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Promoting healthy lifestyle behaviour through the Life-Orientation curriculum: Teachers' perceptions of the HealthKick intervention

Jillian Hill
Non-Communicable Diseases Research Unit (NCDRU), South African Medical Research Council (SAMRC)
Catherine E. Draper
UCT/MRC Research Unit for Exercise Science and Sports Medicine, Sports Science Institute of South Africa
Anniza De Villiers and Jean M. Fourie
Non-Communicable Diseases Research Unit (NCDRU), South African Medical Research Council (SAMRC)
jean.fourie@mrc.ac.za
Suraya Mohamed
School of Public Health, University of the Western Cape, South Africa
Whadi-ah Parker
Population Health, Health Systems and Innovation, Human Sciences Research Council (HSRC)
Nelia Steyn
Department of Human Biology, Division of Human Nutrition, University of Cape Town, South Africa

This study explores the feasibility of implementing the curriculum and action-planning components of the HealthKick (HK) intervention in eight low-resourced schools in the Western Cape, South Africa. Process evaluation comprising workshops and personal interactions with teachers and principals were followed up with semi-structured interviews and focus group discussions, along with a questionnaire and evaluation sheet, during three implementation phases. Since promoting healthy habits during the early formative years is of key importance, the research team actively intervened to ensure successful implementation of the curriculum component. Time constraints, teachers' heavy workload, and their reluctance to become involved in non-compulsory activities, were the main reasons for non-compliance in using the curriculum document. Furthermore, the priorities of the teachers were not necessarily those of the researchers. However, findings indicate that with an appropriate introduction and continued interaction and support, the integration of specific healthy lifestyle outcomes into a curriculum can be sustainable if teachers are well informed and motivated.

Key words: action-planning process; curriculum intervention; healthy lifestyle; nutrition; physical activity; primary school

Introduction

Childhood experiences play an important role in the health status of persons later in life (Langford, Campbell, Magnus, Bonell, Murphy, Waters, Komro & Gibbs, 2011). Evidence exists suggesting that attitudes, beliefs and behaviours learned in the formative years (such as those relating to smoking, physical activity (PA) and food choices) show strong 'tracking' into adulthood (Kelder, Perry, Klepp & Lytle, 1994). Promoting healthy habits at a young age is therefore of key importance.

Schools as influential institutions could promote healthy behaviours, since children spend a lot of time at school, and a strong link exists between their health status and capacity to learn (Powney, Malcolm & Lowden, 2000). By creating healthy school environments, several long-term benefits that will improve health, wellbeing and academic achievement are provided.

Promoting health has long been an important role of schools, but The Global Burden of Disease, Injuries, and Risk Factors Study showed that the leading causes of death and disability have changed from communicable diseases in children to non-communicable diseases (NCDs) in adults. Overeating has surpassed under-nutrition as a leading risk factor for disease in many countries, although trends differ among regions (Institute for Health Metrics and Evaluation (IHME), 2013). Moreover, the prevalence of overweight and obesity is no longer a problem of developed countries but also of developing countries, or those in economic transition (Food and Agriculture Organization (FAO), 2007).

In response to the growing burden of NCDs globally, the World Health Assembly adopted the "Global Strategy on Diet, Physical Activity and Health" (DPAS) to reduce the impact of major risk factors, such as unhealthy diets and PA (World Health Organization (WHO), 2008). As part of its mandate, the DPAS called upon member states to develop and implement school policies and programmes that promote healthy diets and increased levels of PA (WHO, 2008). A growing body of research has supported the DPAS by highlighting the potential to prevent NCDs through a combination of lifestyle modifications (WHO, 2008).

The FAO (2007) also recommended various approaches and strategies to promote daily healthy practices in school environments. In a randomised control trial, it was suggested that multi-component school-based

interventions, targeting curriculum, school policy, environment, and the community, are effective in promoting healthy lifestyles (Okely, Cotton, Lubans, Morgan, Puglisi, Miller, Wright, Batterham, Peralta & Perry, 2011).

An evidence-based review of global school nutrition interventions found that a nutrition-based curriculum, equipping teachers with nutrition knowledge, usually improved behavioural outcomes of learners (Steyn, Lambert, Parker, Mchiza & De Villiers, 2009). Since school-based, health-related interventions are lacking in South Africa and developing countries, there is a strong appeal to measure their success in relation to those in other countries.

