ORIGINAL ARTICLE

Towards Health Promoting Schools: Pilot Training and Evaluation of the Updated Urbani School Health Kit (USHK) among School Teachers in Manila

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ABSTRACT

Background and Objective. Committed to enhancing healthy living, learning, and working conditions, a health-promoting school is a potent influencer of behaviors and habits, reaching families and communities effectively. In the Western Pacific region, the Urbani School Health Kit (USHK) is one of the tools developed to integrate health promotion in schools; however, it needs to be updated to adapt to the evolving health challenges of lifestyle-related diseases. Hence, this study aimed to conduct a pilot training and evaluation of the updated USHK among school teachers in Manila.

Methods. The USHK was updated with new materials on (1) health-enhancing physical activity; (2) healthy nutrition; and (3) family and community engagement. A two-day training-workshop with 30 school teachers was then conducted to facilitate the integration of the updated USHK in their class activities. We used a multi method evaluation design to assess the implementation of the USHK. Particularly, quantitative data were obtained from the participants' feedback on the toolkit and their knowledge of health-related practices. One month later, field visits were conducted to assess the participants' abilities in utilizing the toolkit into their classes or school activities. Qualitative interviews and classroom observations were also collected post-implementation to determine potential facilitators and barriers to program delivery, and suggestions for improvement. Descriptive statistics were used to summarize participant feedback, while Wilcoxon signed rank test was utilized to determine changes in participant knowledge pre- and post-training. Qualitative data were synthesized through content analysis.

Results. Participants provided high satisfaction ratings for the training they received, as well as high scores for the updated USHK, in terms of its appropriateness and acceptability. Significant improvements in participants' overall health promotion knowledge were also noted (Z = -4.456, p <0.001), particularly involving the domains of nutrition (Z = -2.972, p = 0.003), physical activity (Z = -3.564, p <0.001), and family/community engagement (Z = -2.531, p = 0.011). Meanwhile, participants also suggested further improvements in the toolkit to enhance its utilization in the local context. Administrative support was a crucial facilitator for implementing the USHK, while resource limitations were identified as significant barriers.

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Conclusion. The updated USHK, which provides a more comprehensive health promotion approach for schools, is potentially feasible for implementation in educational institutions in Manila. The toolkit can be utilized by teachers and school nurses to integrate health promotion activities into the school environment and classroom activities. To facilitate its wider uptake and implementation in other schools, government support and resource availability are crucial.

Keywords: school health, health promotion, Philippines

INTRODUCTION

The school is an ideal setting for health promotion among children and young adults.[1] Particularly, school-based preventive strategies can be implemented to address several modifiable risk factors, including unhealthy eating habits and sedentary lifestyle, and related interventions may contribute to preventing non-communicable diseases and improving academic performance among students.[2] There is evidence, for example, that improved nutrition enhances students' learning abilities, leading to better academic performance.[3] Improving physical activity among school children also contributes to overall health, aiding in the prevention of overweight and obesity, improving mental health, enhancing the quality of life, and fostering the development of healthy lifestyle skills to combat non-communicable diseases.[4] There is also evidence that healthy habits formed during school-age years often persist into adulthood, making it an appropriate time to instill healthy lifestyle skills.[5]

As the school is a potential health-enabling environment for children, it is strongly suggested to strengthen the integration of health prevention and promotion activities in the school's teaching and learning practices.[2] Notably, the school curriculum is a vital conduit in imparting health-related knowledge, as it is through classroom instruction that students are able to acquire life skills specific to maintaining a healthy nutritional balance and an active lifestyle.[2] Beyond the classroom, improvements to the school environment, such as healthy meal options in canteens and adequate availability of physical activity facilities, further contribute to creating a conducive atmosphere for well-being.[2] Collaboration among stakeholders, including parents and teachers, is also essential to sustain efforts in creating a health-promoting environment in schools.[6,7]

