Editorial

A consensus-building strategy of health promotion in the Americas

Hugo Mercer[1,2]

International agencies, especially those that are part of the United Nations system, issue documents, reports and statements that are often elaborated by a technical team from one or more agencies, including a previously defined expert panel. This process requires an elaborated consensus-building process that aims to avoid obstacles that can make it unacceptable, in part or entirely, to a significant number of the signatory countries. Declarations that become landmarks in the field of health are examples of this diplomatic achievement. The process of designing a declaration is an interesting object of study, including how concepts that were resisted a few decades ago become more widely accepted. Social determinants of health, social empowerment, health inequities or shifting from 'an emphasis on individual behaviors to a broad set of social and environmental interventions' were concepts and interventions previously foreign to mainstream theoretical frameworks of health institutions and other health bodies. The Strategy and Action Plan for Health Promotion in the context of the Sustainable Development Goals 2019–2030 (1) that was recently approved at the 164th Meeting of the Executive Committee of the Pan American Health Organization/World Health Organization in Washington, DC, 24–28 June 2019, recommended a series of important changes to the conceptual map of health policies in the Americas. Decidedly, the strategy situates health promotion as central to health policy. It also highlights that the purpose of the strategy is

> to renew health promotion through social, political and technical actions, addressing the social determinants of health, the conditions in which people are born, grow, live, work and age, with the goal of improving health and reducing health inequities as part of the framework of the 2030 Sustainable Development Agenda (1).

The strategy is supported by antecedents that account for the advancements of health promotion as one of the essential objectives of public health. These antecedents encompass, from 1978 to today, the 1978 Alma-Ata consensus(2), the consensus in Ottawa in 1986 (3) and the more recent agreement, the Strategy for Universal Access to Health and Universal Health Coverage (4), the WHO Shanghai Declaration on Promoting Health in the 2030 Agenda for Sustainable Development (5) as well as the 2018 Astana Declaration on Primary Healthcare (6).

The social context for the strategy of health promotion

The strategy recognizes that in the Americas there are 'persisting inequalities' with a prevalence of 'chaotic urban growth', 'non-regulated industrial development', 'environmental pollution' and 'increase in violence', while other obstacles are 'displaced persons', 'lack of commitment and long-term intersectoral actions', 'limited participation and empowerment of the community' and an 'insufficient documented evidence of health promotion effectiveness that prevents sustainable action that transcends political frames'. The extent to which the full social situation can be characterized, nonetheless, is subject to the limits inherent to the consensus-making process. Other aspects of the current situation in the countries in the region that are not explicitly stated are recent political repression given massive social protests(7), migration of populations at an unprecedented scale in the continent (8), unemployment growth and closure of small and medium-sized businesses(9), an increase in people living in poverty and who are homeless along with the dismantling of inclusive social policies (10) and the weakening of the rule of law and democracy.

1. National University of San Martín, Buenos Aires, Argentina.
2. Member of the Editorial Board of *Global Health Promotion.*

Correspondence to: Hugo Mercer, Unidad Interdisciplinaria de Salud/ICRM, UNSAM Campus Miguelete, 25 de Mayo y Francia. C.P. 1650. San Martín, Provincia de Buenos Aires, 1650, Argentina. Email: hugo.mercer@gmail.com

Global Health Promotion 1757-9759; Vol 27(1): 3–5; 909078 DOI: 10.1177/1757975920909078 journals.sagepub.com/home/ghp

The recent report from the Economic Commission for Latin America and the Caribbean (ECLAC) on the social situation in Latin America indicates that

> despite the significant progress made between the beginning of the last decade and the middle of this one, since 2015 there have been setbacks, particularly the increase in the average regional rate of extreme poverty (10).

An examination of the years in which poverty was reduced and social inclusion ensured for more than 66 million people indicates that only with public policies of social protection, increased employment and income redistribution measures, can improvement in the living, working and health conditions of those who have suffered marginalization across many generations be improved.

ECLAC notes that

> poverty and extreme poverty were reduced considerably in the region between 2002 and 2014, as were various indicators of social inequality. This process was associated not only with a more favourable economic environment, but also with a political context in which the eradication of poverty and the reduction of social inequality, as well as the objective of broadening social inclusion and extending social protection, were given unprecedented prominence on the public agendas of many Latin American countries and, to a certain extent, the region as a whole. The rights agenda has been expanded, state action and social institutions have been strengthened, investment in social areas has been expanded and redistributive policies have been implemented in the social sphere and the labour market (10).

Positioning citizenship at the center of public policies aligns with a political conception and a horizon of society that privileges social inclusion, democracy and social equity. These values are closely linked to health promotion, as democratic societies and social justice are required for health promotion to be fully realized.

Making the strategy of health promotion a reality in the countries of the Americas

The strategy proposed by the Pan American Health Organization/World Health Organization is a conceptually, politically and technically coherent construction. There is a clear articulation between its purpose of improving the health of the population with the four strategic directions that its implementation privileges, which are to:

1. 'Strengthen the key healthy settings' (among others, schools, universities, homes, workplaces, markets and other communal spaces in urban and rural territories and communities).
2. 'Enable community participation and empowerment and civil society engagement' (relying on governments to commit themselves to create or facilitate opportunities that ensure the participation of the community in the decision-making that affects its members' lives, taking advantage of their resources and capabilities).
3. 'Enhance governance and intersectoral work to improve health and well-being and address the determinants of health'. This strategy recognizes that

   > governance is a relevant element for the four strategic lines. It implies, among other things, that governments have a fundamental responsibility at the local, national and global levels to formulate health and social justice policies through democratic processes that benefit the entire society and, at the same time, that address the harmful effects of unsustainable production and consumption and negative business practices (1).

   This is a point of central importance to the strategy as it is demanding that the states position themselves in defense of the collective interests of citizens, possibly in opposition to the interests of private actors. This will undoubtedly be a strategic line where the viability and full implementation of health promotion as a public policy will be defined.
4. 'Strengthen health systems and services by incorporating a health promotion approach'. Under this strategic direction, the proposed actions cover the performance of the entire health system, from the training of its workers to the mode of care of each of the services that comprise it.

The strategic directions are broken down into actions and, of critical importance, identify indicators to be monitored and evaluated at each level of operation, from local, national, to the region as a whole. With this design, countries already have a valid instrument to move from a discourse on the advantages of health promotion to its effective implementation and achieve the benefits that it will provide in terms of quality of life and social justice.

This strategy poses an additional challenge for academic institutions, in terms of their educational responsibility and their role in building critical knowledge and facilitating social mobilization, which is to investigate and work on those obstacles that international agreements cannot explicitly mention and that constitute obstacles that segregate and marginalize vast segments of society. This challenge can be interpreted as an action plan for universities, research centers and also journals such as GHP that are committed to values of protecting human rights, justice and social equality.

References

1. Organización Panamericana de la Salud/Organización Mundial de la Salud. Estrategia y Plan de Acción sobre la Promoción de la Salud en el contexto de los ODS 2019-2030. 57º Consejo Directivo de la OPS/71ª Sesión del Comité Regional de la OMS para las Américas. Documento CD57/10. [Internet]. Washington, DC: PAHO/WHO; 2019 [cited 2019 Nov 21]. Available from: https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=49688-cd57-10-s-promocion-salud&category_slug=cd57-es&Itemid=270&lang=es
2. Organización Mundial de la Salud. Declaración de Alma-Ata. Conferencia Internacional sobre Atención Primaria de Salud, Alma-Ata, URSS. OMS; 1978.
3. Organización Mundial de la Salud (OMS). Carta de Ottawa para la Promoción de la Salud. Ontario: OMS; 1986.
4. Organización Panamericana de la Salud. Estrategia para el acceso universal a la salud y la cobertura universal de salud. 53º Consejo Directivo de la OPS; 66ª sesión del Comité Regional de la OMS para las Américas. Documento CD53/5, Rev. 2 [Internet]. Washington, DC: OPS/OMS; 2014 [cited 2019 Nov 21]. Available from: https://www.paho.org/hq/dmdocuments/2014/CD53-5-s.pdf.
5. Organización Mundial de la Salud. Declaración de Shanghái sobre la Promoción de la Salud en la Agenda 2030 para el Desarrollo Sostenible. 9° Conferencia Mundial de Promoción de la Salud [Internet]. Shanghái: OMS; 2016 [cited 2019 Nov 21]. Available from: https://www.who.int/healthpromotion/conferences/9gchp/Shanghai-declaration-final-draft-es.pdf.pdf?ua=1
6. Organización Mundial de la Salud. Declaración de Astaná. Conferencia Mundial sobre Atención Primaria de Salud [Internet]. Astaná: OMS; 2018 [cited 2019 Nov 21]. Available from: https://www.who.int/docs/default-source/primary-health/declaration/gcphcdeclaration-sp.pdf.
7. ANSA LATINA [Internet]. Hay 3360 víctimas de trauma ocular. Santiago de Chile; 2020 [cited 2020 Feb 3]. Available from: http://www.ansalatina.com/americalatina/noticia/chile/2020/01/03/360-victimas-con-trauma-ocular-desde-18-o_2752b955-eec3-4706-bb5d-3413c85ef66b.html
8. Organización Internacional para las Migraciones. Refugiados y migrantes de Venezuela superan los cuatro millones [Internet]. OIM, ACNUR; 2019 [cited 2020 Feb 3]. Available from: https://www.iom.int/es/news/refugiados-y-migrantes-de-venezuela-superan-los-cuatro-millones-la-oim-y-el-acnur
9. Instituto Nacional de Estadística y Censos. Mercado de Trabajo. Tasas e Indicadores socioeconómicos (EPH) [Internet]. Buenos Aires: INDEC; 2019 [cited 2020 Feb 3]. Available from: https://www.indec.gob.ar/uploads/informesdeprensa/mercado_trabajo_eph_2trim19ED75D3E4D2.pdf
10. Comisión Económica para América Latina y el Caribe. Panorama Social de América Latina 2019 [Internet]. Santiago: CEPAL; 2019 [cited 2020 Feb 3]. Available from: https://repositorio.cepal.org/bitstream/handle/11362/44969/5/S1901133_es.pdf

Sleep, physical activity, waist circumference and diet as factors that influence health for reproductive age women in northern Greenland

Zoe A. Watson, Mary P. Miles, Carmen Byker Shanks and Elizabeth Rink

Abstract:
Background: This study explored community and individual factors that influence the health of reproductive age women in a settlement in northern Greenland. This is important because Greenland has a declining population, a high abortion rate and because of projected environmental shifts due to climate change.
Methods: This study collected mixed methods data to explore diet, physical activity, sleep and waist circumference for reproductive age women in Kullorsuaq, Greenland. The daily steps and sleeping hours of 13 reproductive age women were measured using activity monitoring bracelets. Waist circumference measurements and in-depth interviews about daily eating and physical activity were conducted with 15 participants and ethnographic participant observations were recorded using field notes.
Results: Waist circumference measurements were above recommended cutoffs established by the World Health Organization. Physical activity measured by daily steps was within the 'active' range using the cutoff points established by Tudor and Locke. Physical activity is social and is important for communal relationships. Sleeping hours were within normal ranges based on US guidelines; however, the quality of this sleep, its variability across seasons and cultural expectations of what healthy sleep means must be further explored. Diets of women included a mixture of locally harvested meats and imported packaged foods. Study participants experienced less satiety and reported getting hungrier faster when eating packaged foods. This research took place in Spring 2016 and women reported that their sleep, physical activity and diet fluctuate seasonally.
Conclusion: The reported findings suggest further investigation of sleep, diet and physical activity combined with the measurement of reproductive hormones to determine linkages between lifestyle factors and reproductive health outcomes is needed. (Global Health Promotion, 2020; 27(1): 6–14)

Keywords: physical activity, sleep, Greenland, women, waist circumference, reproductive health, environment

Introduction

The impact of climate change on human health in the Arctic has not been studied with the same attention as have changes to the environment and physical landscape (1). However, the linkage between human health and environmental health is especially apparent in cultures with traditional lifestyles, where land-based practices are crucial to the survival of families and culture (2). Reproductive age women, infants and young children are the most sensitive groups to the environmental and social shifts caused by climate change (3).