Although large socio-economic and cultural differences exist between high-income countries and low- and middle-income countries, the effectiveness of preventative school-based obesity interventions is similar. These multi-component and combined interventions integrate educational activities into the curriculum. However, a significant weakness is the omission of detailed process evaluation. This lack of process evaluation prevents implementers from learning from similar interventions in different contexts (Verstraeten, Roberfroid, Lachat, Leroy, Holdsworth, Maes & Kolsteren, 2012).

To this end, a grant was obtained from the World Diabetes Foundation to develop and evaluate a healthy lifestyle intervention in a few (eight control and eight intervention) primary schools in resource-poor communities, which are burdened with chronic diseases, i.e. diabetes. The name HealthKick (HK) was chosen to reflect the vision of "kick-starting" healthy living at a young age. HealthKick matched the integrated health framework of the Department of Education (DoE), which was only in draft format at the beginning of our intervention, but has since been launched as the Integrated School Health Policy (ISHP) (Departments of Health and Basic Education (DoH & DBE), 2012). The policy includes the food-based dietary guidelines (FBDG) as basic content for the nutrition education component of a school health programme, and is delivered through the Care and Support for Teaching and Learning (CSTL) programme (DBE & MIET Africa, 2010). The CSTL programme aims to make healthy lifestyles accessible to educators and learners through nutrition education.

The HealthKick Intervention

HealthKick (Draper, De Villiers, Lambert, Fourie, Hill, Dalais, Abrahams & Steyn, 2010) is a nutrition and PA intervention that was implemented in primary schools in economical low-resourced settings in the Western Cape Province, South Africa, over the course of four years (2008-2011). The aim was to prevent people from becoming overweight at a young age, and to reduce the risk of developing NCDs (particularly type 2 diabetes) by promoting healthy eating habits and increasing PA in children, their parents and teachers. Additionally, the development of an environment within the school and surrounding community that facilitates the adoption of healthy lifestyles, was to be promoted.

Using the Intervention Mapping approach (Bartholomew, Parcel, Kok & Gottlieb, 2006), HK activities were developed and closely aligned with specific South African FBDG (Vorster, 2001), which formed the HK Behavioural Outcomes relating to healthy nutrition and PA behaviour.

The action-planning process (APP) was a key aspect of the intervention (described elsewhere, Draper et al., 2010) and was based on the conceptual framework of *Action Schools!* BC and the School Health Index of the National Centre for Chronic Disease prevention (Naylor, Macdonald, Reed & McKay, 2006; Staten, Teufel-Shone, Steinfelt, Ortega, Halverson, Flores & Lebowitz, 2005). The intervention schools were able to create need-specific action plans, with strategies that would potentially contribute to the improved health of the children and teachers at the schools in the sample.

According to Van Deventer (2009:129), the focus of Life Orientation (LO), a compulsory subject offered in South African schools, is "life-in-society", which assists learners in effective living, learning and overall well-being. Therefore, the HK curriculum component focused on integrating healthy eating and optimal PA education into the existing LO syllabus. At the time of the study, schools were following the national outcomes-based education (OBE) curriculum 2005 (Botha, 2002). OBE provides a broad framework, is open, non-prescriptive, and relies on teachers creating their own learning programmes and support material. Through the OBE framework, an opportunity could be created to incorporate the HK principles into the existing curriculum.

Action-planning booklets were developed as part of the HK Toolkit, which comprised a *Resource Box* (printed material on nutrition, PA, staff health and chronic diseases), a guide on *existing resources*, such as websites, and a *PA Bin* with equipment such as balls, hula-hoops, and skipping ropes. To facilitate the APP, a "champion" (teacher) was identified at each school. Champions were encouraged to drive the APP and to liaise with the project team, comprising research scientists, who facilitated the procedure by guiding schools through the process.

Starting in 2008, the project team held workshops with teachers and champions to train them for the intervention. Initially, seven Action Zones were identified, however, after the first phase (to be discussed later) it became clear that a more focused

approach would be necessary. Therefore, these were collapsed into four action areas:

- School food and nutrition environment;
- School PA and sport environment;
- Staff health; and
- Chronic diseases and diabetes awareness.

