



Addressing household food and nutrition insecurity through an enriched school curriculum

Abordar a insegurança alimentar e nutricional das famílias através de um currículo escolar enriquecido

Abordar la inseguridad alimentaria y nutricional en los hogares mediante un currículo escolar enriquecido

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Abstract: In recent years, several South African Government policies as well as community-focused interventions have been put into effect in an attempt to address household food and nutrition insecurity. This drive is based on the continued challenge of malnutrition, non-communicable diseases, food and nutrition insecurity, as well as hunger within the country. When considering suitable platforms for such health promotion interventions, schools are regarded as suitable environments and unique resources that can promote quality of life, community-wide health and collective well-being through the implementation of school-based interventions. Against this background, we undertook a participatory research project in three purposefully selected primary schools in a resource-constrained community in South Africa, with the purpose of developing and implementing a school-based intervention with Grade 4 to 6 learners to support healthy food and dietary practices in the community. To be more specific, the Wellness in Lifestyle, Intake, Fitness and Environment (Win-LIFE) intervention aimed to facilitate positive change in terms of healthy

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food choices, production, preparation and consumption within the participating community. The intervention was conceptualized in collaboration with teachers, school principals, governmental officials, university informants and parents of the participating schools, to be facilitated by teachers as part of the national school curriculum in the subjects Life Skills, and Natural Sciences and Technology. The findings of our study indicate that the Win-LIFE intervention was successful in enriching the national school curriculum. As such, we argue in this article that schools can act as sites for social change in vulnerable communities.

Keywords: Enriched school curriculum; Food and nutrition insecurity; Health promotion intervention; School-based intervention; Win-LIFE.

Resumo: Nos últimos anos, várias políticas governamentais sul-africanas, bem como intervenções centradas na comunidade, foram postas em prática em uma tentativa de abordar a insegurança alimentar e nutricional das famílias. Este esforço baseia-se no desafio contínuo da desnutrição, das doenças não transmissíveis, da insegurança alimentar e nutricional, bem como da fome no país. Ao considerar plataformas adequadas para tais intervenções de promoção da saúde, as escolas são consideradas como ambientes adequados e recursos únicos que podem promover a qualidade de vida, a saúde de toda a comunidade e o bem-estar coletivo através da implementação de intervenções baseadas na escola. Neste contexto, levamos a cabo um projeto de investigação participativa em três escolas primárias selecionadas propositadamente em uma comunidade com recursos limitados na África do Sul, com o objetivo de desenvolver e implementar uma intervenção baseada na escola com alunos do 4º ao 6º ano para apoiar práticas alimentares e dietéticas saudáveis na comunidade. Mais especificamente, a intervenção Bem-estar no Estilo de Vida, Ingestão, Condição Física e Ambiente –“Wellness in Lifestyle, Intake, Fitness and Environment” - (Win-LIFE) teve como objetivo facilitar uma mudança positiva em termos de escolhas alimentares saudáveis, produção, preparação e consumo na comunidade participante. A intervenção foi concebida em colaboração com professores, diretores de escolas, funcionários governamentais, informadores universitários e pais das escolas participantes, sendo facilitada pelos professores como parte do currículo escolar nacional nas disciplinas de Competências para a Vida e Ciências Naturais e Tecnologia. Os resultados do nosso estudo indicam que a intervenção Win-LIFE foi bem-sucedida no enriquecimento do currículo escolar nacional. Como tal, defendemos neste artigo que as escolas podem atuar como locais de mudança social em comunidades vulneráveis.

Palavras-chave: Currículo escolar enriquecido; Insegurança alimentar e nutricional; Intervenção de promoção da saúde; Intervenção de base escolar; Bem-estar no cotidiano.

Resumen: En los últimos años, se han puesto en práctica varias políticas del gobierno sudafricano, así como intervenciones centradas en la comunidad, en un intento de abordar la inseguridad alimentaria y nutricional de los hogares. Este impulso se basa en el desafío continuo de la desnutrición, las enfermedades no transmisibles, la inseguridad alimentaria y nutricional, así como el hambre en el país. Al considerar plataformas adecuadas para tales intervenciones de promoción de la salud, las escuelas se consideran entornos adecuados y recursos únicos que pueden promover la calidad de vida, la salud de toda la comunidad y el bienestar colectivo mediante la implementación de intervenciones escolares. En este contexto, llevamos a cabo un proyecto de investigación participativa en tres escuelas primarias seleccionadas intencionalmente en una comunidad de recursos limitados en Sudáfrica, con el propósito de desarrollar e implementar una intervención escolar con estudiantes de cuarto a sexto grado para apoyar alimentos y dietas saludables. prácticas en la comunidad. Para ser más específico, la intervención Bienestar en el estilo de vida, la ingesta, el estado físico y el medio ambiente (Win-LIFE) tenía como objetivo facilitar un cambio positivo en términos de elección, producción, preparación y consumo de alimentos saludables dentro de la comunidad participante. La intervención fue conceptualizada en colaboración con maestros, directores de escuelas, funcionarios gubernamentales, informantes universitarios y padres de las escuelas participantes, para ser facilitada por los maestros como parte del plan de estudios escolar nacional en las materias Habilidades para la vida y Ciencias naturales y tecnología. Los hallazgos de nuestro estudio indican que la intervención Win-LIFE logró enriquecer el plan de estudios escolar nacional. Como tal, en este artículo sostenemos que las escuelas pueden actuar como sitios para el cambio social en comunidades vulnerables.