Montana State University, Bozeman, Montana, USA.

Correspondence to: Zoe A. Watson, Department of Health and Human Development, Montana State University, P.O. Box 173540, Bozeman, Montana, MT 59717-3540, USA. Email: zoealvira.watson@gmail.com

(This manuscript was submitted on 10 June 2017. Following blind peer review, it was accepted for publication on 7 February 2018)

Global Health Promotion 1757-9759; Vol 27(1): 6–14; 764380 DOI: 10.1177/1757975918764380 journals.sagepub.com/home/ghp

In Greenland, the population is decreasing and the abortion rate is very high. The estimated population growth rate for 2016 was –0.02% (4). In 2014 there were 805 live births and 860 legal abortions (5). These figures, combined with lifestyle shifts due to environmental changes and modernization implicate the health and future of communities in Greenland (6,7).

Sedentary lifestyles and low physical activity are increasingly common in the Arctic, with less time spent engaged in land-based practices that require physical exertion (8). For women, this means less time processing harvested foods and decreased domestic activity (9). A recent population health survey in Greenland found central obesity in women increased from 31.3% in 1993–1994 to 54.2% in 2005–2010, while for men the percentages are much lower, rising from 16.0% in 1993–1994 to 25.4% in 2005–2010 (10). Obesity in reproductive age women is well understood to be detrimental to reproductive health (11).

Along with declining activity and increased obesity, the diet of Inuit women in Greenland is transitioning from mostly traditional food to a mixed diet including more western foods (12). A food intake study of 189 pregnant women in western Greenland showed a mixed intake of traditional versus imported food of 18% and 82%, respectively (7). Additions of high sugar and non-nutrient dense foods to the Inuit diet have negative implications for women's nutrition, as they are associated with diet-related chronic diseases such as diabetes and obesity (13). And, diet-related chronic illnesses, such as obesity and diabetes in reproductive age women are well understood as risk factors for maternal and child health (14). As well, nutrition, and micronutrient diversity and adequacy can influence the risk of pregnancy complications and result in poor fetal growth and child development (15).

Sleep health is also an important and underexplored factor in reproductive age women in the Arctic. The sleeping habits of women in the Arctic are affected by the light and dark seasons and by lifestyle shifts associated with different seasons. Extreme latitudes are associated with disturbed and unhealthy sleep patterns, but research that connects the circadian rhythm with shifts in the light and dark seasons is limited. The majority of sleep studies in polar regions that link physiology and sleep behavior have been with participants that are not local, that live on military stations, and who have more regimented diet, sleep and physical activity schedules than local populations (16). Expanding sleep research in the Arctic to include reproductive age women is important because insufficient sleep duration, as well as disrupted sleep, and poor sleep quality influence the reproductive cycle, hormones and fertility (17).

The purpose of this study is to identify community and individual level factors that influence the health of reproductive age women in North Greenland. To meet this objective, this study collected baseline information on sleep, diet, physical activity and waist circumference, which are variables that can compromise reproductive health.

Methods

Research framework and design

The research presented in this paper is part of a larger study, *Population Dynamics in Greenland: A Multi-Component Mixed Methods Study of the Dynamics of Pregnancy in Greenland*, aimed at providing insights into the psycho-social, cultural and environmental determinants of reproductive health in Kullorsuaq, Greenland. This project uses a community based participatory research framework and is conducted in partnership with community members, the University of Greenland and through support from the health sector of the Greenlandic Government. The interview questions and data collection protocols were developed through collaboration and review with a community advisory board which is comprised of active community members in Kullorsuaq. This process helped ensure all research will be beneficial to the community and that it is contextually appropriate.

The research presented in this paper includes data on sleep, diet, physical activity and waist circumference of reproductive age Greenlandic women. A mixed-methods parallel convergent design was used to collect data. This strategy means qualitative interviews and ethnographic participant observations were conducted during the same month that quantitative measurements were taken on physical activity, sleep and waist circumference. These individual data sources were analyzed separately but concurrently, and results were compared to interpret findings. This approach limits

bias through the triangulation of findings. The combination of methods provides richer data by grounding quantitative data with local perspectives and local context (18).

Setting

Kullorsuaq is a settlement above the Arctic circle in Greenland. The population estimate for Kullorsuaq is 450 permanent residents. It is one of the few settlements in the Qaasuitsup municipality whose populations is growing (19). There is one store and a school for 1st–8th graders. Kullorsuaq remains one of the most traditional hunting and fishing communities remaining in Greenland and the primary occupations are hunting and fishing. Kullorsuaq is accessible only by ship, helicopter, snowmobile or dog sled. There are no paved roads and during much of the year the settlement is inaccessible for weeks at a time (20).

Participant recruitment

Participants were reproductive age women (15–49) that had had at least one pregnancy (21). Participants were not excluded if they were pregnant at the time of the study; however, no participants reported being pregnant during data collection. Written consent was obtained from all participants. Participants were recruited through researcher's presence in the community, through flyers, by word of mouth and through outreach from the community advisory board members living within the community. Those interested in participating contacted researchers by cell phone or in person. Participants received small gifts in return for time interviewing.

Data collection

In-depth interviews were conducted with each participant. Interviews were conducted in Greenlandic by a native speaking interpreter. Interviews were audio recorded and transcribed into English. English speaking researchers remained in the room for interviews to answer any questions as the interviews took place. After qualitative interviews, participants were instructed to wear a Garmin Vivo fit activity monitoring bracelet (22). The Greenlandic interpreter explained that the bracelet would monitor daily steps and sleep. Participants wore activity monitors for a total of four 24-h periods and including four nights. Participants were instructed to not take the bracelet off during the entirety of the period they would wear it. Waist circumference measurements were taken from participants at the time of interview and were performed twice to ensure accuracy. Measurements were performed using an anthropometric tape measure at the level of the anterior, superior iliac spine (23). Field notes were used to record ethnographic participant observations of physical activity in relationship to the physical environment, traditions surrounding eating locally harvested foods, grocery shopping habits, commonly consumed food items and community patterns that may influence sleep (24).

Analysis

JMP 13.0 software (SAS) was used to analyze quantitative data on daily steps, nightly sleep minutes and waist circumferences using distributions. Microsoft Word search feature was used to interpret the 15 in-depth interviews, which covered questions about sleep quantity, diet, and physical activity. The search feature in Microsoft Word was used to identify the most frequently consumed items from the dietary recall section of the interviews. Verbatim quotes were chosen to illustrate findings.

Results

The results of this study are presented below in the following sections: waist circumference, sleep duration, daily step count, participant observations, dietary recall and use of chosen methods in the Arctic context.

Waist circumference

The average (±SD) waist circumference ($n = 15$) in this study was 82.7 (SD 8.6) cm (range = 64–97 cm).

Sleep duration

The average sleep duration for participants ($n = 13$) was 493 min or 8 h and 13 min (SD 1 h 38 min) (range = 6 h 25 min – 12 h 27 min). Participants woke up after sleep onset an average of 2.9 (SD 2.7)

(range = 0–12) times and the average time spent awake after sleep onset was 13 min (SD =12 min) (range = 0–48 min).

Participants reported their sleep varied between the summer and winter months due to the shifts in daylight hours. For example, when answering an interview question about what makes sleep is easy or hard to get, one participant stated, 'I can't sleep during the day or when it becomes light outside, I stay more awake when it is light and get easily sleepy when it starts being dark.' Reported shifts in sleeping patterns between the light and dark seasons were common throughout the interviews. Another participant stated, 'I still hardly sleep during the summer when the sun is up for 24 hours… I sleep more in the winter.' Participants were aware of their shifting sleep patterns, and during data collection in spring, sleep patterns were likely at a mid-point between the largest fluctuations.

Daily steps

The average daily step count for participants (n = 13) was 13,880 (SD 3731) steps (range = 3094 to 23,394 steps).

Ethnographic participant observation on physical activity

Women were active in caring for children and taking care of households. They moved between each other's homes, the shop and the school frequently. Most daily activity was low intensity. Researchers observed very little movement that increased women's heart rates.

Participants reported fluctuations in activity levels throughout the year, with most activity during the light season and when there is ice on the fjords to walk on. Participants reported that they enjoy the socializing that goes along with physical activity. Walking on the ice, community soccer games and family fishing expeditions are valued for social connections. Participants expressed positive value with the feeling their bodies get from movement and activity.

Community soccer games are integral to community life in Kullorsuaq. During the time of this study, women, men and children all engaged in soccer matches on flat places on land which are often covered in snow and ice, or on the iced over fjord. Many participants discussed the enjoyment they get from playing soccer and said they would spend more time playing soccer if they did not have responsibilities of taking care of their families especially infants and young children. Men, who are engaged in hunting and fishing most days, get more physical activity than women.

There are several barriers to exercise in Kullorsuaq. There are no paved roads and paths are made by foot traffic and dogsleds. This makes terrain uneven and icy, a challenge for walking. As well, cold temperatures often inhibit outdoor exercise. The community space suited to facilitating exercise, the school gym, is small, which allows for only one group to use it at a time. Participants reported family obligations, lack of childcare, and lack of community space were barriers to obtaining desired physical activity.

Diet

Dietary intake included a mix of traditional and packaged foods and participants reported substantial changes in their diets throughout the seasons. During data collection in springtime, the community had not received a shipment of foods for 7 months. The most common items participants reported when asked what they had eaten in the last 24 h were: fish, including dried fish (6); white bread (6); chicken (5); rice (5); rye bread (4) and seal meat (3).

Women did not perceive imported foods (referred to as Danish foods) as having comparable healthfulness to Greenlandic food. Women felt strongest and most healthy after eating locally harvested foods of fish and marine mammals. This quote illustrates participant perceptions of the differences of local foods compared to imported foods: 'Greenlandic food is healthier, when I have eaten Danish food I get hungry almost immediately.' Interview participants preferred the satiety given from Greenlandic food but also reported that imported foods were very important for their family to have a sufficient supply of food.