Several strategies and approaches have been implemented to promote healthy habits among children in schools.[8] In the Philippines, one approach to help integrate health promotion and prevention strategies in teaching and learning in primary schools is the Urbani School Health Kit (USHK). The USHK was conceived in 2006 through collaboration between the WHO Western Pacific Regional Office (WPRO) - Health Promotion Unit, WHO Philippines, Department of Health, and University of the Philippines Open University, which was a testament to the enduring legacy of Dr. Carlo Urbani, a WHO Scientist who tragically succumbed to SARS in 2003. Dr. Urbani aimed to distribute school kits featuring deworming tablets and health education materials, a vision realized in the development of the USHK.[9]

The first iteration of USHK's development involved a meticulous review of the basic education curriculum, aligning its contents with the learning objectives and target competencies in primary schools. The first version consisted of nine teacher-resource booklets, six tarpaulin posters, flipcharts, activity materials, teaching aids, and a CD-ROM. Rooted in the principles of promoting health within educational settings, the USHK focused on six pivotal topics: (1) personal hygiene, (2) intestinal parasitism, (3) nutrition, (4) oral care, (5) tobacco, and (6) environmental health. Additional themes addressing the prevention of malaria, dengue, and filariasis were also incorporated. The prototype, inclusive of the aforementioned content, underwent a pilot test in 10 schools in Metro Manila in 2006, with full implementation spanning from 2006 to 2011.[10]

Notably, there is an increasing threat from non-communicable diseases (NCDs) to both local and global health.[11] The major risk factors that contribute to the continuous rise of such conditions include physical inactivity, unhealthy diets, tobacco use, and harmful alcohol consumption. This situation warrants the review of health promotion programs, including those of the schools, to ensure that they could appropriately address the evolving public health challenges. Hence, the USHK was updated to include four key NCD modifiable risk factors, and to promote healthy diet, non-smoking, responsible and moderate use of alcohol, and physical activity among children and adolescents. The updated USHK version also included content on how the schools can reach out to family members and the community because previous studies have shown that school-based health promotion interventions are more successful when families and community members are involved.[2,6,7]

By reinforcing physical activity, nutrition, family and community engagement, and teacher's guidance, the updated USHK endeavors to equip pupils with the knowledge, skills, and attitudes needed to lead active and healthy lifestyles, thereby promoting overall well-being and resilience against prevalent health threats. As part of the update and development of the new version of the USHK, a pilot training and implementation of the toolkit was conducted from July to August 2019. In this paper, we described the results of the evaluation of the pilot implementation of the updated USHK toolkit.

MATERIALS AND METHODS

Research Design

This paper reports the evaluation of the updated USHK on a sample of primary and secondary school teachers in Manila. For a comprehensive picture, we employed a multi method

evaluation design[12] to gather both quantitative and qualitative data that are complementary fitted with the objectives of this study, after the pilot training and implementation of the USHK. Quantitative data were obtained from determining changes in the pre- and post-test knowledge scores of the participants and their numerical evaluation of the toolkit's appropriateness and acceptability. Meanwhile, interviews were conducted among teachers after their implementation of the updated USHK to gather relevant data on the enablers and barriers in delivering the toolkit. Observation of their teachers' USHK pilot implementation was also facilitated to supplement their feedback.

Update of the USHK

The updating of the Urbani School Health Kit commenced in March 2019, with the approval of the module outlined by April 2019. The update focused on the content and suggested teaching-learning strategies. Version 1 of the four modules, including nutrition, physical activity, linking with the family and community, and teacher's guide, along with teaching aids, underwent review by WHO-WPRO technical staff in May 2019. Following revisions based on feedback, Version 2 was produced for pre-testing within the same month. The production of materials was completed by July 2019.

Pilot training and implementation of the updated USHK

The pilot training and implementation of the updated USHK was conducted in July 2019. For such purpose, primary and secondary schools within District V of the City of Manila were chosen as the target setting. This was decided for logistical advantages, including access to training and field visit sites, willingness of schools to participate, and availability of appropriate facilities for students. Thirty (30) primary and secondary school teachers handling physical education and nutrition subjects from five schools within the said district were purposively chosen and invited through the Department of Education - Division of City Schools Manila.