Actions relating to specific curriculum activities were included in the PA and nutrition action areas. A curriculum document integrating the HK goals with the existing LO curriculum was developed by a curriculum expert in a format familiar to teachers. This resource was given to Grade Four-Six LO teachers in 2009 and the beginning of 2010, which was followed by a workshop.

Multi-component interventions, such as HK, require a thorough process evaluation to assess whether the intervention was delivered and received as intended (Young et al., 2008). Process evaluation evaluates the process and activities of the programme. This is an indication of how well the programme is functioning (Rossi, Freeman & Lipsey, 1999). Results from a process evaluation inform the research team and implementers as to whether the programme design requires modification or not. The aim of this paper is to evaluate the process and activities of the initial APP, leading to the development and implementation of the curriculum document in the LO learning area.

Method

Individual interviews and focus group discussions were used to capture the perceptions, experiences and opinions of key role players in the HK intervention activities. A short evaluation sheet was administered to participants after the curriculum workshop and an evaluation questionnaire was used for monitoring purposes at the end of 2010.

Participants

The HK curriculum intervention only targeted Grades Four-Six, and so the study population for this paper comprised Grade Four-Six teachers, along with the principals participating in the implementation process at the eight intervention schools. During Phase One of the evaluation, all principals, champions and Grade Four-Six teachers who were involved in the APP at the intervention schools were invited to participate in the process evaluation. During Phases two and three, only those LO teachers who received the curriculum document were invited to participate in the process evaluation. Data collection took place during all three phases.

Data Analysis

Qualitative data were analysed using thematic content analysis of Atlas.ti 6 computer software. Transcripts were reviewed and codes allocated with a concise label (open coding) (Babbie & Mouton, 2001). After consultation with the research team, all codes were reviewed and merged or deleted to form the final coding framework. Codes and their connecting quotations were retrieved in an effort to explore patterns or tendencies.

Quantitative data were analysed using IBM® SPSS® Statistics 19, 2010. Descriptive statistics (frequencies) were used to analyse data.

Ethics

The Research Ethics Committee of the Faculty of Health Sciences, University of Cape Town (Ref no. 486/2005) approved the study. The Western Cape Education Department approved the research and school principals gave written informed consent before being interviewed.

Results

Phase 1: Initial Evaluation of the Action-Planning Process

Teachers received the APP after the first round of action planning with mixed responses. Overall, there were more positive than negative responses. Participants found the idea of the programme interesting, and could immediately recognise possible benefits for the entire school community.

> *…it is something I think that we as a community, a school community and the parent community have long been in need of, so I am optimistic about it* (Principal, male).

Most participants believed that the zones were relevant and complemented the LO curriculum.

> *…yes, it includes a lot of things* [sic] *in LO; and especially with the new schedules we received, which makes provision for an hour of formal physical activity per day* (Teacher, male, LO Head).

They felt that the assistance from the research team facilitator was of a high standard, and appreciated the support, guidance and presence of the project team at schools.

> *It was of great value for all of us. So I see it as good. You knew why you came; you knew what you came to do. And one could appreciate what you came to say to us* (Champion, female).

Some participants felt there were shortcomings regarding the support and facilitation. One champion and teacher felt that if there had been more follow-up visits, they might have been more sensitised towards implementing the APP more successfully.

> *…it was not enough. Yes, what I actually want to say* [is that] *assistance is never too much. So I would think if one gets more of it, then one could sharpen in on* [sic] *it more* (Teacher, male).

For the sake of sustainability, it was important that schools completed the APP with as little input from the project team after the briefing and workshop/s

had taken place. This did not take place as the team envisioned. Various barriers were highlighted. Some teachers were not sure at what stage they were in the APP, while others admitted being confused and tardy in implementing the self-assessment at their schools.

> *…I cannot remember, but I think it was right at the beginning* (Teacher, female).
>
> *We never even got to it* [sic] *for the booklets that we had to answer the questions for; we had a lot of pressure at that time…* (Teacher, female).