Participants reported that the nutritional messages they receive during pregnancy often include imported foods which that are not available in Kullorsuaq for much of the year. In response to an interview question about nutritional advice in the community, one participant responded, 'Yes, I received educational information about nutrition

when pregnant, that food is often not available here so I have mainly used (eaten) Greenlandic food.' The emphasis on choosing Greenlandic food options when possible was consistent throughout the interviews.

Research participants reported eating cycles that were not specific to meal times. The focus for participants was on hunger, satiety and social interaction over quantity of food items consumed, dietary diversity or timing and scheduling of meals.

The foods women reported as most important to their families are traditional foods that are harvested by hunters in the community such as seal, whale, fish and polar bear. In line with this tradition, research participants wanted their children to eat the same foods as they did, including culturally important foods like whale (*mattak*) and dried fish.

Participants reported the amount of traditional foods and purchased foods varies throughout the seasons and also depends on weather, ship routes and the quality of the hunting season which determines cash flow in the community.

Ethnographic participant observation on diet

Community gatherings included a mixture of many locally harvested seal, fish, whale, muskox and bear along with a large spread of imported cookies, cakes and candies. Many research participants and community members have very poor oral health. Coffee and tea are used to soften food and participants had a slow chewing process, which may impact choices in food variety and result in limiting dietary diversity. At the time of this research in Spring 2016 food options in the local store were very limited. The single grocery store had no fresh foods available for purchase. The most frequently observed items that community members purchased at the store and consumed outside of the home were ice cream bars and bags of candy.

Challenges for measurements in the Arctic context

An outcome of this study is expanded knowledge of health measures in a Greenlandic settlement.

To investigate individual diets, in-depth interviews conducted in this study included questions about what participants had consumed in the last 24 h including type and quantity of food and drink, and when during the day the items were consumed. This recall method for investigating individual diets did not result in comprehensive results. Participants communicated dietary information in terms of the amount that made them feel satiated, rather than in terms of measurable quantities. As well, they reported eating throughout the day rather than at strict meal times. This made recalling each item consumed and the time when it was consumed a challenge. Dietary data may have been more useful and better communicated if participants used their camera phones to document meals and snacks, rather than trying to recall specific amounts of food and timing of consumption. This example illustrates the value of incorporating indigenous methodologies into research design and building research through story based or visual communication, rather than reducing variables into categories that do not match the culture. This study used search functions in Microsoft word to count the number of times certain foods were mentioned for the dietary recall and to find quotes that highlight themes from interviews. This was a valuable method for this study to ensure the inclusion of participant voices, which further contextualizes the findings from quantitative data.

Participants responded favorably to the activity monitoring bracelets. Women who participated were familiar with cell phone technology and were interested in the technology of the activity monitoring bracelets. Out of 15 participants, 13 wore the activity monitors. One participant reported concerns about losing the activity monitor and did not want to wear one. Another participant was traveling to see family and could not wear the activity monitor due to timing.

Activity monitors have been used in a variety of settings and are a simple, non-intrusive measure of physical activity. They do have limitations, as they do not measure upper body activity, nor do they measure intensity of activity.

This study did not measure subjective indicators of sleep, but this may be an important next step. Subjective indicators used for measuring and communicating about sleep quality have not been explored fully in the Greenlandic population.

Other limitations of this study include the small sample size of this data and the unique context of Kullorsuaq, which limits how the findings of this study can be generalized. Another limitation of this study is the lack of physiological data to assess

reproductive health, including the potential for the Greenlandic women to have reproductive disturbances relating to obesity, diet, physical activity and sleep. Biomarkers of stress and resiliency would increase our understanding of how the potential stressors identified in this study impact the participants.

Discussion

This study collected mixed methods data to explore diet, physical activity, sleep and waist circumference for reproductive age women in Kullorsuaq, Greenland. The reported findings suggest further investigation of these variables combined with the measurement of reproductive hormones to determine linkages between lifestyle factors and reproductive health outcomes. Understanding factors that influence reproductive health is important in Greenland because it has a declining population and because of projected environmental shifts due to climate change. Knowledge about these linkages will enable healthcare providers, community members and policy makers to best support the health of reproductive age women.

This study found waist circumference measurements to be above recommended cutoffs, which supports the trend of increased obesity in Greenland and suggests a need for health promotion in Kullorsuaq. Cut off points established by the World Health Organization suggest waist circumferences above 80 cm result in increased risk of metabolic complications (25). There is debate between recommendations for cutoffs between countries and ethnic groups, and no specific cutoffs are established for Arctic populations. However, there is agreement that higher waist circumferences are a good measure of abdominal adiposity and that waist circumference is an indicator for obesity in the Inuit population (10).

High waist circumferences are linked to changes in the menstrual cycle and reproductive hormone status (26). As well, obesity in pregnancy is associated with metabolic disorders, increased risk of gestational diabetes and obese women are at higher risk for depression and trouble breastfeeding post-partum (27). Women in Kullorsuaq must travel to by helicopter to get medical care and to deliver babies, so preventative strategies, such as obesity prevention should be prioritized for their overall health.

Physical activity was a favorable factor for women's health. The physical activity measured by steps was within the 'active' range using the cutoff points established by Tudor and Locke (28). However, this measure does not include heart rate or exercise intensity. The Arctic climate and landscape mean the accessibility of exercise and likelihood of daily walking is dependent on weather and ice patterns. The level of activity represented in this study is likely at one of the highest points of the year because thick ice on fjords enables walking on the ice, playing soccer on the ice and because ice-fishing is an activity families do all together, engaging women and children as well as men.

Kullorsuaq is one of the most traditional settlements in Greenland and physical activity represented in this study may be higher than in larger settlements where modern and traditional lifestyle are more mixed. Research in Greenland has found that the degree of social transition toward a more modern lifestyle is associated with decreased activity (8). This study measured only women's steps, but field notes show men's physical activity is much higher than women's activity, which supports past findings and suggests social changes may be more detrimental to women's health (29).

This study also found that reproductive aged women in Kullorsuaq experienced less satiety and get hungrier faster when they eat packaged foods, likely leading to overconsumption of non-nutritious packaged foods and compromising sufficient nutrition. For example, higher proportions of imported foods in the Greenlandic diet is associated with diminished vitamin D status and vitamin D is important for healthy pregnancy outcomes and early childhood development (30).

Dietary consumption patterns were in line with previous findings in Greenland, with high consumption of processed and packaged foods mixed with traditional foods (7). Current literature has focused on the ill health effects of packaged foods and that health may benefit from shifting the focus from traditional foods and non-nutritious imported foods, to traditional foods combined with imported foods that are nutritious (like frozen vegetables and whole grains). Increasing consumption of foods that are imported and not highly processed may be an appropriate and feasible avenue for health

intervention. As well, nutrition recommendations from the Greenlandic Health Board for reproductive aged women should be contextualized for the life of an Inuit woman living in a remote Arctic settlement and for the foods available there. This process should include working with food distributors to increase healthy options, involving community members to understand community attitudes toward foods, and with the health care system to determine realistic recommendations based on availability and nutritional needs.

In addition to nutritional needs, diet is important for mental health and well-being for women in the Arctic as identity and family dynamics are closely tied to preparation and consumption of traditional food (12). Research from other indigenous Arctic communities has found that environmental changes that impact food supply and daily activity increase stress levels, especially in communities that are highly resource dependent (1). Research in Yupik communities in Alaska found individuals with high levels of reported stress were less physically active than those who reported low levels of stress (29).

In this study, reproductive age women had concerns about the community food supply, especially in the spring months when a supply ship had not come for 7 months. Participants also discussed reliance on family networks for a supply of traditional foods and the importance of access to both imported and traditional foods for year round food security. This illustrates the nuanced relationship between environmental shifts and women's health and highlights the importance of research on both individual health and also on community and policy level factors.

Along with physical activity and diet, insufficient sleep impacts anxiety, depression, stress and overall mood (31). Participants sleep duration was within a healthy range for women during the spring month of data collection based on sleep guidelines from the United States of America (there are no Arctic-specific guidelines) (32). However, sleep health is a concern for the reproductive age women in this study because of their self-reported fluctuations in sleep across seasons. This is congruent with other studies from Arctic regions, where circadian rhythms and sleep duration varied a great deal between light and dark seasons (16).

Many participants reported that their sleep was healthy, but also stated that this meant about 4–5 h or less in the light season; illustrating the need to further explore perceptions of sleep in the Arctic context. There is little research about how indigenous Arctic populations have traditionally managed shifting sleep patterns caused by extreme fluctuations in light and dark hours or how they define good sleep. A cultural relationship to dreams and beliefs about dreams may influence how participants process questions about sleep and their own sleep quality (33). As well, many participants live in homes with many extended family members, which may negatively impact sleep health. Household crowding is a known issue in many Arctic settlements (34).

Sufficient sleep and mental health status are both important for supporting reproductive health (17). The majority of studies that link sleep with reproduction have been done in non-Arctic populations with shift workers. These studies have found disturbed circadian rhythms lead to menstrual irregularity, pre-term birth, impaired fetal development and increased risk of infertility through increased inflammation (17). Though the relationship between sleep and mental health is not fully understood, both factors are implicated by fluctuations in light and dark seasons (35,36). Recent sleep studies in polar populations show women are at higher risk of seasonal affective disorder than men, yet more research has been conducted with male populations (37). This highlights a gap in the research about the impact of light and dark seasons on sleep health and women's physiology and supports further study of reproductive health in the Arctic.

While findings relating to reproductive disturbances in shift workers should not be generalized to the women in the present study, our finding of sleep patterns warrants additional research and may have similar impacts on reproductive health. The context of an Arctic settlement and the unique Greenlandic Inuit culture makes comparison with other populations a challenge, and there is limited data with health markers for reproductive aged Inuit women in Greenland in past years. This suggests further research with additional markers that allow for comparison despite contextual differences and within the population over time would be helpful for understanding the health of reproductive aged women. As well, research that explores the resilience

of the Inuit culture and how Greenlandic women have maintained health and reproductive health over time despite factors of extreme light and dark, seasonal differences in eating, and shifting sleep patterns may produce information that is helpful for the study of reproductive health in other populations whose lives are also closely linked with the natural environment; especially as seasonal differences continue to shift rapidly and populations make adaptations due to climate change. Additionally, as the Greenlandic lifestyle continues to modernize and shift away from land-based livelihoods, and as access to information is increased through technology, the ways seasonal variations in sleep and diet impact reproductive health may become a factor of interest to Greenlandic Inuit women and their decisions about their own reproductive health.

There are many intersections between the lifestyle factors explored in this study. The vulnerability of the variables measured in this study to environmental changes suggests reproductive health may be rapidly compromised and will benefit from health interventions and structural and policy changes.

To ensure clear understanding of how reproductive health is implicated, further exploration of sleep, physical activity, waist circumference and diet combined with measurement of reproductive hormones and physical markers should be conducted. As well, further research must be conducted across seasons to get a full understanding of how lifestyle factors influence reproductive health in Kullorsuaq. Increased understanding of reproductive health in Greenland is important for supporting the health of a population that is declining, and for expanding knowledge of human health across the Arctic in light of environmental changes.