Palabras clave: Plan de estudios escolar enriquecido; Inseguridad alimentaria y nutricional; Intervención de promoción de la salud; Intervención basada en la escuela; Bienestar en el cotidiano.

Introduction

Over the last three decades, researchers, policy makers and teachers in South Africa have increasingly emphasized the institutionalization of health promotion through Nutrition Education in support of the collective well-being of all learners in schools (FAO, 2009; DEPARTMENTS OF HEALTH AND BASIC EDUCATION, 2012). To this end, several national policy documents – underscored by international initiatives – stipulate specific objectives for the public-school sector, such as the provision of preventative and health-promoting services that can support the health-related needs of school-going learners, as well as the identification of and support for health-related barriers to learning (DEPARTMENTS OF HEALTH AND BASIC EDUCATION, 2012). According to the South African Departments of Health and Basic Education (2012), these objectives can be pursued through strategies such as health promotion interventions as well as community partnerships and participation. Such interventions may in turn align with and support the goals and objectives of BRICS (Brazil, Russia, India, China, and South Africa), thereby adding to the growing body of knowledge that drives this initiative.

When considering suitable platforms for health promotion interventions, schools are viewed as excellent environments and unique resources that can promote quality of life, community-wide health and collective well-being through school-based interventions (UNICEF, 2019), due to the possibility of continued contact with school-aged learners. To be more specific, large numbers of learners of varying socio-economic levels and backgrounds can be reached through school-based health promotion interventions, which imply the possibility of improved levels of quality of life, development and overall health for the broader community (ROSEMAN; RIDDELL; HAYNES, 2011). As one option, Beecher and Sweeny (2008) specifically propagate participatory health promotion efforts through curriculum enrichment. Such curriculum enrichment efforts may take the form of comprehensive action-based interventions that respond to the unique needs of specific school-communities, with these efforts being broader than the regular curriculum and potentially extending beyond the traditional school day.

In this article we discuss an example of such a school-based health promotion intervention that focused on curriculum enrichment. Based on the findings we obtained, we argue that enriched school curricula can be utilized as platforms through which food and nutrition security policies can be implemented, thereby addressing the global Sustainable Development Goals (SDGs) (UNITED NATIONS, 2018). By integrating food and nutrition-related topics into the school curriculum, South Africa may not merely address current challenges on a national level but also possibly contribute to some of the global goals that align with the BRICS framework. To elaborate, such initiatives may support the aim of the BRICS framework, of fostering collaboration, innovation, and shared responsibility, thereby positioning education as a pivotal tool for sustainable development and enhancing resilience against food insecurity.

In our discussion, we report on one phase of a broader research project that was undertaken in three primary schools in a resource-constrained community in South Africa. The broader project entailed the development and implementation of the Wellness in Lifestyle, Intake, Fitness and Environment (Win-LIFE) intervention with Grade 4 to 6 learners, as part of an enriched school curriculum in two school subjects. As the long-term focus fell on the promotion of adequate nutrition, universal primary education and improved access to social support, with the aim of relieving malnutrition, hunger and non-communicable diseases, the broader research project was guided by the SDGs 1, 2, 3 and 4.

In the following sections, we discuss existing literature as background to the focus of our research. We then explain the research methodology we employed, referring to the research design, selection procedures, data generation, documentation and analysis methods, and research ethics. Next, we present the results we obtained, followed by a discussion of these results against the background of what is known in the field.