Teachers cited competing priorities, such as the requirements of the DoE by means of which they are assessed, as reasons for not properly implementing the APP. Some teachers also perceived the APP as additional work, adding to the stress of their existing workload. This contributed to the APP, which required commitment to read and recall certain ideas, not always being completed. A champion mentioned that teachers do not appreciate extra work. Only one participant seemed to understand that new programmes took time and effort to get off the ground.

> *…and I understand that in the beginning of any process, naturally, it is going to take a bit longer, but once the process is in working* [order] […] *they did it accurately, they had small groups; I remember our school one afternoon,* [from] *Grade 4, 5 and 6, the teachers were there one afternoon and we nicely worked through it* [sic] (Champion, male).
>
> *…and sometimes you could see that the teachers were not too comfortable with the whole idea* (Champion, female).
>
> *I would also not think that the teachers would think now that it is an extra job* […] *even though we must keep up with the information* (Champion, female).
>
> *…we are already so overloaded* (Teacher, female).

The resource toolkit was an important part of the intervention given to teachers during the APP. Participants' comments showed that the toolkit was very well received in the initial stages of the intervention. They were positive about the PA equipment, along with the reading material and resources complementing the LO curriculum, especially the nutrition material covering learning outcomes in the first quarter.

> *The toolbox, and obviously the equipment that is in it,* [are] *things that are desperately needed, that a person do*[es] *not always have the necessary funds to acquire. So it is definitely a gain* [sic] *for us* (Champion, female).
>
> *…the information pieces that we received* [were] *actually* […] *reasonably comprehensive* (Champion, male, LO Head).
>
> *Mostly the first term,* [where we tackled] *health, food and different diets* […] *that is the best part for me…* (Champion, female).

Towards the end of the first year of the intervention, most participants appeared to recognise the value of the HK intervention programme and its potential benefits for learners, teachers and the broader community. Some, however, were still concerned the APP would add to an already heavy workload, and that the eventual implementation of actions would demand more of their time.

Phase 2: Evaluation of the Curriculum Document

This evaluation took place in the second year of the implementation of the curriculum document. Only two teachers indicated making use of this document before the workshop took place in 2010. Teachers who had not used the document stated they were either not aware of its contents or they were not sure whether they were allowed to use resources outside their prescribed textbooks and teachers' guides.

> *To be honest, the day I got to the workshop I only heard what it actually entails* (Teacher, male).
>
> *See our normal practice is our usual textbooks, then the blue book* [existing LO resources provided by the DoE] *came in, then we thought we should actually work strictly according to the blue book* (Teacher, male).
>
> *I only went with the textbook that I have in the class and when I started teaching LO, I received this booklet* (Teacher, female).

Immediately after the curriculum workshop, all teachers (n=12) indicated having benefited personally and in a professional capacity. They believed that the curriculum document was appropriate, useable and could be implemented in the classroom. Their personal interaction with other teachers and the project team left participants motivated to make use of the curriculum document.

Data from the interviews (n=8) conducted four months after the workshop supported the findings from the completed questionnaires. Of the teachers (n=27; 70%) who indicated having received the curriculum document, 57% had used it, and 67% mentioned this created opportunities for learners to practice healthy living at school.

Several teachers (57%) indicated that the HK curriculum document was one of the resources they consulted when preparing lessons and when looking for fresh ideas. A few teachers also implied that they preferred the HK curriculum document to the DoE-prescribed resources, since they found this more comprehensive, which ultimately translated into less work.

Data from interviews indicated that the curriculum document enabled teachers to give attention to teaching nutrition and PA. They reported that learners appeared to be excited about PA lessons outside the classroom, as these allowed for more opportunities to be physically active. Although teachers were more likely to take their learners outside for a PA lesson, they still indicated lacking the knowledge and skills required for developmentally appropriate physical education (PE) classes.

Teachers felt that the curriculum document could also be applied in other subject areas. One teacher believed that if they realised making use of the curriculum document was not extra work, they would actually regard it is a useful tool.

> *And if teachers could only come to the point and not see it as extra work, because it is not extra work, it is really a resource. Things that are not covered therein* [department resources]*, one can find in here* [HK curriculum document]*. I think it was put together with attention and care* (Teacher, female).