Conflict of interests

The authors declare that there is no conflict of interest.

Funding

National Science Foundation Award# 1319651, PI - Dr. Elizabeth Rink

References

1. Willox AC, Stephenson E, Allen J, Bourque F, Drossos A, Elgarøy S, et al. Examining relationships between climate change and mental health in the Circumpolar North. Reg Environ Change. 2015; 15: 169–182.
2. Parkinson AJ, Berner J. Climate change and impacts on human health in the Arctic: an international workshop on emerging threats and the response of Arctic communities to climate change. Summary of Workshop held in Anchorage, February 13–15, 2008. Int J Circumpolar Health. 2009; 68: 84–91.
3. Costello A, Abbas M, Allen A, Ball S, Bell S, Bellamy R, et al. Managing the health effects of climate change. Lancet. 2009; 373: 1693–1733.
4. The World Factbook [Internet]. North America: Greenland; 2016 [cited 2017 Jan 23]. Available from: https://www.cia.gov/library/publications/the-world-factbook/geos/print_gl.html
5. Johnston, W.R. Abortion Statistics [Internet]. [cited 2017 Oct 21]. Available from: http://www.johnstonsarchive.net/policy/abortion/index.html
6. Jeppesen C, Bjerregaard P. Consumption of traditional food and adherence to nutrition recommendations in Greenland. Scand J Soc Med. 2012; 40: 475–481.
7. Knudsen AK, Long M, Pedersen HS, Bonefeld-Jørgensen EC. Lifestyle, reproductive factors and food intake in Greenlandic pregnant women: the ACCEPT–sub-study. Int J Circumpolar Health. 2015; 74: 29469.
8. Dahl-Petersen IK, Jørgensen ME, Bjerregaard P. Physical activity patterns in Greenland: a country in transition. Scand J Soc Med. 2011; 39: 678–686.
9. Natalia K. Climate change effects on human health in a gender perspective: some trends in Arctic research. Glob Health Action. 2011; 4: 7913.
10. Bjerregaard P, Jørgensen ME. Prevalence of obesity among Inuit in Greenland and temporal trend by social position. Am J of Human Biol. 2013; 25: 335–340.
11. Jungheim ES, Travieso JL, Hopeman MM. Weighing the impact of obesity on female reproductive function and fertility. Nutr Rev. 2013; 71(Suppl 1): S3–S8.
12. Sowa F. Kalaalimernit: the Greenlandic taste for local foods in a globalised world. Polar Rec. 2015; 51: 290–300.
13. Mead E, Gittelsohn J, Kratzmann M, Roache C, Sharma S. Impact of the changing food environment on dietary practices of an Inuit population in Arctic Canada. J Hum Nutr Diet. 2010; 23(Suppl 1): S18–S26.
14. Nazni P. Association of western diet & lifestyle with decreased fertility. Indian J Med Res. 2014; 140(Suppl 1): S78–S81.
15. World Health Organization and Food and Agriculture Organization of the United Nations (WHO/FAO). Vitamin and Mineral Requirements in Human Nutrition, 2nd edn [Internet]. Report of a Joint FAO/WHO Expert Consultation c2004 [cited 2016 Nov 12]. Available from: http://apps.who.int/iris/bitstream/10665/42716/1/9241546123.pdf
16. Paul MA, Love RJ, Hawton A, Brett K, McCreary DR, Arendt J. Sleep deficits in the high Arctic summer in relation to light exposure and behaviour: use of melatonin as a countermeasure. Sleep Med. 2015; 16: 406–413.
17. Kloss JD, Perlis ML, Zamzow JA, Culnan EJ, Gracia CR. Sleep, sleep disturbance, and fertility in women. Sleep Med Rev. 2015; 22: 78–87.

18. Creswell J. Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 4th ed. Los Angeles: Sage Publications; 2014.
19. Statistics Greenland. Statbank Greenland: Population [Internet]. [cited 2015 Nov 12]. Available from: http://bank.stat.gl/pxweb/
20. Greenland Government. Greenland guide index [Internet]. [cited 2015 Nov 12]. Available from: www.greenland-guide.gl
21. World Health Organization. Women's health fact sheet [Internet]. 2013 [cited 2015 Nov 12]. Available from: http://www.who.int/mediacentre/factsheets/fs334/en
22. Price K, Bird SR, Lythgo N, Raj IS, Wong JY, Lynch C. Validation of the Fitbit One, Garmin Vivofit and Jawbone UP activity tracker in estimation of energy expenditure during treadmill walking and running. J Med Eng Technol. 2017; 41: 208–215.
23. Grundy SM, Cleeman JI, Daniels SR, Donato KA, Eckel RH, Franklin BA, et al. Diagnosis and management of the metabolic syndrome. Circulation. 2005; 112: 2735–2752.
24. Hammersley M, Atkinson P. Ethnography Principles in Practice. London: Routledge; 1995.
25. World Health Organization. Geneva: Waist circumference and waist–hip ratio; Report of an expert consultation [Internet]. Geneva; 2008 [cited 2017 Jan 18]. Available from: http://www.who.int/nutrition/publications/obesity/WHO_report_waistcircumference_and_waisthip_ratio/en
26. Practice Committee of the American Society for Reproductive Medicine. Obesity and reproduction: a committee opinion. Fertil Steril. 2015; 104: 1116–1126.
27. Catalano PM, Shankar K. Obesity and pregnancy: mechanisms of short term and long term adverse consequences for mother and child. BMJ. 2017; 356: j1.
28. Tudor-Locke C, Bassett DR. How many steps/day are enough? Preliminary pedometer indices for public health. Sports Med. 2004; 34: 1–8.
29. Bersamin A, Wolsko C, Luick BR, Boyer BB, Lardon C, Hopkins SE, et al. Enculturation, perceived stress, and physical activity: implications for metabolic risk among the Yup'ik – The Center for Alaska Native Health Research Study. Ethn Health. 2014; 19: 255–269.
30. Nielsen NO, Jørgensen ME, Friis H, Melbye M, Soborg B, Jeppesen C, et al. Decrease in vitamin D status in the Greenlandic adult population from 1987–2010. PLoS One. 2014; 9: e112949.
31. Friborg O, Rosenvinge JH, Wynn R, Gradisar M. Sleep timing, chronotype, mood, and behavior at an Arctic latitude (69 N). Sleep Med. 2014; 15: 798–807.
32. Hirshkowitz M, Whiton K, Albert SM, Alessi C, Bruni O, DonCarlos L, et al. National Sleep Foundation's updated sleep duration recommendations: final report. Sleep Health. 2015; 1: 233–243.
33. Law S, Kirmayer LJ. Inuit interpretations of sleep paralysis. Transcult Psychiatry. 2005; 42: 93–112.
34. Riva M, Plusquellec P, Juster RP, Laouan-Sidi EA, Abdous B, Lucas M, et al. Household crowding is associated with higher allostatic load among the Inuit. J Epidemiol Community Health. 2014; 68: 363–369.
35. Palinkas LA, Houseal M, Miller C. Sleep and mood during a winter in Antarctica. Int J Circumpolar Health. 2000; 59: 63–73.
36. Park DH, Kripke DF, Cole RJ. More prominent reactivity in mood than activity and sleep induced by differential light exposure due to seasonal and local differences. Chronobiol Int. 2007; 24: 905–920.
37. Arendt J. Biological rhythms during residence in polar regions. Chronobiol Int. 2012; 29: 379–394.

Analysis of a school-based health education model to prevent opisthorchiasis and cholangiocarcinoma in primary school children in northeast Thailand

Luxana Laithavewat[1,2], Carl Grundy-Warr[3], Narong Khuntikeo[1], Ross H. Andrews[1,4], Trevor N. Petney[1,5], Puangrat Yongvanit[1], Pannee Banchonhattakit[1] and Paiboon Sithithaworn[1]

Abstract: Infection with the liver fluke *Opisthorchis viverrini* is the major causative factor inducing cholangiocarcinoma in the Mekong region of Southeast Asia. Northeast Thailand has the highest incidence of this cancer worldwide leading to about 20,000 deaths every year. Infection with the liver fluke comes from eating raw or undercooked fish, a tradition in this area that can potentially be countered by education programs at school level. Here we develop a school-based health education model, based on protection motivation theory (PMT), including module design, learning materials, student activities, and capacity building among teachers. This education program was applied and tested in primary school to pupils (9–13 years) in Khon Kaen province, northeast Thailand. Using a randomized control trial, four schools served as intervention groups (n = 118 pupils) and another four acted as controls (n = 113 pupils). Based on PMT constructs, we found that the pupils in the intervention group had significantly greater knowledge and perceived the severity, vulnerability, response efficacy, and self-efficacy parameters concerning the dangers of eating raw fish and of developing cholangiocarcinoma than those in the control schools ($p < 0.05$). All of the PMT constructs measured were significantly intercorrelated with each other ($p < 0.001$). At the same time, some background knowledge, from community-based education programs, was present in the control schools. The result from this initial study suggests that PMT can be used to predict protective attitude as well as behavior changes in evaluating the consequence of school health intervention programs. (Global Health Promotion, 2020; 27(1): 15–23)

Keywords: Southeast Asia, *Opisthorchis viverrini*, opisthorchiasis, cholangiocarcinoma, education, protection, motivation theory

Introduction

Cholangiocarcinoma (CCA) is a significant health problem in continental East and Southeast Asia, particularly in the countries bordering the Mekong River. The incidence of CCA in Khon Kaen province, located in northeast Thailand, is the highest in the world, ranging from 93.8 to 317.6 per 100,000 persons/year between 1990 and 2001 (1,2). The National Cancer Registry of Thailand also shows

1. Khon Kaen University, Khon Kaen, Thailand.
2. Office of Disease Prevention and Control 6, Khon Kaen, Thailand.
3. National University of Singapore, Singapore.
4. Imperial College, London, UK.
5. Karlsruhe Institute of Technology, Karlsruhe, Germany.

Correspondence to: Paiboon Sithithaworn, Department of Parasitology, Faculty of Medicine, Khon Kaen University, 123 Mitraparb Road, Khon Kaen 40002, Thailand. E-mail: paib_sit@kku.ac.th

(This manuscript was submitted on 26 November 2016. Following blind peer review, it was accepted for publication on 14 February 2018)

Global Health Promotion 1757-9759; Vol 27(1): 15–23; 767622 DOI: 10.1177/1757975918767622 journals.sagepub.com/home/ghp

that liver and bile duct cancer are the most common cancers in both males and females in northeast Thailand, unlike the rest of the country (3).

The major risk factor for developing CCA in Southeast Asia is infection with the liver fluke *Opisthorchis viverrini* sensu lato (4). This liver fluke is widespread in the Lower Mekong Basin including Thailand, the Lao People's Democratic Republic (Lao PDR), Cambodia, and south and central Vietnam (2,5). Approximately eight million people in Thailand are infected, of whom more than two thirds live in the northeast of the country (1). The national helminth survey showed that the overall prevalence of *O. viverrini* was 8.7%, being highest in the northeast (16.6%), followed by the north (10.0%), the central region (1.3%), and the south (0.01%) (1,6). A recent mass survey in 2017 in northeast Thailand (n = 18,436) revealed that the prevalence of *O. viverrini* was 11.3% (Sithithaworn, unpublished data). The age group with the highest prevalence was 40–60+ with the highest district prevalence being between 70% and 84% (7). This is less than the prevalence found previously, which averaged over 60% between 1984 and 1987 (8), but approached 100% in surveys in the 1980s (9).