Food and nutrition insecurity in South African resource-constrained communities

Existing research underscores a range of food and nutrition-related insecurity challenges experienced by many South African citizens. To be more specific, this country faces challenges such as ensuring enough food for future generations, access for all citizens to sufficient food, educating citizens to make the correct choices in terms of

nutritious and safe food, the availability of adequate food emergency systems in case of natural disasters, and ongoing research on the impact of food security interventions in targeted communities (DRIMIE; RUYSENAAR, 2010; UNICEF, 2019). Even though the level of food and nutrition insecurity in South Africa is lower than in other Sub-Saharan Africa countries, household food insecurity persists in many communities in the country. One of the main objectives of BRICS is to encourage collaboration amongst BRICS member countries and pursue sustainable development to reduce poverty which in the South African context, can be equated to the improvement of food security. With poverty negatively influencing the attainment of the SDGs, the BRICS countries passed a resolution of achieving zero hunger by 2030. It follows that health promotion interventions such as the one we report on in this article, may contribute to the achievement of this goal.

According to Drimie and Ruysenaar (2010), household food and nutrition insecurity can be linked to challenges such as high medical costs, funeral expenses and low labour productivity. In addition, the extent of food and nutrition insecurity is continually intensified by factors such as limited food- and nutrition-related information and knowledge of the general public, unhealthy eating habits, nutrition-related customs, attitudes and related perceptions of food, and socio-cultural eating habits. If these aspects can be addressed through targeted school-based health promotion interventions, a positive effect may be facilitated in terms of the nutritional status of South African learners and other members of society, specifically in resource-constrained communities.

To elaborate, members of resource-constrained communities often tend to consume less healthy food, limit portion sizes, or miss out on meals or food intake for complete days in an effort to cope with household food and nutrition insecurity. According to Caprio et al. (2008), this trend of unhealthy eating habits in resource-constrained communities can be ascribed to factors such as the affordability of energy-dense yet nutrition poor food items, the environment, accessibility to a variety of food items, lack of education and cultural patterns.

National policies to address household food and nutrition insecurity

In addition to a continued focus on social grant provision for vulnerable households over recent years, the South African government has introduced several programmes,

policies and initiatives to address food- and nutrition-related challenges in the country. As an example, the Integrated School Health Policy aims to support the general health and well-being of school-going learners through quality education (DEPARTMENTS OF HEALTH AND BASIC EDUCATION, 2012). Closely related, the national Care and Support for Teaching and Learning Programme provides an outline of how various care-based interventions can be linked to support the development and learning of school-going learners within their related school-communities (DEPARTMENT OF BASIC EDUCATION, 2010). Next, the National School Nutrition Programme (NSNP) is a school-based intervention that aims to address hunger and malnutrition in school-communities. This programme promotes Nutrition Education for learners, teachers and parents through school-based vegetable gardens as well as extra- and co-curricular activities. The Sustainable Food Production Programme in schools is a sub-programme of the NSNP, intended to support school-communities by providing knowledge and practical skills on food production, as well as the sustainable use of natural resources (DEPARTMENT OF BASIC EDUCATION, 2011).

On a broader level, the South African government launched the South Africa Vision 2025 initiative almost a decade ago to, amongst other goals, utilize schools as locations that can encourage learners to access health promotion (DEPARTMENT OF BASIC EDUCATION, 2011). Closely related, the South African Integrated Food Security Strategy (DRIMIE; RUYSENAAR, 2010) was initiated twenty years ago in support of the eradication of hunger and malnutrition, and the integration of existing food and nutrition insecurity interventions by different governmental departments, with the key objective of overcoming rural household food insecurity. In addition, the National Development Plan 2030 (THE PRESIDENCY OF SOUTH AFRICA, 2015) entails a broad-spectrum initiative that aims to support South Africans to eliminate income poverty, strengthen employment rates, confirm household food and nutrition security, and ensure access to clean running water for all South Africans. Finally, the Fetsa Tlala Integrated Food Production Initiative (End Hunger) endeavours to contribute towards food and nutrition security for all (DEPARTMENT OF AGRICULTURE FORESTRY AND FISHERIES, 2013).

Utilising school-based interventions to address food and nutrition insecurity

School-based interventions have provided positive results when attempting to address household food and nutrition insecurity, household-related poverty, and the nutritional status of communities. In addition to sharing information on healthy food and dietary practices, the inclusion of components such as school/community-based vegetable gardens can empower members of resource-constrained communities with a skill that may in turn facilitate positive sustainable change. Schools therefore hold the potential of positively affecting the health and well-being of both learners (and by implication the broader community) as well as the staff members of a school (MERTENS et al., 2020).

The important link between education and health is emphasized across disciplines, with health influencing learning proficiency, yet in turn being influenced by regular school attendance and quality education. In addition to the potential role of schools on the health of individuals, school-based health promotion interventions can support the long-term growth of developing countries, with the implied possibility of addressing poverty. To clarify, schools can be regarded as universal agencies through which society can prepare learners for their future (UNICEF, 2019) by developing and implementing population specific health promotion interventions that may address the health-related and socio-economic challenges affecting learners (DEPARTMENTS OF HEALTH AND BASIC EDUCATION, 2012). In this regard, it can be argued that a positive effect on health-related behaviour amongst learners can result in healthy eating patterns in adulthood. As an additional benefit, better health and the collective well-being of learners may positively affect their scholastic performance, through better levels of classroom participation, school attendance and learner attitudes (TURUNEN; SORMUNEN; JOURDAN, 2017).