Phase 3: Final Evaluation of the Curriculum Component

The interviews held late in 2011/early 2012 indicated that all teachers had made use of the curriculum document during 2011, and would recommend its use to their colleagues.

> *Oh goodness woman* [sic]*! From the day it was instituted I used it all the way* [sic] (Teacher, female, LO Head).
>
> *I integrated it, parts of it I used* (Teacher, male, LO Head).
>
> *I was the subject head, I used it, I gave it to everyone. Whether they used it* [or not] *I don't know* (Teacher, female, LO Head).

Most teachers recognised that the HK curriculum document integrated well into the LO curriculum and that it could be integrated with other subject areas, especially the natural sciences and the social sciences.

> *Especially some, especially Life Orientation, because some of the lessons are integrated with Life Orientation* (Teacher, female).
>
> Yes*, where we do the section on nutrition, food groups, healthy foods and that* (Teacher, male).
>
> *No, I don't think Life Orientation is the only* […] *Natural Science, also, it can* […] *assist in Natural Science. Maybe in geography, because I am not teaching those areas, maybe EMS* [Economic and Management Sciences] [it can also be of use] (Teacher, female).
>
> *Yes, especially with Arts and Culture, it integrates with* [that]*. And then with Science also, we do food groups in Science as well, so it fits* [into] *Natural Science* [as well] (Teacher, male).

Only two teachers thought that the curriculum document could be used for LO only.

> *For me, it was for Life Orientation* (Teacher, male).

Teachers indicated that the document was well structured, easy to use and lessened their workload as activities and assessment standards were readily available.

> *Even for planning lesson plans, it made it easy for me* (Teacher, female).
>
> *It lightened our work, because we could just go see on* [the curriculum document] *you gave us and just add, because the stuff was nicely structured and easily understandable* (Teacher, male).

Although teachers indicated that the document was useful, educational and easy to use, they acknowledged that they most likely would not have used the document without an appropriate introduction, i.e. the workshops and continued inputs from the HK team.

> *…no, then I would definitely not have used it. But HealthKick gave the learning outcomes, and so it was easy to integrate it with my own work* (Teacher, male, LO Head).
>
> *You* [HK] *explained to us in that workshop how it all worked* [sic]*, that is why we used it. But if someone did not explain, then we would have just continued doing our own stuff* [sic] *according to the blue book* [DoE lesson planning guide] (Teacher, female).

The curriculum document, along with the PA bin, was reported to have also had a positive effect on the number of PA sessions. Three-quarters of respondents indicated that they took their learners out more regularly and made use of the activities listed in the curriculum document.

> *And especially with the physical activity, that box* [PA kit] *we received, we have taken the learners to the field a good amount of time and they really enjoyed it. They never actually get out of class, so it was something new for them to go to the field and it was very successful* (Teacher, male).
>
> *We could use it nicely* [sic]*, and* [when it came to] *the physical activity section we told them: 'we're going to give marks now', because half is theoretical and the other half is physical* (Teacher, male).

Teachers highlighted the need for training or demonstration lessons in PE, as most of them had not had training in this area.

> *…because most of our life-orientation teachers are struggling with physical education, that outcome, they are struggling to do it* (Teacher, female).

A number of teachers mentioned the importance of creating a supportive nutrition environment to promote healthy lifestyles.

> *But I think at the tuck shop, one would be able to bring it home to them better* [sic]*. Maybe with the cooperation of the feeding scheme, one could also* [include health messages] (Teacher, female).
>
> *If they implement it, say by the feeding scheme, by the tuck shop,* [say]*, in every area* […] *we had a surf walk the other day, so we bought the learners 'Kentucky Streetwise Two!'* – [but] *if we gave them an orange, or … you see what I mean? A healthy cool drink or juice. It could have been used in every area, but we don't actually do it like that. In the tuck shop we sell apples* [as the only] *fruit, but nothing else. You see what I mean?* [sic] (Teacher, female).

Discussion

This paper describes the process evaluation of the initial APP and the activities leading to the development and implementation of the curriculum document in the LO learning area. The development process was mostly continuous as the intervention had to be

adapted and refined according to the interaction with schools throughout implementation.