The liver fluke infection occurs with the consumption of raw or undercooked freshwater, cyprinid fish carrying the parasite (10). The consumption of raw freshwater fish along the Lower Mekong Basin, including northeast Thailand, is an embedded cultural tradition (10–14). The favorite dishes are called koi-pla, pla-som, and a fermented fish call pla-ra. The northeastern Thai population is reliant on freshwater fish as a major source of dietary protein and these foods are eaten regularly (10). To date, health education programs to avoid raw and undercooked fish have proven ineffective in altering the eating behavior predominantly in the older villagers (15).

Control programs for *O. viverrini* infection started in the 1950s with measures against helminths in Thailand. Since early 1980s, there have been sporadic and local health education programs and the use of the anthelminthic drug praziquantel (16).

The significance of health education programs in primary schools has been studied in various global contexts, including Thailand (17–21). The essential activities in these schools are health education and promotion, hygiene awareness, and improved sanitation. Providing scientifically accurate information in a manner that is accessible to children and young people helps improve their awareness of public health problems and stimulates precautionary behavior (22). In the past (prior to 1983) the prevalence of *O. viverrini* in school age children was high (14–37%) in Thailand and Lao PDR (9,23,24). However, in Thailand the prevalence of infection has dropped substantially over the last three decades (6,9,25). For long-term and sustainable control in many infectious diseases, school-based health education is strongly recommended by the World Health Organization (26). Thus, in Thailand, school children, who will eventually enter the adult population, should be the target group for the liver fluke and CCA control program (27).

Generally, theory-based interventions are more successful in achieving stable and permanent behavioral changes than are non-theory-based interventions. Protection motivation theory (PMT) is one model that explains why people engage in unhealthy practices and offers suggestions for changing such behaviors via public health campaigns (28,29). Being both educational and motivational (30), PMT proposes that we protect ourselves based on four factors: the perceived severity of a threatening event (in this case opisthorchiasis and CCA), the perceived probability of the occurrence, or vulnerability (consumption of koi-pla, pla-som, pla-ra), the efficacy of the recommended preventive behavior (consuming of cooked fish only), and the perceived self-efficacy (cooking freshwater fish).

Presently, no formal school-based health education program to prevent and control opisthorchiasis and CCA is available in Thailand. Therefore, our aims were to assess the efficacy of a school-based health education model, based on PMT, in school children, including module design, learning materials, student activities, and capacity building among teachers. The outcome from this study is expected to provide solid foundation for further improvement and modification for future expansion to more primary schools in northeast Thailand as part of the liver fluke control and elimination program. Here we present data on an initial trial of the program used.

Methods

Study design and sampling method

A cluster randomized control trial (RCT) following the CONSORT guideline (updated 2010:

Table 1. Demographic characteristics of the school children.

Characteristics	*Intervention schools* (*n = 118*)	*Control schools* (*n = 113*)
Age (yrs), mean ± SD	11.3 ± 0.7	11.1 ± 0.8
Sex, male/female	42/76	46/67
Average grade, mean ± SD	3.5 ± 0.3	3.4 ± 0.3
Family members, mean ± SD	5.3 ± 1.9	5.0 ± 1.6
Parent occupation, *n* (%)		
Farmer	47 (39.8)	72 (63.7)
Laborer	29 (24.6)	20 (17.7)
Trader	24 (20.3)	16 (14.2)
Official	11 (9.3)	1 (0.9)
Others	7 (5.9)	4 (3.5)
Toilet, yes/no	117/1	111/2

http://www.consort-statement.org/) was conducted in 2012–2013 in Khon Kaen Province, northeast Thailand. The target population was drawn from 210 primary schools under the responsibility of Khon Kaen Primary Educational Service Area Office 2. For inclusion criteria, the primary schools were stratified into two groups, those using the health education package and those not using the package. The 25 schools where health education was implemented are grouped in the 'intervention strata', and the 185 schools without health education implementation were grouped into 'other strata'. The next step was to randomly select four schools as the 'intervention group' and another four schools as the 'control group'. The key participants were primary school children aged 10–12 years old (level 4–6). The eight primary schools chosen were at least 5 km apart from each other (see Supplementary Figure 1 online). The total number of students in levels 4–6 was more than 30 for each school, and they all had reasonable literacy standards. Schools were chosen according to the inclusion criteria (see below) with the use of RCT. In each chosen school, 30 students were recruited randomly for the study.

The sample size was calculated based on the estimation for comparing two independent means. Pool variance between the mean of knowledge of two groups was calculated according to Sota *et al.* (22). The significance level was set at $\alpha < 0.05$ and the power of the analysis at $1 - \beta = 0.90$. The sample size required for this study was calculated to be 105 per group and the number of clusters per group was 4.

Ethical approval for this study was obtained from the Human Research Ethics Committee covering clinical trials, at Khon Kaen University (HE57IO7). All participants and relevant persons provided written consent, including school principals, teachers, parents and students. At the end of the study the same teaching package was supplied to the control schools for their own future use.

The teaching program

The program was developed based on PMT in 2012–2013 by a teacher–researcher team. It consisted of seven units: orientation, CCA, liver fluke, risky food of liver fluke infection and liver fluke free Isan (the regional name for the northeast of Thailand), recipe inspectors and evaluation (see Supplementary Table 1). The program activities were divided into three types: counseling activities, student activities, and activities for social and public interest, all provided by the teacher. Then the students were enrolled as members of the 'Junior Food and Drug Administration Club'. They were asked to learn about opisthorchiasis and CCA by self-learning and showed their understanding using drawings, pictures, pop-ups, mini pocket books, and mind maps. The outputs included both individual and group exercises. Since they gained knowledge and perception of the severity of opisthorchiasis and CCA, they were assigned to inspect risky dishes eaten by their families. They would discuss the problems with their parents and take note of what

kinds of risky foods were found in their own homes and those of their relatives and neighbors. This enabled the children to realize that risk factors related to opisthorchiasis and CCA were found at home and in the community.

The effect of this program was evaluated once at the end of the intervention. The knowledge and perception of school children related to the prevention and control of opisthorchiasis and CCA were assessed by a self-administered questionnaire. There were 10 questions on the child's knowledge of liver flukes, the consequences of liver fluke infection, CCA and prevention measures, such as: 'Do you get opisthorchiasis by eating raw freshwater fish?', 'Can you get opisthorchiasis by skin penetration of liver fluke when you swim in the canal or swamp?' The internal consistency coefficient was good ($\alpha = 0.84$).

The four components of PMT were measured. Perceived severity was measured using five items, for example, 'Opisthorchiasis can cause CCA'. Again, the item responses were measured on a three-point Likert scale ranging from 1 (agree), 2 (not sure), 3 (disagree). The internal consistency coefficient was well above acceptable levels ($\alpha = 0.71$).

Perceived vulnerability was assessed by five items, for example, 'The one who most often eats raw fish will always get opisthorchiasis' and 'If we continue to eat raw fish, we will get repeated liver fluke infection'. Item responses were again measured on the three-point Likert scale. An acceptable internal consistency of $\alpha = 0.75$ was found.

Perceived response efficacy was assessed using five items, for example, 'Eating cooked fresh water fish helps prevent liver fluke infection' and 'Using toilets can prevent liver fluke dispersal into the environment'. Again, the responses ranged from 1 (agree), 2 (not sure), 3 (disagree). An acceptable internal consistency of $\alpha = 0.72$ was found.

Perceived self-efficacy was measured using five items. For example, 'My health status will be better if I do not get liver fluke infection' and 'Pla-som is sold in my community so I must eat it'. An acceptable internal consistency of $\alpha = 0.73$ was found.

Data processing and statistical analysis

Data collected were manually entered twice into a computer using Excel and after quality check they were transferred to the STATA program for analyses. The comparative mean difference for knowledge, perception of vulnerability, severity, response efficacy, and self-efficacy were analyzed by analysis of covariance.

Results

A total of 118 school children participated in the intervention group and 113 in the control school. The demographic characteristics of each group were similar, with no significant differences between them in terms of age, gender mix, average grades, number of family members, occupational mix, and toilet availability (Table 1).

The intervention group of schools showed significantly higher knowledge of the health problems caused by liver flukes. We found that the intervention schools scored better than the control group in each prevention motivation theory variable (Table 2). A total of 66.9% of intervention schools showed a high level score for knowledge of liver flukes, such as how infection occurs, the sources of infection and how to prevent opisthorchiasis. The scores for the control group of schools were generally lower. The students in the control group showed a poorer knowledge of risky foods and did not necessarily attribute this to raw fish consumption. For instance, a number of students replied that eating raw beef and raw snails could cause liver fluke infection. Very few students could identify freshwater fish as a transmission agent for liver fluke. Most of them identified the wrong prevention measures from negative questions. For example, to the question 'Can hand washing protect you from liver fluke infection?' 62% of students wrongly replied in the affirmative, and 64% of students believed that swimming in local canals or swamps could cause liver fluke infection. The mean scores (standard deviation (SD)) of the intervention group and control group were 7.6 (2.7) and 3.6 (1.9), respectively, and the adjusted mean difference of 3.35 (95% confidence interval (CI) = 2.67–4.02) in the intervention group was significantly higher than the control group ($p < 0.001$) (Table 3).

The threat or risk appraisal of prevention motivation theory among intervention school children showed high scores in terms of perception of severity: 60.2% for the intervention group and 24.8% for the control group. There was little consensus about perceived severity among the control group, for instance some of the children did not

Table 2. Knowledge, perception of severity, perception of vulnerability, perception of response efficacy, and perception of self-efficacy between intervention and control groups.

Level	*Intervention group (n = 118)*		*Control group (n = 113)*	
	No.	*%*	*No.*	*%*
Knowledge				
High (8–10 points)	79	66.9	2	1.8
Moderate (6–7 points)	11	9.2	16	14.2
Low (1–5 points)	28	23.7	95	84.1
Perceived severity				
High (13–15 points)	71	60.2	28	24.8
Moderate (9–12 points)	40	33.9	62	54.9
Low (1–8 points)	7	5.9	23	20.3
Perceived vulnerability				
High (13–15 points)	75	63.6	42	37.2
Moderate (9–12 points)	40	33.9	61	54.0
Low (1–8 points)	3	2.5	10	8.8
Perceived response efficacy				
High (13–15 points)	68	57.6	40	35.4
Moderate (9–12 points)	43	36.5	50	44.2
Low (1–8 points)	7	5.9	23	20.4
Perceived self-efficacy				
High (13–15 points)	11	9.3	1	1.0
Moderate (9–12 points)	94	79.7	64	57.5
Low (1–8 points)	13	11.0	47	41.5

perceive CCA as being caused by liver fluke. The students were also not sure that opisthorchiasis could be cured and they believed that if they seldom eat raw fish they will not get infected. Thus the mean score of perception of severity in the intervention group and the control group were 12.3 (2.5) and 10.0 (0.2), respectively, with an adjusted mean difference of 1.72 (95% CI = 0.97–2.47) ($p < 0.001$) (Table 3).