As schools form an important link between learners and parents as well as the broader community, school-based interventions that involve parents, families or members of the broader community can facilitate positive change in the community (DEPARTMENTS OF HEALTH AND BASIC EDUCATION, 2012; O'HALLORAN et al., 2021). In this manner, the health system may reach far beyond the walls of health institutions and related facilities if utilizing the pathway of school-based health promotion interventions (LEE; LO; LI, 2019). When viewing these possibilities through the lens of a strength-based approach, schools can thus be utilized to explore and mobilize the assets of and resources available to learners, their parents and the broader community at

individual, community and institutional level, in support of community-wide health and collective well-being.

Against the background of our discussion in the preceding sections, the current state of food and nutrition insecurity in South Africa, and the research we conducted, we argue for a stronger emphasis on Nutrition Education in the national school curriculum. This view is echoed by Wenhold, Muehlhoff and Kruger (2016), who emphasize the importance of schools in accentuating healthy food consumption practices and nutrition-related aspects, whether or not these messages form part of the national school curriculum or other school-based health promotion interventions. By focusing on healthy eating habits, school-based interventions can for example contribute to addressing malnutrition, hunger and non-communicable diseases not only amongst learners but also in the broader community. As school-based interventions can have an effect on learners during critical developmental stages of their lives, their eating habits and lifestyle patterns may be informed, with the added benefit of potentially also reaching their parents and the broader community (WENHOLD; MUEHLHOFF; KRUGER, 2016).

Background on the Win-LIFE intervention

The Win-LIFE intervention that we report on culminated from a collective effort by a team of researchers who closely collaborated with teachers, school principals, parents, government officials and university informants. The intervention was developed with the aim of enhancing learners' and subsequently parents' knowledge, skills and attitudes about healthy food choices and nutrition-related aspects, while encouraging healthy food choice, production, preparation and consumption practices in the specific community. The national school curriculum served as a basis, with the Win-LIFE intervention enriching the existing content included in the subjects Life Skills, and Natural Sciences and Technology. As such, discussions, examples and activities were added to the content covered in the current national curriculum, thereby adding enriched content to what is expected to be discussed in class.

An activity-based mode of instruction was adopted for implementation of the Win-LIFE intervention, and experiential learning relied on to assist learners with the understanding and application of the learning content (GOLDBERG et al., 2019). Group

work and active participation were important. For this reason, experiments and classroom-based as well as home-based activities formed part of each lesson presentation. Colourful supportive material enhanced the quality of the lessons presented weekly to Grade 4 to 6 learners in the three participating schools. Homework activities were targeted at both learners and their parents, with the implied possibility of knowledge transfer. Moreover, the focus of the intervention on improved knowledge and skills was aimed at supporting healthy eating practices, in terms of food choice, production, preparation and consumption – not only of the participating learners but also the people interacting with them in the systems they function in.

The Win-LIFE intervention was implemented in primary schools in a resource-constrained community in South Africa. The community is characterized by high levels of poverty and unemployment, as well as social challenges such as at-risk sexual behaviour, crime, family and community violence, and hunger and malnutrition. Some of the houses or informal dwellings in the community lack electricity and running water as well as healthy sanitary systems. Children in the community often attend school hungry and typically lack the necessary resources to perform optimally.

Methodology

We adopted interpretivism as meta-theory, as it allowed us to generate data in an interactive manner, with the aim of understanding and interpreting the meaning underlying the participants' perceptions, experiences and opinions (DENZIN; LINCOLN, 2011). We followed a qualitative approach (FLICK, 2014), applying Participatory Reflection and Action (PRA) principles (CHAMBERS, 2017), thereby allowing us to collaborate with people on ground level in exploring their views and perceptions, during an interactive process.

Our decision to employ PRA principles was based on the possibility of actively involving the participants, with this becoming a source of power to the participants through access to new knowledge and skills. We accordingly regarded the participants as the experts of their own lives who have constructed meaning based on their own interactions and personal experiences. In this way, the Win-LIFE intervention was developed through a process of participatory engagement and data generation activities

with the participants, and subsequently an analysis and interpretation of the lived experiences of local people (teachers, principals and parents) in a specific resource-constrained community in South Africa.