To evaluate the updated USHK, we conducted a 2-day training that focused on the contents of each of the revised booklets. The various teaching-learning activities suggested in the revised booklets were emphasized, as well as strategies on how to integrate the contents into the teachers' lesson plans. Prior to the training, participants underwent a 30-item pre-test to gauge their knowledge of the concepts covered in the new resource booklets. This was followed by a 30-item post-test to assess any improvement in knowledge after the training.

At the conclusion of each training day, participants evaluated the content and characteristics of each booklet using a Likert scale questionnaire to assess various characteristics of the new modules' content. Each module underwent scrutiny based on the following criteria: realism and age-appropriate learning outcomes, ease of use and comprehension, relevance to health needs, appropriateness for the learners' age, compatibility with the curriculum, cultural appropriateness examples, clarity and conciseness of messages, creative appeal to the target audience, and inclusion of meaningful learning activities. Facilitators and barriers to the use of updated USHK were identified through plenary discussions with the participants. Moreover, participants' feedback on the delivery of the training workshop were obtained through questionnaires.

A month following the 2-day training workshop, field visits to participating schools were carried out to assess the integration of the updated USHK content into the actual lessons conducted by the trained teachers. During these visits, the team evaluated whether the materials were effectively delivered in the classes using teaching aids and materials. Each school and its teachers were given the flexibility to choose among the three concepts (i.e., nutrition, physical activity, family and community engagement) for their demonstration. The teachers were subsequently interviewed to gather feedback on the utilization of the booklets.

Instruments

Several instruments were used for the evaluation of the updated USHK. First, participants were asked to provide feedback on the appropriateness and acceptability of the USHK by evaluating its content in terms of realism and age-appropriate learning outcomes, ease of use, relevance to health needs, compatibility with the curriculum, cultural appropriateness, clarity of key messages, creative appeal to the target audience, and inclusion of meaningful learning activities. A 6-point Likert scale was utilized to facilitate numerical scores (0 – lowest; 5 – highest). To assess participants' understanding and competency in key concepts (i.e., physical activity, nutrition, and community participation), a 30-item pre-test and post-test questionnaire was administered.

During the immediate post-training plenary session, participants employed metacards to identify facilitators and barriers to integrating the USHK into their lesson plans. Teachers' feedback on the USHK training-workshop were also obtained via a Likert-scale questionnaire (0 - lowest; 3 - highest), which evaluated the program's objectives, content, resource speakers, training duration, and physical arrangements.

One month post-training, trained research assistants evaluated the teaching demonstration of the teachers in incorporating the updated USHK in their respective classes using observational checklists. The observation involved determining the teachers' use of the USHK in their classroom instruction, including whether they have identified age-appropriate learning outcomes from the USHK modules, integrated contents in their current lesson, used age-appropriate learning activities, utilized the provided flipcharts and other activity paraphernalia, discussed topics using simplified language, and evaluated the students after the health education session. After the observation, a post-

implementation one-on-one interview was conducted with the participant to obtain their feedback on the updated USHK. Particularly, they were asked to share their overall experience in implementing the updated USHK, including its strengths, limitations, and suggestions for improvement. The interviews lasted an average of 30 minutes and ended when there was no new information obtained from the participants.

Data Analysis

Descriptive statistics, through mean and standard deviation, were used to summarize the participants' pre- and post-test knowledge scores, and their ratings on the appropriateness and acceptability of the updated USHK. With the small sample size in this study, a non-parametric paired sample test (i.e., Wilcoxon signed rank test) was used to determine any significant changes in the participants' knowledge across the three content domains of nutrition, physical activity, and linking with family and community. IBM SPSS version 25.0 was used to run the statistical analysis, and significance was set at $p<0.05$.

Following the school visits, the interview data, together with the collected observational data, were collated and analyzed through content analysis. This enabled the identification of common categories, patterns, and areas of strength and improvement among the participants. This analysis involved synthesizing the qualitative information gathered from each visit to derive meaningful insights regarding the effectiveness of integrating the USHK into daily lessons.

