male African youths. Sport Sciences for Health, 12(2), 269–276. 10.3390/children3030012

Struthers P (2011). The use of sport by a health promoting school to address community conflict. Sport in Society, 14(9), 1251–1264. 10.1080/17430437.2011.614782

Tian H, du Toit D, & Toriola AL (2017). The effects of an enhanced quality physical education programme on the physical activity levels of grade 7 learners in Potchefstroom, South Africa. Physical Education and Sport Pedagogy, 22(1), 35–50. 10.1080/17408989.2015.1072509

Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, Moher D, Peters MDJ, Horsley T, Weeks L, Hempel S, Aki EA, Chang C, McGowan J, Stewart L, Hartling L, Aldcroft A, Wilson MG, Garritty C, Lewin S, … Straus SE (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. Annals of Internal Medicine, 169(7), 467–473. 10.7326/M18-0850 [PubMed: 30178033]

U.S. National Library of Medicine. (1999). Fact sheet: Medical Subject Headings (MeSH®). https://www.nlm.nih.gov/pubs/factsheets/mesh.html

Uys M, Draper CE, Hendricks S, de Villiers A, Fourie J, Steyn NP, & Lambert EV (2016). Impact of a South African school-based intervention, HealthKick, on fitness correlates. American Journal of Health Behavior, 40(1), 55–66. 10.5993/AJHB.40.1.7 [PubMed: 26685814]

Visek AJ, Harris BS, & Blom LC (2013). Mental training with youth sport teams: Developmental considerations and best-practice recommendations. Journal of Sport Psychology in Action, 4(1), 45–55. 10.1080/21520704.2012.733910

Walter CM (2014). Promoting physical activity: A low cost intervention programme for disadvantaged schools in Port Elizabeth, South Africa. African Journal for Physical Activity and Health Sciences, 20(2), 357–371.

West A, & Spring B (2017). Randomized controlled trials. https://ebbp.org/training/randomizedcontrolledtrials

Whitley MA, Wright EM, Gould D, Petitpas A, & Strachan L (2016). Coaches' perspectives on teaching life skills to under-served South African children and youth. International Journal of Sports Science & Coaching, 11(3), 312–326. 10.1177/1747954116643646

World Health Organization. (1997). Life skills education for children and adolescents in schools. https://apps.who.int/iris/bitstream/handle/10665/63552/WHO_MNH_PSF_93.7A_Rev.2.pdf

**TABLE 1**

Sport-Based Health Promotion Intervention Study Characteristics and Results

| Authors | Study design | Theory | Completers/ total sample | Age, years | Gender | Measured outcomes | Observed outcomes |
|---|---|---|---|---|---|---|---|
| Awotidebe et al. (2014) | Quasi-experimental | Theory of planned behavior | 340/430 | 15.2 | 204 M; 226 F | HIV/AIDS knowledge, negotiation skills | Significant pretest- posttest improvement for intervention group; posttest for controls not reported |
| Chetty & Edwards (2007) | Quasi-experimental | Psychosocial theory | 33/33 | 10.7 | 14 M;19 F | Behavioral problems, affect, depression, self-perception | Significant improvement for intervention group as compared to controls in behavioral problems only |
| Clark et al. (2006) | Quasi-experimental | Social learning theory | 304/304 | 12-14 | 151 M; 153 F | HIV/AIDS knowledge | Significant improvement in intervention group as compared with controls |
| Kaufman et al. (2016) | Cluster RCT | Social learning theory | 878/1,226 | 16.2 | 1226 M; 0 F | VMMC uptake | Significant improvement for intervention group as compared with controls |
| Richards et al. (2014) | Single-blinded RCT | None | 1,447/1,462 | 12.9 | 618 M; 844 F | Fitness, body composition, mental health | Significant improvement in fitness only, and decline in mental health, for intervention group as compared with controls |

*Note.* M = male; F = female; RCT = randomized controlled trial; VMMC = voluntary medical male circumcision.

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**TABLE 2**

Sport-Based Health Promotion Intervention Characteristics

| Authors | Country | Setting | Sport | Duration | Personnel |
|---|---|---|---|---|---|
| Awotidebe et al. (2014) | South Africa | School | Soccer | 12 weeks | Peer coaches |
| Bloemhoff (2006) | South Africa | Ropes course | Ropes course | 4 hours | Principal investigator |
| Bloemhoff (2012) | South Africa | Ropes course | Ropes course | 4 hours | Principal investigator |
| Chetty & Edwards (2007) | South Africa | Children's institutional homes | Soccer, netball | 12 weeks | Undergraduate students |
| Clark et al. (2006) | Zimbabwe | School | Soccer | 2 weeks | Pro soccer players |
| Ferguson et al. (2015) | South Africa | School | Playground games | 9 weeks | Undergraduate students |
| Fuller et al. (2010) | South Africa | School | Soccer | 11 weeks | Peer coaches |
| Fuller et al. (2011) | Mauritius, Zimbabwe | School, community | Soccer | 11 weeks | Peer coaches |
| Fuller et al. (2015) | Ghana, Malawi, Namibia, Tanzania, Zambia | School | Soccer | 11 weeks | Peer coaches |
| Hershow et al. (2015) | South Africa | Community | Soccer | 48 weeks | Peer coaches |
| Kaufman et al. (2016) | Zimbabwe | School | Soccer | 1 hour | Peer coaches |
| Kemp & Pienaar (2009) | South Africa | School | Dancing, stretching | 10 weeks | Not reported |