In terms of their perception of vulnerability, 63.6% of the intervention group showed high scores compared with only 37.2% of the control group. Many students in the control group indicated that they ate raw fish because pla-ra and pla-som was sold in their village. The mean scores relating to perception of vulnerability in the intervention and control groups were 13.0 (2.4) and 11.2 (2.5), respectively, with an adjusted mean difference of 1.34 (95% CI = 0.62–2.08) ($p < 0.001$) (Table 3).

For coping appraisal, 57.6% of the school children showed a high score for perception of response efficacy after the intervention, while this was only 35.4% for the control group. Control group pupils showed poor agreement of perception of response efficacy that toilet use could prevent liver fluke dispersion but not liver fluke infection that toilet use was not a risk factor to CCA, and that taking anti-liver fluke tablets could eradicate liver fluke in humans. These correct perceptions were found more commonly among the intervention group. The mean score of perception of response efficacy in the intervention and control groups were 12.0 (2.5) and 10.5 (2.8), respectively, with an adjusted mean different of 1.1 (95% CI = 0.35–1.94) ($p = 0.005$) (Table 3).

Perception of self-efficacy scored 79.7% for the intervention group, while the control group had a moderate score of 57.5%. The control group showed poorer agreement of perception of self-efficacy, such as avoidance of som-tam whenever it was mixed with raw pla-ra. The mean score of perception of self-efficacy was somewhat lower than other perception variables, the intervention group was 9.7

Table 3. Comparison of knowledge and perception among school children between intervention schools (n = 118) and control schools (n = 113) at the end of the second semester, 2012.

Variables	*Unadjusted*			*Adjusted*[a]	
	Mean	*SD*	*Mean diff, 95% CI*	*Mean diff, 95% CI*	*p value*
Knowledge (10 points)					
Intervention schools	7.6	2.7	4.1	3.35	<0.001
Control schools	3.6	1.9	(3.4–4.7)	(2.67–4.02)	
Perceived severity (15 points)					
Intervention schools	12.3	2.5	2.3	1.72	<0.001
Control schools	10.0	0.2	(1.6–2.9)	(0.97–2.47)	
Perceived vulnerability (15 points)					
Intervention schools	13.0	2.4	1.8	1.34	<0.001
Control schools	11.2	2.5	(1.1–2.4)	(0.62–2.08)	
Perceived response efficacy (15 points)					
Intervention schools	12.0	2.5	1.2	1.1	0.005
Control schools	10.5	2.8	(0.6–1.8)	(0.35–1.94)	
Perceived self-efficacy (15 points)					
Intervention schools	9.7	1.7	1.4	1.67	<0.001
Control schools	8.3	1.6	(1.0–1.8)	(1.18–2.15)	

[a]Mean difference was adjusted for age, sex, family member, and parent occupation.

(1.7) and control group was 8.3 (1.6), with an adjusted mean difference of 1.67 (95% CI = 1.18–2.15) (p < 0.001) (Table 3). All of the PMT constructs, including knowledge and perceived severity, vulnerability, response efficacy and self-efficacy parameters concerning of the dangers of eating raw fish and of developing CCA, were significantly intercorrelated with each other (p < 0.001).

Our results showed that school children in the intervention groups ate raw fish less often than those in the control group. Pupils in the intervention group preferred to eat dishes mixed with raw pla-ra such as som-tam (52%) and jaewbong (30%), but they very rarely ate koi-pla, som-pla, etc. Pupils in the control group ate many kinds of raw fish dishes, often as som-tam mixed with raw pla-ra (66%), as well as jaewbong mixed with raw pla-ra (47%), som-pla (29.2%), pla-som (25%), and koi-pla (20.1%).

Discussion

Our data show that substantial knowledge of the life cycle and dangers of opisthorchiasis remain within the school population in northeast Thailand, but that this can be significantly improved using the PMT teaching module designed for this purpose. Our study will also act as a baseline to determine the knowledge base in school children in the future.

The intervention program based on PMT was originally introduced by Rogers in order to understand mechanisms by which people adopt protective behaviors to reduce a perceived threat of disease (31). The PMT, which has been used in HIV prevention research (19,32), can be an alternative to the knowledge, attitude, and practices approach because it integrates cognitive processes with information, knowledge, attitudes to behavioral intentions, and further behaviors (33), all of which are highly relevant to the case of opisthorchiasis and CCA.

Our goal was to assess efficacy of a primary school-based health education program built on PMT. The intervention program was designed to build specific positive beliefs and health behaviors related to opisthorchiasis prevention and control by enhancing knowledge, perception of severity and vulnerability, and focusing on self-response and self-efficacy of the school children.

Our results indicate the success of this health educational intervention in enhancing the knowledge and perception of *O. viverrini* infection behavior as

the intervention group consistently scored better than the control group. The intervention group showed an improvement in knowledge of how *O. viverrini* infection occurs, the type of freshwater fish that can be infected and risky dishes. The perception of severity and vulnerability to opisthorchiasis and CCA was also increased. Finally, this program increased the children's response efficacy and self-efficacy in avoiding raw fish consumption. Nevertheless, data from the control group also showed significant knowledge of the causes and consequences of *O. viverrini* infection, suggesting that previous community-based control and prevention programs have had a lingering effect (34).

All the same, certain misconceptions were more common in the control schools, including how infection occurred. Almost 90% of the children thought that the consumption of raw snails and raw beef could also lead to opisthorchiasis. A total of 62% replied that infection occurred when parasites penetrate their skin while swimming in canals or swamps, which is true for *Schistosoma mekongi* infections but not for liver flukes (35). Our findings in the control schools were similar to those found among older persons in the Isan community where there are common misconceptions on the route of transmission. For example, in addition to the idea that eating any raw food, drinking contaminated water or skin penetration can lead to infection, there is a common belief drinking rice whisky (40% alcohol) or mixing lime juice with raw fish can kill the flukes (13). The self-response and self-efficacy behaviors are more complicated, involving critical thinking to promote desirable health behavior. Our findings reflected self-confidence in avoiding raw fish dishes. However, as the children are dependent on parents or guardians in their daily routine to promote this health behavior, the family must accept children's activities.

The advantages of this study are: it directly compared the intervention and control groups using a clustered, randomization control design; it was carried out in an area where school children are at high risk due to the raw food culture present and it was carried out in a real-life setting with simultaneous assessment, making its results generalizable. In addition, it used learning development activities and a club atmosphere which emphasized teamwork, and it was appropriate and consistent with learners' maturity, the school setting, and the local context.

Thus our health education program succeeded in improving knowledge on infectious fish, cyprinid fishes, i.e. the type of foods that harbor *O. viverrini* and leads to opisthorchiasis and potentially CCA. However, the stability of the protection effect could be increased by combining our school-based learning with other strategies, such as social support to enhance the participation of family members, and community education as currently carried out by the Cholangiocarcinoma Screening and Care Program (CASCAP) (34).

Conclusion

The current low prevalence of opisthorchiasis among children in Thailand suggests the success of previous community-based control and prevention programs. This is reflected in the background knowledge found in the control group children. However, the 'in school' learning program tested here clearly increased the knowledge and perception of the public health problems associated with *O. viverrini* infection. This program provides opportunities to enhance health behavior by promoting 'anti-raw fish dishes behavior'. This school-based health education intervention, focusing on learning development activities and providing a club atmosphere, indicates how educational interventions based on ideas drawn from PMT can yield impressive improvements in terms of knowledge of public health problems and self-prevention measures. The success of such public health education program suggests that it should become school policy in affected areas, and could be modified to include other potential diseases when appropriate.

Acknowledgements

We would like to thank the International Bureau of the German Federal Ministry of Education and Research (IB-BMBF) National Science and Technology Development Agency (NSTDA) and Khon Kaen University 2013 for providing funding for cooperative workshops.

Conflict of interest

The authors declare that there are no conflicts of interest.

Funding

This work was supported by the Higher Education Research Promotion and office of the Higher Education Commission, through health cluster (SHeP-GMS), Khon

Kaen University, Thailand and Cholangiocarcinoma Screening and Care Program (CASCAP), Khon Kaen University.