Ethical Considerations

This study was conducted in accordance with ethical principles outlined in the Declaration of Helsinki.[13] While the nature of the study as a quality improvement project exempts it from formal research ethics review, the authors adhered to ethical guidelines to ensure the protection of participants' rights and well-being. Moreover, a certificate of exemption from ethical review was secured from the University of the Philippines Manila Research Ethics Board. Participants were provided with comprehensive information regarding the purpose, procedures, and potential risks and benefits of the project. Informed consent was obtained from all participants before their involvement in any aspect of the project. Participants were assured of their right to withdraw from the project at any time without consequence.

Throughout the project, the privacy and confidentiality of participants were strictly maintained. Any personal or sensitive information obtained from participants was handled with the utmost confidentiality and used solely for the purposes of the project. The authors conducted the project with integrity and transparency, ensuring that all data collection and analysis procedures were conducted in a fair and unbiased manner. Any conflicts of interest were disclosed and managed appropriately to uphold the integrity of the project.

RESULTS

Changes in the Participants' Health-related Knowledge

Participants' overall health-related knowledge scores increased during the post-test ($Z = -4.456, p < .001$), indicating their enhanced theoretical competency in these three modules added in the USHK. Particularly, significant improvements were noted in their knowledge related to nutrition ($Z = -2.972$, $p = 0.003$). Common incorrect answers involved classifying food into three major groups and misconceptions about nutrition and dieting. Knowledge scores also increased for physical activity ($Z = -3.564, p<0.001$), although common incorrect answers were related to the recommended duration of active play and the suggested time limit for gadget use. Knowledge of linking with the family and community, also significantly improved ($Z = -2.531, p = 0.011$), with common incorrect answers focused on the types of parental involvement and sponsorships. Table 1 summarizes these results.

Participants' Evaluation of the Updated USHK

The added modules in the USHK were rated by the participants in terms of their appropriateness and acceptability (Table 2). All modules received high scores (maximum of 5): nutrition ($M = 4.74$, $SD = 0.50$), physical activity ($M = 4.84$, $SD = 0.47$), and linking with the family and community ($M = 4.28$, $SD = 0.67$).

Overall, there was a very high level of satisfaction towards the training-workshop for the updated USHK, indicated by a rating of 5 (out of 5.0) by all participants. Regarding the completed training workshop, the teachers stated that objectives were specific, measurable, realistic, and successfully met. The training contents were also rated as adequate, properly aligned, and appropriately sequenced ($M = 2.88 - 2.91$; $SD = 0.30 - 0.34$). Resource speakers were perceived to have good subject matter competence ($M = 2.88 - 2.94$; $SD = 0.25 - 0.34$). The training duration was deemed appropriate ($M = 2.97$, SD = 0.18) and physical arrangements were considered good ($M = 2.97$, SD = 0.18).

During field visits, teacher participants showed diverse strategies to integrate the USHK into their school and class activities, which include food booths, food label comparisons,

Table 1. Changes in Participants' Knowledge of Nutrition, Physical Activity, and Linking with Family/Community

Outcome	Pre-test	Post-test	Wilcoxon signed rank test (Z)	*p*-value
	Mean (SD)			
Overall score	22.67 (3.64)	25.37 (2.65)	-4.456	<0.001
Nutrition	7.90 (1.77)	8.75 (1.34)	-2.972	0.003
Physical activity	7.60 (1.45)	8.66 (1.09)	-3.564	<0.001
Linking with the family and community	7.17 (1.68)	7.88 (1.34)	-2.531	0.011

Table 2. Summary of Evaluation Scores of the Added USHK Modules on Nutrition, Physical Activity, and Linking with the Family and Community

Evaluation criteria	Nutrition Module Range (0-5) Mean (SD)	Physical Activity Module Range (0-5) Mean (SD)	Linking with the Family and Community Module Range (0-5) Mean (SD)
Realistic and age-appropriate learning outcomes	4.69 (0.54)	4.97 (0.37)	4.34 (0.70)
Easy to use and understand	4.97 (0.18)	4.91 (0.18)	4.66 (0.55)
Relevant to the health needs	4.97 (0.18)	4.91 (0.39)	4.63 (0.61)
Age-appropriate for the learners	4.78 (0.42)	4.41 (0.30)	4.66 (0.55)
Compatible with the curriculum	4.35 (0.66)	4.59 (0.71)	4.03 (0.78)
Culturally appropriate in terms of examples	4.53 (0.67)	4.72 (0.56)	4.28 (0.73)
Clear and concise key messages	4.72 (0.52)	4.78 (0.46)	4.56 (0.62)
Creative appeal to target audience	4.75 (0.44)	4.88 (0.49)	4.52 (0.68)
Meaningful learning activities	4.88 (0.34)	4.78 (0.34)	4.69 (0.59)
Overall mean score	**4.74 (0.50)**	**4.84 (0.47)**	**4.48 (0.67)**