Research design and selection procedures

We implemented a multiple case study research design, thereby relying on multiple data sources which could capture multiple perspectives (CRESWELL, 2012). We included three research sites, being primary schools in a resource-constrained community situated in Gauteng, South Africa. The schools – taken as cases – were purposefully selected, as were the different groups of participants, with the aim of involving participants who could provide rich in-depth information on their perceptions and experiences. To be more specific, we relied on criterion sampling (as variation of purposive sampling) to select three school principals, two deputy principals and 30 teacher-participants from the three schools involved in the broader research project. Next, we relied on maximum variation sampling to select 15 university informants and four government officials as participants. This approach aligned with the selected interpretivist paradigm, enabling us to include multiple perspectives from different groups of individuals (PATTON, 2002; CRESWELL, 2012).

The data we report on in this article relate to two aspects explored as part of the broader research project. Firstly, we present the participants' perceptions of the participatory development process that was followed for the Win-LIFE intervention. Secondly, we discuss our results on the value of school-based interventions in the form of an enriched school curriculum, that may be utilized to implement national food and nutrition security policies in support of the formulated SDGs (UNITED NATIONS, 2018).

Data generation, documentation and analysis

We followed a multi-method data generation approach in our attempt to enhance the depth of understanding of the phenomenon we explored. Our choice of data generation strategies was linked to the decision to apply PRA principles, resulting in the inclusion of creative, flexible and visual data generation strategies (CHAMBERS, 2017).

As background to the empirical research we conducted, we completed a structured document analysis (DENZIN; LINCOLN, 2011) of national and international policy documents, to gain insight into existing school-based health promotion interventions that focus on the health and development of school-going learners and the communities in which they live and learn. Next, we facilitated a range of PRA-guided work sessions (CHAMBERS, 2017) with school principals, teachers, parents, and government officials to explore, discuss and finalize the content and implementation mode of the Win-LIFE intervention. During these sessions, small groups of participants first discussed suitable content to include in the intervention, and then presented their ideas to the bigger group.

In support of this initial phase of exploring ideas for suitable content to include we also conducted semi-structured interviews with the principals of the participating schools and with the selected government officials. In addition, we facilitated focus groups with university informants from five different departments at a higher education institution as well as with 13 of the teacher-participants. Based on the data we obtained, we developed a preliminary version of the Win-LIFE intervention that was presented at a follow-up PRA-guided work session with the teacher-participants, for them to further discuss and inform the refinement of the preliminary version of the intervention. During this session, teachers were asked to comment on the initial version of the intervention, provide positive and negative comments, and make recommendations for improvement. In support of the PRA-guided sessions and the interviews we facilitated, we relied on observation-as-context-of-interaction (ANGROSINO; MAYS DE PÉREZ, 2000), audio-visual data capturing and documentation strategies (BLESS; HIGSON-SMITH; SITHOLE, 2013), visual data in the form of photographs, field notes and reflective journals as data generation and documentation strategies (FLICK, 2014).

We completed reflexive thematic analysis, which is often associated with interpretivism and the application of PRA principles in qualitative studies (BRAUN; CLARKE, 2021). The purpose was firstly to describe and understand the participants' experiences and the manner in which they had constructed meaning. Secondly, we attempted to capture the diversity and variety of the participants' experiences. Thirdly, we aimed to strengthen the participants' voices, and finally, we focused on studying individuals in their natural contexts (BLESS; HIGSON-SMITH; SITHOLE, 2013).

Ethics

In conducting our research, we were guided by ethical awareness, the protection of human rights and social justice (SHAW, 2008). Our ethical decision-making was informed by reflexivity, shared dialogue and collegial consultation to ensure ethically justifiable research. As a first step, we obtained ethical clearance from the relevant higher education institution (reference number 12/09/02) as well as the national Department of Education and the respective schools that were involved. We honoured the principle of respect by obtaining voluntary informed consent prior to any participant's participation in the study, for their participation, the recording of discussions, observations and photographs. In addition, we respected beneficence throughout our research, thereby protecting the safety of the participants by not exposing them to dangerous situations and preventing any harm from occurring (STRYDOM, 2011; TRACY, 2019).

In line with the ethical principle of privacy, stipulating that all obtained information must be handled in a confidential manner and with sensitivity, we protected the identity and privacy of the participants by using pseudonyms, through the safekeeping of all raw data sources in a locked cabinet and by means of electronic files being password protected. We did not mislead the participants, nor did we withhold any information or misrepresent facts. We also attempted to view the research phenomenon through the eyes of the participants and remained aware of cultural differences during our interactions with the various groups of participants (TRACY, 2019).