Evaluation of the initial phases of the APP suggested that although participants' perceptions about the programme were overwhelmingly positive, the APP did not take place as intended. While participants felt that the programme goals were clear, it appears principals, champions and teachers did not fully grasp what was expected from them at the outset of the APP. Other factors hindering implementation fidelity during the first year of the APP were workload, competing priorities and time constraints, especially available planning time. To implement a school-based intervention successfully, time appears to be a major barrier that would prove important to overcome. Teachers are generally stressed about their workload, so the fact that the action planning seemed like extra work did not facilitate the process. In the *Action Schools!* BC report, teachers also stated not having sufficient time for planning/meeting to schedule and coordinate actions. Similar to the findings of Naylor et al. (2006), competing for curriculum time, teacher overload, lack of belief in the programme, and a lack of communication were deemed to be barriers in this process. Since teachers are accustomed to prescriptive planning and ways of teaching, there was a view that the process was too broad and should be narrowed down or be more focused.

The process of placing the HK behaviour outcomes into the existing LO learning areas was well received, since teachers found these matched their existing curriculum. This indicated developing the HK curriculum document to have been of some value. Nutrition education, however, has to compete with a range of other academic subjects. Health-related topics can easily be marginalised when competing with conventional academic subjects or other extracurricular activities (Van Deventer, 2009). Glasauer, Aldinger, Sen-Hai, Shi-Chang and Shu-Ming (2003) concluded that in China, quality support materials may not be made available to schools unless nutrition and health education is integrated into the standard curriculum.

A theme evident throughout the three phases was that the curriculum document integrates well into the existing school LO curriculum. An Australian study assessing teachers' understanding of the health promoting schools' concept concluded that teachers tend to consider health in relation to the existing curriculum and subjects (St. Leger, 1998). Similarly, teachers in the HK intervention appreciated that this could fit into other subject areas of the existing curriculum; nonetheless, they used it where they saw the best fit.

Although the HK curriculum document made them more likely to take their learners outside for PA lessons, teachers still felt a need for training. A lack of PA equipment and infrastructure was an additional problem. Some authors raised concerns about the need of training for LO teachers (Christiaans, 2006; Rooth, 2005; Van Deventer, 2009). At a school where all teachers were expected to teach LO, Rooth (2005) found they had received pre-planned packs at the beginning of the year without further input. Consequently, they resented teaching LO or did so in a mechanical manner. Although they might realise the value of LO, teachers felt they were not giving justice to the subject area, because they were not experts (Rooth, 2005).

Several studies have found teacher training and support to be important aspects of the intervention. For example, findings of the process evaluation at *Action Schools!* BC included a high level of satisfaction for the training given to teachers and trainers. Benefits included improvement in these Canadian teachers' confidence to implement activities in their classrooms and their intentions to deliver healthy activities (McKay, 2004). Similarly, teachers in our study reported that they probably would not have used the HK curriculum document without continued input from the HK team, although easy to use, well-structured and aligned with current LO learning outcomes. This need for training and support was also echoed in the findings of St. Leger (1998), where teachers highlighted the need for professional development in school health. Hesitancy of teachers to use a resource specifically targeting health might be attributed to a lack of knowledge related to health and nutrition, as was found to be the case by Oldewage-Theron and Egal (2012), who concluded in their study that nutrition education influences the entire school environment. Likewise, the FAO report (2007) mentions that schools play an important role in children's health and nutrition, since teachers have a great influence on their attitudes and behaviour.

The last round of interviews indicated that teachers were gaining a broader insight where they recognised the importance of using the whole school environment to facilitate healthy lifestyle education, especially the nutrition environment. This demonstrates that teachers' health and nutrition knowledge appears to be open to change through training and engagement in a healthy lifestyle project. This concurs with the findings of Oldewage-Theron and Egal (2012), who concluded that although the knowledge of LO teachers is not ideal, it can be improved through intervention. Data from Phase Three also indicated that all but two of the teachers who were

interviewed, made use of the curriculum document before the workshop took place. This attests to the fact that training and familiarisation can improve intervention uptake. Similarly, Deal, Jenkins, Deal and Byra (2010) recommend that professional training should not be a once-off or short-term process, but continuous to improve teachers' confidence and the likelihood of implementation.