food plating activities, sample menu creation, and emphasis on the significance of physical activity in their physical education classes. Participants also provided specific comments for each module. For the nutrition module, participants expressed the necessity to localize examples, provide realistic full-size photos, translate content into Filipino, and include additional examples. Regarding the physical activity module, participants indicated a desire for more diverse and engaging physical activities tailored to different age groups. In the linking the family and community module, participants noted that certain concepts might be perceived as unrealistic due to challenges in parental cooperation. They highlighted the need for a more robust emphasis on practical strategies to encourage parents to connect with the school and community.

Recognized facilitators for implementing the updated USHK (Table 3) included the commitment of the school administration or regulatory bodies to institutionalize the program, the content's compatibility with activity-based textbooks, age-appropriate approaches, and a 1:1 teacher-to-USHK ratio. Participants emphasized that while integration is feasible for teachers, it requires the commitment of higher officials in the Department of Education to establish a legal basis for its use. Without this commitment, the integration of the USHK and its key messages cannot be effectively incorporated into daily lesson plans. On the other hand, several barriers to using the USHK were identified, primarily stemming from various social determinants. These include limited kit copies, particularly concerning schools with multiple teachers handling nutrition and physical activity. Time constraints were noted, as learning activities require processing and may extend beyond the allocated time. Additional challenges included limited spaces for physical activity, weak parental participation in school events, and the socioeconomic status of schoolchildren and their families, posing difficulties in affecting health behavior changes.

Table 3. Facilitators and Barriers in the Use of the Updated USHK

Facilitators	Barriers
Commitment of the school administration or regulatory bodies	Limited copies of the kit to be used by the teachers
Compatibility of the content with activity-based textbooks	Activities require ample space and a longer time to implement
Approaches are age-appropriate	Poor participation of parents in school activities and the socioeconomic status of families

Feedback from partners proved instrumental in pinpointing barriers to the utilization of the USHK, with prominent challenges stemming from social determinants. These encompassed constraints such as a scarcity of kit copies, insufficient time allocated for teaching, restricted spaces for physical activity, inadequate parental participation in school events, and the socioeconomic status of the schoolchildren and their families.

DISCUSSION

With an emphasis on holistic health education, the updated version of the Urbani School Health Kit did not only promote individual understanding of health promotion concepts, but also connected school health with the larger social-ecological framework. By focusing on behaviors addressing NCD risk factors, the updated USHK may complement national health initiatives in combating the increasing prevalence of NCDs, such as hypertension and diabetes mellitus. The updated versions also complement the previous USHK version,[10] which mainly focused on developing healthful personal habits including personal hygiene, oral health care, prevention of intestinal parasitism and environmental health, and non-use of tobacco products. Notably, the updated USHK version also demonstrated how investing in a high-quality training environment improves

participant engagement and knowledge retention, and can catalyze positive changes at both the individual and community levels. Schools launching comparable health education initiatives may leverage these findings to improve their programs, guaranteeing a more comprehensive approach to health literacy and education.[14]

The high level of participant satisfaction and positive feedback on various program elements, including the venue, facilities, and content delivery, underscore the significance of a well-crafted and effectively executed training program. The inclusion of nutrition, physical activity, and family and community engagement modules aligns with protective factors outlined in the literature,[5-7] thus possibly mitigating behaviors that may jeopardize both health and educational outcomes. Students' and parents' involvement in health-related social actions such as this program highlights the capacity of school-based initiatives to empower them in addressing broader health issues, including tobacco use, gun safety, and climate change.