Results

We identified four themes that relate to the development and implementation of the Win-LIFE intervention, more specifically in terms of the value of an enriched curriculum when aiming to address household food and nutrition insecurity in resource-constrained school-community contexts, in support of policy implementation and the achievement of the formulated SDGs. Even though data was obtained on certain challenges experienced during implementation of the Win-LIFE intervention related to

the intervention's alignment with the sequence of topics covered in the current school curriculum and the time of the year that it was implemented, as well as teachers experience of this adding to their workload; the focus of our discussion in this article falls on the value of the intervention rather than the challenges that were experienced. As the challenges identified by the participants primarily focus on the mode and time of implementation and not on any limitations of enriching the curriculum, these do not directly relate to the focus of this article. No negative views were expressed by any participant with regard to the themes put forward in this section.

Role of schools in community health promotion

The participants perceived schools as important agencies for health promotion in resource-constrained communities. To this end, they described schools as ideal environments to support and promote the health of school-going learners. One of the teacher-participants for example stated that schools are at the center to improve the health, nutritional status and well-being of learners. This perception was confirmed by a government official who described schools as unique settings for community support, saying that schools are in the ideal position to reach several people in their surrounding communities and can support them through health promotion. The university informants shared this view, emphasizing that it is important to acknowledge that schools are ideal settings to 'answer' to the needs and requirements indicated by the teachers and parents. In confirmation, school principals acknowledged schools as easy-access settings, with day-to-day contact with large groups of learners and important settings to promote health, well-being and development through teaching, learning and information-sharing.

Other participants referred to the benefit of schools providing a platform through which large groups of people can be reached when aiming to promote health and well-being. As an example, one of the government officials emphasized that schools are the most effective and efficient way to reach large groups of people. University informants agreed and elaborated on the potential impact of schools on learners during the various developmental stages across their school-going years, by saying that schools can reach large groups of learners at influential stages in their lives, for example, during early childhood and adolescence. Schools are also in a position to influence and form lifelong

healthy eating patterns, during every single grade.

A school principal related the health promotion role of schools to possible benefits for the entire community, in addition to the learners involved. The principal stated that schools can provide opportunities for learners to practice important skills, such as decision-making about food choices and decisions about vegetable gardening and the production of vegetables. You know, schools can do so much if everyone is willing to participate. In line with this opinion, a government official shared the view that schools have the capacity to improve and protect the health of the school-community, through the teaching and learning of particular topics and the incorporation of a participative approach. It seems as if the need for partnerships and close collaboration involving the education and health sectors is almost universal. As a result of these contributions, during the development of the Win-LIFE intervention, which took the form of an enriched curriculum, the importance of health promotion and the role that schools can fulfil in this area, were continuously considered.

Schools as facilitators of parent and community involvement

The participants emphasized the importance of community participation and involvement in health promotion initiatives. They specifically referred to schools being in a good position to facilitate parent collaboration and community involvement during the development of school-based health promotion interventions. In this regard, the principals as well as the teachers underscored the importance of not only including learners, but also their parents as well as members from the broader community in school-based health promotion initiatives, such as interventions focused on enriched school curricula. In the words of a school principal, one usually thinks immediately only about the learners when you talk and think about school-based health promotion. Schools can also promote health or health-related information to educators, families and other community members.

In support of this view, another school principal similarly highlighted the supportive role that schools can fulfil in promoting the health of both learners and their parents. The principal namely stated that schools provide the best opportunities to impact on both the immediate and long-term health of not only learners, but also their

parents and the community surrounding the school. A government official added that, although the participating schools are not nearly close to being health promoting schools, we are in a position to promote health in collaboration with parents and community members, thereby emphasizing the importance of involving parents and the community when attempting to facilitate positive change. Closely aligned, another school principal accentuated the value of including parents in school-based health promotion initiatives, saying that, although we are struggling a lot with parent participation at times, we have seen the difference it can make. Schools can promote health and are in the position to inform families and community members about healthy eating and how to prevent malnutrition collaboratively.

This theme does not merely foreground the potential value of involving learners and their parents when developing school-based interventions; it also highlights the value of involving a wider audience, more specifically in terms of the benefit of parent involvement on a broader level. Based on these results, the Win-LIFE intervention was developed in a collaborative manner in such a way that parent and community member involvement could be encouraged, with the broader goal of facilitating positive change in the participating community.

Possibility of enriching school curricula

The university informants, government officials, school principals and teachers who participated all seemed aware of the fact that health promotion forms part of the South African school curriculum, more specifically of the Life Skills subject. The participants however shared the view that the current topics covered in this subject on health and maintaining a healthy lifestyle could be supplemented through additional activities, thereby taking the form of an enriched curriculum. In addition, the participants suggested that there isn't adequate time in the current curriculum to fully address everything in a developmentally appropriate manner related to health, as well as all the other social issues in our community.