Towards the end of the HK intervention the current Curriculum and Assessment Policy Statement (CAPS) was published (DBE, 2011). Changes imposed by the CAPS included allocating three hours instructional time to Health and Environmental Responsibility in the fourth term, which covers a number of topic areas. In Grade Four, this includes 'Dietary Habits of Children' and in Grade Five, 'Healthy Eating for Children'. Grade Six allocates four and a half hours to the aforementioned area, which covers 'Food Hygiene'. Interestingly, the South African FBDG have been included under these topics for Grade Five.

The ISHP framework advocates implementation of health education, including nutrition and PA, within the national curriculum (DoH & DBE, 2012). Health education and nutrition, in particular, should be available to learners through the national curriculum "Life Skills" subject, accompanied by co-curricular/school-based activities (DoH & DBE, 2012). This is supported by another study among teachers, principals and curriculum advisors to incorporate the FBDG into the national school curriculum (Nguyen, De Villiers, Fourie, Bourne & Hendricks, 2013). Similarly, findings from our research suggest implementing healthy lifestyles through the following recommendations along with the ISHP and CSTL programme.

Recommendations for Future School Interventions

Since time constraints were identified as a significant barrier in this study, securing time with teachers and principals for training, planning and follow-up consultations is recommended. Exploring the possibility of integrating the HK document into the national curriculum in collaboration with the DoE would also be a viable method to alleviate the perceived "extra work" teachers do not appreciate.

Although the HK document still compliments the current Intermediate Phase Life Skills curriculum within the CAPS (DBE, 2011), the minimal time allocation beckons for an extra-curricular healthy lifestyle programme.

Results of this study indicate that aligning the objectives of proposed curriculum content within existing learning outcomes increases the likelihood that the resource would be used. One of the major gaps in the PE learning area overall, is LO teachers' lack of training. Van Deventer (2009) identified that LO teachers are not qualified to teach all learning outcomes, therefore they should receive in-service education and training enabling them to teach LO as an integrated whole. Involving university students in health-promoting projects at schools could probably play a role in increasing teachers' knowledge which would lead to educating learners (and their parents) about health and nutrition (Du Plessis, Koornhof, Daniels, Sowden & Adams, 2014).

Oldewage-Theron and Egal (2012) proposed that adequate training should be continuous, interdisciplinary and afforded enough time. The importance of recognising other areas where teachers may require additional training, such as nutrition, needs to be emphasised. To facilitate a successful intervention, methods to facilitate teacher motivation and commitment to the intervention process ought to be explored. In their recent systematic review, Wang and Stewart (2013) also suggested that teachers receive more professional training regarding health promotion. Additional qualitative studies and longer intervention phases were also proposed, so as to promote school-based nutrition programmes.

Strengths and Limitations

There were various limitations in implementing the HK programme, which will be discussed in a separate paper. A major limitation in the evaluation of this part of the study was that limited time was available to interview teachers. They were often not aware of the scheduled interview, as principals did not confirm these with the teachers. Thus, they were not prepared for the interviews, and often had competing commitments. Interviews conducted during break times and after school often had to compete with the outside noise of learners. The interviewer [JH], who was part of the project team, had a good rapport with the participants, which strengthened the study by creating familiarity, which resulted in trust and ease for open communication.

Conclusion

The HK intervention programme incorporated many of the recommendations and strategies pointed out by the FAO report (2007) and the DPAS (WHO, 2008). These could provide insight into the practical implications of attempting to incorporate healthy lifestyle teaching in the school curriculum by health and education experts from developing and middle-income countries in Africa and elsewhere.

At the outset of HK, the project team anticipated that the OBE principles would enable teachers to easily integrate the behaviour outcomes of the HK programme into the curriculum. However, the teachers in our sample are accustomed to a prescriptive

way of lesson preparation and teaching. Hence, a more structured and focused approach was needed, resulting in the development of the HK curriculum document. Since teachers are at the centre of delivery in school-based interventions, they need to understand and appreciate the importance of healthy lifestyles, i.e. the health promotion concept, for a curriculum intervention to be successful (Mukoma & Flisher, 2004).

Our findings indicate that integrating project-specific healthy lifestyle outcomes into the LO curriculum can be sustainable; however, an appropriate introduction, continued interaction and support needs to be in place.

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