References

1. Sithithaworn P, Andrews RH, Nguyen VD, Wongsaroj T, Sinuon M, Odermatt P, et al. The current status of opisthorchiasis and clonorchiasis in the Mekong Basin. Parasitol Int. 2012; 61: 10–16.
2. Sripa B, Brindley PJ, Mulvenna J, Laha T, Smout MJ, Mairiang E, et al. The tumorigenic liver fluke *Opisthorchis viverrini* - multiple pathways to cancer. Trends Parasitol. 2012; 28: 395–407.
3. Attasara P, Buasom R. Hospital-based Cancer Registry 2009. Bangkok: Information Technology Division, National Cancer Institute; 2010.
4. Sithithaworn P, Yongvanit P, Duenngai K, Kiatsopit N, Pairojkul C. Roles of liver fluke infection as risk factor for cholangiocarcinoma. J Hepatobiliary Pancreat Sci. 2014; 21: 301–308.
5. Doanh PN, Nawa Y. *Clonorchis sinensis* and *Opisthorchis* spp. in Vietnam: current status and prospects. Trans R Soc Trop Med Hyg. 2016; 110: 13–20.
6. Bureau of General Communicable Disease. National survey of *Opisthorchis viverrini* in Thailand: current situation and control [Internet]. 2009. [cited 2012 month day]. Available from: http://www.thaigcd.ddc.moph.go.th. (accessed December 2017).
7. Thaewnongiew K, Singthong S, Kutchamart S, Tangsawad S, Promthet S, Sailugkum S, et al. Prevalence and risk factors for *Opisthorchis viverrini* infections in upper Northeast Thailand. Asian Pac J Cancer Prev. 2014; 15: 6609–6612.
8. Jongsuksuntigul P, Imsomboon T. Opisthorchiasis control in Thailand. Acta Trop. 2003; 88: 229–232.
9. Khuntikeo N, Sithithaworn P, Loilom W, Namwat N, Yongvanit P, Thinkhamrop B, et al. Changing patterns of prevalence in *Opisthorchis viverrini* sensu lato infection in children and adolescents in northeast Thailand. Acta Trop. 2016; 164: 469–472.
10. Grundy-Warr C, Andrews RH, Sithithaworn P, Petney TN, Sripa B, Laithavewat L, et al. Raw attitudes, wetland cultures, life-cycles: socio-cultural dynamics relating to *Opisthorchis viverrini* in the Mekong Basin. Parasitol Int. 2012; 61: 65–70.
11. Sithithaworn P, Sukavat K, Vannachone B, Sophonphong K, Ben-Embarek P, Petney T, et al. Epidemiology of food-borne trematodes and other parasite infections in a fishing community on the Nam Ngum reservoir, Lao PDR. Southeast Asian J Trop Med Public Health. 2006; 37: 1083–1090.
12. Rangsin R, Mungthin M, Taamasri P, Mongklon S, Aimpun P, Naaglor T, et al. Incidence and risk factors of *Opisthorchis viverrini* infections in a rural community in Thailand. Am J Trop Med Hyg. 2009; 81: 152–155.
13. Suwannahitatorn P, Klomjit S, Naaglor T, Taamasri P, Rangsin R, Leelayoova S, et al. A follow-up study of *Opisthorchis viverrini* infection after the implementation of control program in a rural community, central Thailand. Parasit Vectors. 2013; 6: 188.
14. Xayaseng V, Phongluxa K, van Eeuwijk P, Akkhavong K, Odermatt P. Raw fish consumption in liver fluke endemic areas in rural southern Laos. Acta Trop. 2013; 127: 105–111.
15. Ziegler AD, Petney TN, Grundy-Warr C, Andrews RH, Baird IG, Wasson RJ, et al. Dams and disease triggers on the lower mekong river. PLoS Negl Trop Dis. 2013; 7: e2166.
16. Sripa B, Tangkawattana S, Laha T, Kaewkes S, Mallory FF, Smith JF, et al. Toward integrated opisthorchiasis control in northeast Thailand: the Lawa project. Acta Trop. 2015; 141: 361–367.
17. Anantaphruti MT, Waikagul J, Maipanich W, Nuamtanong S, Watthanakulpanich D, Pubampen S, et al. School-based health education for the control of soil-transmitted helminthiases in Kanchanaburi province, Thailand. Ann Trop Med Parasitol. 2008; 102: 521–528.
18. Bieri FA, Gray DJ, Williams GM, Raso G, Li YS, Yuan L, et al. Health-education package to prevent worm infections in Chinese schoolchildren. N Engl J Med. 2013; 368: 1603–1612.
19. Chen X, Lunn S, Deveaux L, Li X, Brathwaite N, Cottrell L, et al. A cluster randomized controlled trial of an adolescent HIV prevention program among Bahamian youth: effect at 12 months post-intervention. AIDS Behav. 2009; 13: 499–508.
20. Kobayashi J, Jimba M, Okabayashi H, Singhasivanon P, Waikagul J. Beyond deworming: the promotion of school-health-based interventions by Japan. Trends Parasitol. 2007; 23: 25–29.
21. Yekaninejad MS, Eshraghian MR, Nourijelyani K, Mohammad K, Foroushani AR, Zayeri F, et al. Effect of a school-based oral health-education program on Iranian children: results from a group randomized trial. Eur J Oral Sci. 2012; 120: 429–437.
22. Sota C, Sithithaworn P, Duangsong R, Three-Ost N. The effectiveness of health education program for liver fluke preventing behavior by using hand book and VCD in primary school students. Soc Sci J. 2011; 6: 136–140.
23. Phathammavong O, Moazzam A, Xaysomphoo D, Phengsavanh A, Kuroiwa C. Parasitic infestation and nutritional status among schoolchildren in Vientiane, Lao PDR. J Paediatr Child Health. 2007; 43: 689–694.
24. Kobayashi J, Vannachone B, Xeutvongsa A, Manivang K, Ogawa S, Sato Y, et al. Prevalence of intestinal parasitic infection among children in two villages in Lao PDR. Southeast Asian J Trop Med Public Health. 1996; 27: 562–565.
25. Wongba N, Thaewnongiew K, Laithavewat L, Singthong S, Kutchamart S, Tangsawad S, et al. Prevalence and health risk behavior of *Opisthorchis viverrini* infection upper northeast Thailand. In: The 13th Workshop of the Regional Network on Asian Schistosomiasis and other Helminth Zoonoses (ZRNAS+). Khon Kaen, Thailand: Regional Network on Asian Schistosomiasis; 24–26 October 2013; p. 12.

26. World Health Organization. Helminth Control in School-age Children, a Guide for Managers of Control Programs. Geneva: World Health Organization; 2011.
27. Ziegler AD, Andrews RH, Grundy-Warr C, Sithithaworn P, Petney TN. Fighting liverflukes with food safety education. Science. 2011; 331: 282–283.
28. Plotnikoff RC, Lippke S, Trinh L, Courneya KS, Birkett N, Sigal RJ. Protection motivation theory and the prediction of physical activity among adults with type 1 or type 2 diabetes in a large population sample. Br J Health Psychol. 2010; 15: 643–661.
29. Xiao H, Li S, Chen X, Yu B, Gao M, Yan H, et al. Protection motivation theory in predicting intention to engage in protective behaviors against schistosomiasis among middle school students in rural China. PLoS Negl Trop Dis. 2014; 8: e3246.
30. Rogers RW. A protection motivation theory of fear appeals and attitude change1. J Psychol. 1975; 91: 93–114.
31. Rogers RW. Cognitive and physiological processes in fear appeals and attitude change: a revised theory of protection motivation. In: Cacioppo J, Petty R (eds) Social Psychophysiology. New York: Guilford Press; 1983, pp. 153–177.
32. Chen X, Stanton B, Gomez P, Lunn S, Deveaux L, Brathwaite N, et al. Effects on condom use of an HIV prevention programme 36 months postintervention: a cluster randomized controlled trial among Bahamian youth. Int J STD AIDS. 2010; 21: 622–630.
33. Milne S, Sheeran P, Orbell S. Prediction and intervention in health-related behavior: a meta-analytic review of protection motivation theory. J Appl Soc Psychol. 2000; 30: 106–143.
34. Khuntikeo N, Loilome W, Thinkhamrop B, Chamadol N, Yongvanit P. A comprehensive public health conceptual framework and strategy to effectively combat cholangiocarcinoma in Thailand. PLoS Negl Trop Dis. 2016; 10: e0004293.
35. Petney TN, Taraschewski H. Water-borne parasitic diseases: hydrology, regional development and control. In: Frimmel FH (ed) Water Chemistry and Microbiology. Elsevier: A Treatise on Water Science; 2011. pp. 303–366.

The comparative and objective measurement of health promotion capacity-building: from conceptual framework to operationalization

Vesa Saaristo[1], Pia Hakamäki[1], Hanna Koskinen[1], Kirsi Wiss[1] and Timo Ståhl[1]

Abstract: The aim of this study was to analyse and test a theoretical generic health promotion capacity-building framework with empirical data on primary health care. The framework consists of seven dimensions: commitment, management, monitoring and needs assessment, resources, common practices, participation and other core functions. The data were collected in 2014 from all the health centres in Finland, of which 156 (99%) submitted their data. The data were scored by the quality of activities on a scale from 0 to 100, where 100 stands for desirable quality. Individual indicators were nested into subdimensions, which in turn were nested into the dimensions of the theoretical framework. Variables were clustered using the dimensions and subdimensions as initial partitions. The internal consistency of dimensions and subdimensions was tested with standardized Cronbach's alpha both before and after the clustering analysis. The results showed that although the internal consistency of the dimensions was high in the initial classification, it is possible to get even more consistent dimensions. The internal consistency of the initial classification varied from 0.62 in participation to 0.93 in common practices. In the clustering analysis, 45 out of 203 indicators were assigned to a dimension different from the initial partition. The biggest gain in internal consistency was achieved in the subdimension of systematic mass communications by relocating two indicators. This study suggests that it is possible to assess the health promotion capacity-building of organizations in a coherent way with comparable and objective indicators. These analyses also show that the number of indicators can be reduced. It would be interesting to see how the framework works in other governmental structures or political contexts. (Global Health Promotion, 2020; 27(1): 24–32)

Keywords: capacity-building, competencies, health promotion, organizational change, organizational development, primary health care

Introduction

The concept of health promotion started to form in the 1970s. The Lalonde Report of 1974 (1) identified the health care system and the promotion of good health, along with the prevention of health problems, as two separate health-related objectives. The Ottawa Charter for Health Promotion (2) further emphasized the collaboration of all sectors of government, bringing health to the agenda of all policymakers at different levels and in different sectors – not only those making health policy. The aim of health promotion is to make policymakers aware of the health consequences of their decisions and to make them accept their responsibilities for health (3). A key question is how to assess, in a comparable and objective way, the health promotion and preventive measures taken in different sectors.

Health promotion programmes and interventions were in the mainstream of health promotion research

1. Terveyden ja hyvinvoinnin laitos Tampere, Welfare Department, Tampere, Finland.

Correspondence to: Vesa Saaristo, Terveyden ja hyvinvoinnin laitos Tampere, Welfare Department, Finn-Medi 3, Biokatu 10, Tampere 33520, Finland. Email: vesa.saaristo@thl.fi

(This manuscript was submitted on 19 April 2017. Following blind peer review, it was accepted for publication on 14 February 2018)

Global Health Promotion 1757-9759; Vol 27(1): 24–32; 769608 DOI: 10.1177/1757975918769608 journals.sagepub.com/home/ghp

and development until the 1990s. A new challenge emerged as interventions that were found to be effective under controlled circumstances seemed to fail to produce the expected results after being transferred to a new environment. The concept of health promotion capacity-building was presented as a potential framework for assessing and evaluating the processes and resources of organizations for health promotion (4–6). Hawe and colleagues (4) defined capacity-building in health promotion as a process that enhances the capacity of the system to prolong and multiply health effects. The focus was shifted from health promotion interventions to the organizations implementing them (7). A particular focus was on organizations' ability to apply and integrate interventions and health promotion programmes in their basic activities in a way that generates permanent effects and changes.

Early empirical applications of health promotion capacity-building were performed at the level of individuals, and conclusions on organizations were drawn from the individual level. The first organization-level application was created in the WHO Health Promoting Hospitals context (8). They produced a method of self-assessment for hospitals by combining health promotion capacity-building with elements of quality management. Groene and Garcia-Barbero (9) provide a comprehensive review of existing public health capacity frameworks. Although a more in-depth description of health promotion capacity-building and all the other theories that have influenced the development of the framework being assessed would be useful, it is beyond the scope of this article. The purpose of this research is to analyse and test a Finnish application of the health promotion capacity-building frameworks, known in Finnish as *Terveydenedistämisaktiivisuus* (10), with empirical data. Where necessary, we will propose changes to the allocation of indicators in order to gain better internal consistency of the framework and to reduce the number of indicators in future data collections. The applicability of the framework to other country contexts is considered in the discussion.

The Finnish framework

Klassen and colleagues (11) performed a systematic review of frameworks for performance measurement and improvement, identifying 16 quality concepts applicable across many settings, sectors and levels. The literature on health promotion capacity-building and quality management provided a universal foundation for the framework being assessed, aiming to make visible the health-promoting activities of Finnish municipalities in a comparable, objective way. The third important aspect informing the development of the framework was the recognition of municipalities as complex systems. Complexity science in organizational thinking focuses on the patterns of relationships within organizations and aims to explain how they give rise to multiple dependency chains or why some interventions have unanticipated outcomes (12).