One of the principals confirmed that schools in South Africa had been given the mandate and responsibility to encourage healthy eating habits amongst learners, parents and community members. He elaborated by stating that schools provide a setting to introduce Nutrition Education through the Life Skills learning area to learners to promote

good nutrition and healthy eating. Especially in the lower grades, there are excellent opportunities because eating habits are formed early in life and learners can also share their new knowledge with their parents at home. Another principal added that schools are in the position to support learners to acquire the necessary knowledge, attitudes, beliefs and skills needed to make informed decisions and practice healthy eating habits. Contributions such as these point to the participants' belief that schools can provide a suitable platform for the implementation of enriched curricula in certain subjects such as Life Skills, that can promote health and well-being in the community and address household food and nutrition insecurity.

The university informants and government officials similarly referred to the possibility of enriching the national school curriculum. According to them, it is definitely possible to integrate more aspects related to nutrition, healthy food choices, diseases and the structure of the body into the learning content of the Life Skills subject as part of an enriched curriculum. In confirmation, school principals and teachers indicated that learners will benefit if they can engage in extra activities related to health and Nutrition Education for personal and social wellbeing. These extra activities will enrich the curriculum and can form part of some kind of extra-curriculum programme. As schools, together with other stakeholders, we cannot only inform learners, we can also enrich or add on to the current curriculum we are following. Several teachers suggested that health promotion can similarly be presented in the form of hands-on activities and games. In this way we will enrich the Life Skills curriculum collaboratively. University informants and government officials added that through enriched curriculum activities, games and different workstations, we can potentially improve learners' sense of responsibility, their environmental attitudes and not only their curriculum-based knowledge.

It therefore seems clear that the different groups of participants all shared of the view that an enriched school curriculum can serve as a platform to promote the health and well-being of learners, parents and the community. The participants specifically referred to the Life Skills curriculum as a suitable option, indicating a number of strategies and activities that could be included in the existing curriculum.

Value of networking with governmental departments

In addition to the view that parent involvement was important for the development of the Win-LIFE intervention, the participants indicated that networks with governmental departments could strengthen any school's ability to support health promotion in the community. In this regard, a school principal stated that, although schools can be used to introduce and share health-related information with learners, their parents and the surrounding community, collaboration between government officials from departments such as the Departments of Basic Education, Social Development and Health, can benefit not only the school and learners, but definitely also the surrounding community. These departments can assist to identify the diverse health-related challenges, as well as the necessary interventions to change it.

The university informants and teachers agreed and similarly referred to the value of collaboration between the community and local governmental departments. The participants elaborated by saying that, if we work together with other government departments, we can make a difference in our community. By means of established networks, people will have better access to more information and services available and will be able to support themselves better. Through networking and participation, community members can be taught to support themselves more and how to make their own plans because they will have better knowledge. A school principal added that, It is fundamental for us to establish networks and good relationships with different governmental departments to set the scene for active involvement in the overall teaching and learning processes here at our school.

The participants agreed that networks with governmental departments could support learners' development, performance and behaviour. In this regard, the teachers remarked that these networks with governmental departments can support better school achievement, better attendance and behaviour of learners at school. The university informants added that schools or education as an entity on its own cannot bring about substantial change in resource-constrained communities. Networks and collaboration between the different governmental departments will ensure that there are more and better opportunities to minimize the diverse challenges in our community and also then to get the maximum results. It follows that the participants seemingly valued the potential role of external networks in health promotion interventions, such as governmental departments. Accordingly, the establishment of such networks was encouraged

throughout the broader project.

Discussion

The findings of our research confirm the value of the participatory development of a health promotion intervention, taking the form of an enriched school curriculum, as a strategy that can support the implementation of policies to address household food and nutrition insecurity in South Africa and subsequently the SDGs. This possibility is based on the fact that schools provide unique resources and suitable settings for promoting the health of learners, their parents and community members. More specifically, schools are regarded as being in a suitable position to reach large groups of learners at the various developmental stages of their lives. In this way, schools hold the potential of having a positive effect on the establishment of lifelong healthy eating patterns, thereby representing systems of care that can embrace health promotion and well-being of individuals and facilitate positive social change in communities.

The findings of our research correspond with the views of Jung et al. (2019), as well as the World Health Organization (2016), that similarly accentuate the role of schools as settings that can promote health and Nutrition Education through an enriched curriculum. More specifically, based on the potential positive influence of enriched school curricula on healthy eating habits, schools can potentially contribute to addressing malnutrition, hunger and non-communicable diseases in vulnerable communities. An enriched school curriculum in South Africa that can promote health and nutrition, directly relates to SDG2 which in return aligns with the BRICS countries' mandate to collectively support the SDG focusing on the eradication of hunger and improvement of nutrition. The integration of food security into an enriched school curriculum furthermore aligns with SDG4, as education can be regarded as fundamental for sustainable development and food security.