Notably, the positive reception of the updated USHK content, emphasizing its relevance, age-appropriateness, and cultural sensitivity, holds significant implications for refining health education tools. Drawing parallels from Leung and colleagues' examination of sexuality education, concentrated efforts in the realm of school health content are essential.[15] Module content should align with evidence-based theories, contemporary developmental models, and ecological frameworks, ensuring a comprehensive approach. Equipping educators and parents is pivotal for the effective delivery of module content, necessitating thorough evaluation studies utilizing both quantitative and qualitative methodologies. The establishment of databases with effective module content facilitates widespread dissemination. In promoting health among students, recognizing the complexities of development is crucial. Integrating such topics is akin to strengthening psychosocial competence, acting as a safeguard against risky health behaviors.

The substantial improvement in participants' knowledge, particularly in the domains of nutrition, physical activity, and linking with the family and community, attests to the impactful nature of the training program. Addressing common misconceptions and enhancing theoretical competency contribute to the success of educational intervention. The diverse integration strategies observed during field visits indicate a practical application of the acquired knowledge.[16]

The recognized facilitators, such as commitment from higher-ups and content compatibility, shed light on factors crucial for the successful integration of the updated USHK. However, the acknowledged barriers, including limited kit copies and time constraints, highlight challenges that warrant careful consideration. The recognition of socio-economic status as a potential barrier underscores the importance of tailoring integration strategies to the specific context of each school. Meanwhile, partner feedback is also useful in identifying existing barriers and emphasizing the importance of strategic interventions. To overcome problems, collaborative efforts with stakeholders, particularly higher-level officials in the Department of Education, will be required. Furthermore, the emphasis on parental participation and community interaction indicates a more comprehensive strategy for future projects.

In facilitating the sustainability of the USHK and school health education programs, relevant insights from the literature are valuable. For instance, Bodkin and Hakimi's review[17] identified 14 factors influencing the sustainability of health promotion programs. Among these, nine factors were previously recognized in sustainability literature: organizational capacity, partnerships, strategic planning, funding stability, program evaluation, communications, political support, program adaptation, and public health impacts. Additionally, five new factors were identified: fit or alignment between the program and the organization's mandate and core business or between the program and community needs, priorities, and community opinion; capacity building; program implementation; program champions; and socio-economic and political climate. Integrating these sustainability factors into the ongoing implementation of the USHK and similar programs ensures their long-term impact and effectiveness.

Recognizing the pivotal role of partnerships in shaping the success and equitable reach of school health education programs, it becomes imperative to ensure that these programs extend their benefits uniformly across diverse socio-economic and demographic contexts. Achieving equitable reach is crucial as it ensures that health education programs cater to the needs of all students, irrespective of their backgrounds or circumstances. This inclusivity not only promotes overall well-being but also contributes to breaking down health disparities and fostering a more just and equitable society.

Examining the equitable reach of school health education programs, insights from Bravo and colleagues' study on a universal health promotion program offer valuable lessons.[18] Their desirable practice approach, which emphasizes tailored support based on school strengths and a staged approach to change, has proven effective. Ongoing program monitoring informs quality improvements and provides insights into progress toward outcomes. Adjusting state-wide program targets to strengthen impact and focus on desirable practices in less well-achieved areas demonstrates the importance of intentional targeting and tailoring in areas of disadvantage to achieve equitable adoption of such programs. Success often depends on strong relationships at the local level between school champions—teachers and principals—and health promotion staff.

CONCLUSION

The updated USHK training program reflects a multifaceted success marked by high participant satisfaction, knowledge enhancement, and strategic program design.

The program's efficacy in addressing diverse facets of health education is evident through the positive reception of content, participants' knowledge gains, and the identification of facilitators and barriers to the integration of the program in Manila schools. Through the integration of nutrition, physical activity, and family and community engagement modules, the USHK not only enhances individual understanding but also aligns with broader societal objectives, demonstrating as such the potential for school-based programs to empower communities in addressing complex health issues.

The nuanced approach to content refinement as observed in this study, which was guided by participant feedback and collaboration with global health experts, positions the program as a dynamic and adaptable model for future health education initiatives that likewise seek to bridge theoretical knowledge with practical application, thus fostering a holistic approach to individual and community well-being.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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