A study by Steyn et al. (2009) confirms this argument by presenting schools as suitable environments for health promotion interventions, with the possibility of positively influencing health-related behaviour which can subsequently become established healthy lifestyle patterns during adulthood. The Department of Basic Education (2011) confirms that learners represent a large proportion of society that is

accessible over a prolonged period of time in school settings. It follows that schools can be regarded as key role-players in reaching the goal of health promotion amongst learners, their families and the broader community, as also emphasized by the findings of our research.

In addition to emphasizing the important role of schools in health promotion initiatives, our findings prioritize parent and community involvement as important when developing school-based interventions that take the form of enriched school curricula. In this regard, our research indicates that schools can promote health and health-related knowledge not only amongst learners but also amongst teachers, learners' families and other community members, more specifically when parents and community members are involved in health promotion initiatives. These findings align with the work of Jung et al. (2019) as well as St Leger (2004) who confirm that parents represent an important link between schools and communities. These authors specifically indicate that schools where parents or families are involved will in turn positively influence the broader community. In correlation, the Departments of Health and Basic Education (2012) also indicate that the involvement of parents or families at school can provide support when aiming to facilitate positive social change through health promotion within the broader community.

With regard to the participants viewing schools as enablers of an enriched curriculum, where health promotion forms part of the current Life Skills curriculum in South Africa, our findings indicate the belief amongst the participants that this curriculum can be further supplemented and supported through various activities across different school subjects. By including curriculum-enriching activities as part of games and different work stations for activities, learners' health-related knowledge, their sense of responsibility and their attitude towards environmental matters may for example increase. In this way, the implementation of national policies to address food and nutrition insecurity can be supported. Therefore, by addressing health promotion through an enriched school curriculum, improved health and nutrition outcomes are possible. By sharing such research findings on the impact of Nutrition Education on health, the BRICS initiative can support South Africa in drafting additional school-based initiatives and policies aimed at improving the health, food security and nutrition of resource-constrained communities in the country, with these findings implying potential application value for other BRICS countries and beyond.

To elaborate and be more specific, the FAO (2009) suggests that health promotion and Nutrition Education can be incorporated in different subjects and included as part of an enriched school curriculum in South Africa, that also involve families and community members in some of the activities. In confirmation, Wenhold, Muehlhoff and Kruger (2016) maintain that health promotion and Nutrition Education ought to be integrated into an enriched curriculum to support the national South African school curriculum. According to these authors, an enriched curriculum can draw attention to healthy food consumption practices and nutrition-related habits amongst learners, with the potential of facilitating positive social change in the broader community (WENHOLD; MUEHLHOFF; KRUGER, 2016).

During such initiatives, schools are encouraged to initiate collaboration between stakeholders and external networks as this can strengthen the school-based health promotion interventions undertaken in support of the health and collective well-being of learners, their parents and the community. For example, collaboration between schools and the Departments of Basic Education, Social Development and Health will not only benefit and support schools but can also support the health and well-being of both learners and their families, as well as the broader community. In this regard, our findings confirm that schools can for example collaborate with governmental departments to assist the community in identifying health-related challenges as well as possible interventions or strategies to address the identified challenges in the specific school-community. The findings of our study furthermore foreground the possible benefit of community members having better access to information and support services when networks are in place between school-communities and external role-players in the field. As such, the establishment of networks with government departments is fundamental to set the scene for the active involvement of all stakeholders in the overall teaching and learning processes at school.

Conclusion

In undertaking our research, we collaborated with various groups of participants to develop the Win-LIFE intervention, which aimed to enrich the Life Skills, and Natural Sciences and Technology curricula of Grade 4 to 6 learners. We followed a participatory

approach and regarded the participants as experts, based on their local knowledge and experiences in terms of the health-related challenges and needs of the resource-constrained community where the research was undertaken. The ultimate aim was to facilitate positive change in the community in terms of healthy food and dietary practices, through implementation of an enriched curriculum in the two school subjects.

Based on the findings we obtained, we can conclude that schools can serve as platforms to address household food and nutrition insecurity when health promotion interventions take the form of enriched school curricula. In this way, schools can support policy implementation aimed at the promotion of quality of life, community-wide health and collective well-being of school-going learners and their families, as well as the members of the communities that the schools serve. By networking with not only learners, their families and the communities but also with external stakeholders such as governmental departments, schools can take a prominent role in initiating positive social change in vulnerable communities on ground level.

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