The framework being assessed is generic and consists of seven dimensions. In order to operate efficiently, all seven dimensions should be considered in the organization. The dimensions to be measured are:

- *Commitment*. This describes the organization's commitment to health promotion based on strategy documents as well as the use of national programmes.
- *Management*. This describes how health promotion is organized, defined and implemented.
- *Monitoring and needs assessment*. This explores whether the health status and health behaviour of the citizens are monitored, the needs of different population groups assessed, and results reported to the management and elected officials.
- *Resources*. This describes the resourcing of health and welfare promotion, based on the skills and dimensioning of staff for example.
- *Common practices*. This describes whether there are any written guidelines or jointly agreed practices in place.
- *Participation*. This describes residents' opportunities to take part in the planning and evaluation of activities and services.
- *Other core functions*. This refers to sector-specific core functions in health promotion that must be in place in every organization.

Based on the framework, a nationwide online benchmarking tool called TEAviisari (http://www.teaviisari.fi/en/) was released in March 2010. The tool is aimed to provide comparable and objective

indicators for the management, planning, and evaluation of health promotion activities in different sectors of administration in Finnish municipalities.

Primary health care data were chosen for the analysis because the first indicators published in TEAviisari were from primary health care in 2008 (13). All indicators in TEAviisari have also been published in English, but straightforward analyses of data on primary health care (14,15), as well as on other fields of action, have been published only in Finnish (16–19). The analyses presented in this article have not been published earlier. The results will be utilized in developing the interactive TEAviisari tool.

Data and methods

Context

In Finland, municipalities (N = 304 in mainland Finland in 2014) are responsible for providing primary health care. For this purpose, they are required to have a health centre. Municipalities can form a co-operation area running a common health centre.

The subject matter to be measured under each dimension of the health promotion capacity-building framework are originally based on expert work in the context of the obligations and tasks of primary health care, as stated in the Primary Health Care Act of 1972. New data have been collected every other year since 2008, and each time, the indicators to be collected have been developed further, based on the previous data and in collaboration with a wide range of experts from different fields of primary health care.

All indicators are factual, describing the processes or the resources of the health centre. They are independent of the informant and, thus, not based on self-assessments. Under the seven dimensions of the framework, a total of 36 subjects, called subdimensions, were measured with a total of 203 indicators. Of these, 164 were dichotomous (no/yes). Eleven indicators had three categories and 20 indicators had four categories. For example, how the health centre's management group made use of the national alcohol programme was measured with the following categories: *no discussion, distributed for information, presented*, and *discussed and a decision was made*. Two indicators were counts (the number of comprehensive health assessments in maternity and child health clinics, and in school health care) and six were percentages (personnel resources compared to national recommendations). All the individual indicators and the form used to collect them are available at http://www.teaviisari.fi/en/.

Data collection

In 2014, there were 158 health centres in the whole country. The data collection (20) was prepared in a collaboration between the Ministry of Social Affairs and Health, the Association of Finnish Local and Regional Authorities, the National Supervisory Authority for Welfare and Health, and the National Institute for Health and Welfare.

The data were collected between April and May 2014 by sending a paper form and a cover letter signed by the above-mentioned authorities to the postal addresses of all the health centres and by sending a link to a prefilled electronic form by email to the contact person of each health centre. The respondents were asked to collect the data on the paper form, discuss the indicators in their management group and submit them via the electronic form. Health centres using Swedish as their first language received the form in Swedish. Non-respondents were contacted in June by email and by phone. Eventually all but two health centres (99%, N = 158) submitted their data. One health centre was removed because more than half of its data were missing. The remaining 155 health centres covered 300 municipalities.

For *resources*, health centres were asked to estimate the person years or monthly working hours of the nursing staff and physician resources in 2013, divided into maternity and child health clinics, school health care, and student health care. Responses received in monthly working hours were converted to person years. To ensure the quality of the data, the personnel resource indicators, for example number of pupils per physician, were sent to health centres for review.

An institutional review board or an ethics committee statement or approval was not needed because this study deals with organizations and all data are collected on an organizational level. Also there was no need for collecting organizational consent for the collection and publication of indicator data. The Act on the Openness of Government Activities obligates

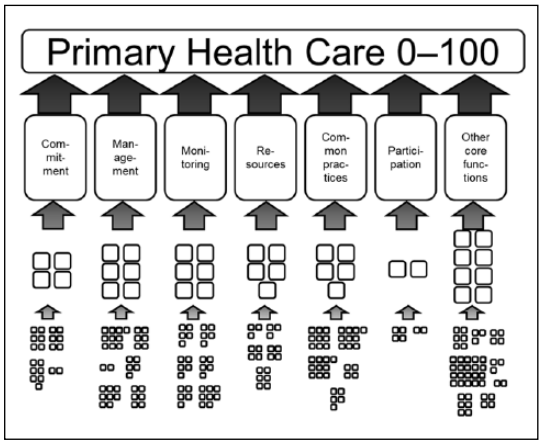

Figure 1. Structure of the primary health care data with seven dimensions, 36 subdivisions and 203 indicators.

municipal authorities to promote the openness of their activities and to produce statistics and information on their services and practices, publicise their activities and services, and ensure that essential documents are easily accessible to the public.

Data analysis

The data are interpreted and converted to indicators. Each indicator is scored on a scale from 0 to 100, where 100 stands for the desirable quality. Individual indicators are nested into subdimensions, which in turn are nested into the dimensions of health promotion capacity-building. The score for each subdimension is calculated as the arithmetic mean of the indicator scores, and the score for each dimension as the arithmetic mean of the subdimension scores. The whole sector can be described with a single number, the arithmetic mean of the dimension scores. This allows for the number of indicators within a subdimension to vary without affecting the overall score.

The overall score for primary health care can be seen as a weighted mean of the individual indicators with the weights depending on the number of indicators within the same subdimension and the number of subdimensions within the same dimension. In the calculation, missing data are treated as equal to zero. The structure of the data is illustrated in Figure 1.

The internal consistency of dimensions and subdimensions was tested with standardized Cronbach's alpha. Variables were clustered using the seven dimensions of the theoretical framework as an initial partition, and standardized Cronbach's alpha was calculated for the resulting clusters. A similar analysis was conducted with subdimensions as the initial partition.

Clustering is a classical method used for grouping observations based on a dissimilarity matrix. The clustering of variables, as described by Chavent and colleagues (21), is a rather novel approach to arranging variables into homogenous clusters. We used a *k*-means type partitioning algorithm, as implemented in the package ClustOfVar (22). The algorithm aims at maximizing a homogeneity criterion. A cluster is defined as 'homogenous' when the variables in the cluster are strongly correlated with a central synthetic variable. The central synthetic variable is the first principal component calculated from all the variables in the cluster. A new partition is constructed by assigning each variable to the closest cluster, measured by the squared Pearson correlation between the variable and the central synthetic variable. The procedure is repeated until there are no more changes in the partition.

For all analyses, all missing data were considered equal to zero. Two indicators under participation had identical data (r = 1.00). One of them was removed from the data.

All analyses were performed with R version 3.2.3 (23). Standardized Cronbach's alpha was calculated using the package Psych (24). The clustering of variables was conducted with the package ClustOfVar (22).

Results

The internal consistency of dimensions based on the theoretical framework, measured with standardized Cronbach's alpha, varied from 0.62 in *participation* to 0.93 in *common practices*. In the clustering analysis, 45 out of 203 indicators were assigned to a dimension different from the initial partition. The internal consistency of clusters received as a result of a *k*-means clustering analysis after nine iterations was higher than or equal to that of the initial cluster in six cases out of seven. Only the internal consistency of the *common practices*

Table 1. Indicators of primary health care by the initial partition to dimensions on rows and the cluster received as the result of the analysis in columns.

Cluster	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Dimension							
(1) Commitment	20	1					
(2) Management	1	36					
(3) Monitoring			25				8
(4) Resources		2		9	1	5	3
(5) Common practices			1		37		
(6) Participation		1				3	1
(7) Other core functions	2	3	1	1	4	10	27
Standardized alpha before	**0.88**	**0.90**	**0.91**	**0.70**	**0.93**	**0.62**	**0.83**
Standardized alpha after	**0.88**	**0.90**	**0.92**	**0.82**	**0.92**	**0.76**	**0.88**

dimension dropped slightly (from 0.93 to 0.92), whereas the gain in the internal consistency of *other core functions, resources*, and *participation* was notable. The results from the clustering analysis with dimensions as an initial partition are described in Table 1.

The internal consistency of *commitment* was high: 0.88 both in the initial situation and in the cluster found in the analysis. A total of 20 indicators out of 21 remained in the *commitment* cluster. The indicator depicting the involvement of the health centre in the drafting of municipal health and welfare reports was loaded to the *management* cluster with a low squared loading of 0.14.

In *management*, both the initial dimension and the resulting cluster had the internal consistency of 0.90. A total of 36 indicators out of 37 remained in the *management* cluster, and one (having a senior nursing officer or similar director of nursing) was assigned to *commitment* with a very low squared loading (0.02).

The internal consistency of *monitoring and needs assessment* slightly increased from 0.91 to 0.92. Most indicators measured under *monitoring* remained in the cluster, but seven indicators of oral health monitoring in regular oral health examinations were loaded heavily to *other core functions* (0.56–0.64) along with the systematic monitoring of the oral health status of the population (0.09).

After the analysis, the internal consistency of *resources* increased from 0.70 to 0.82. Indicators were assigned to five different clusters. Eight indicators of factors influencing dimensioning in school and student health care formed the *resources* cluster, along with physician resources in school health care. Public health nurse resources in student health care, nurses specialized in treating depression, substance abuse nurses, memory nurses, and physician resources in maternity and child health clinics were loaded to *participation* (0.01–0.21); osteoporosis specialist nurses and dieticians or nutrition therapists to *management* (both 0.08); health professionals with qualifications in sexual counselling to *common practices* (0.08); and public health nurse resources in maternity and child health clinics, and physician resources in student health care, were assigned to *other core functions* (0.02–0.05).

The internal consistency of *common practices* slightly decreased from 0.93 to 0.92. All but one of the 38 indicators measured under this dimension remained in the cluster. Only having a joint practice of compiling statistical summaries of the proportion of tobacco users in school and student health care was assigned to *monitoring* (0.10).

Participation was measured with five indicators. These changes increased the internal consistency of the dimension from 0.62 to 0.76. The subdimension measuring the amount of information available on the website of the health centre remained in the cluster, whereas conducting client feedback surveys on preventive health services was assigned to *other core functions* (0.06) and organizing systematic local residents' forums to *management* (0.01).

The internal consistency of the *other core functions* dimension increased from 0.83 to 0.88. Indicators initially classified under this dimension were assigned to all seven clusters. All six indicators of the

inspection of health, safety and well-being at school were loaded strongly (0.26–0.54) to *participation* along with all three indicators of prenatal screenings (all 0.10) and one indicator of the number of comprehensive health assessments in school health care (0.03). Systematic communications on physical activity promotion (0.17) and providing general health examinations for adults (0.06) were loaded to *commitment*, whereas systematic communications on healthy diets and influenza vaccinations (0.12–0.14) and health examinations for unemployed people (0.04) were assigned to *management*.

The number of comprehensive health assessments in maternity and child health clinics (0.11), systematic communications on the prevention of domestic violence (0.06), health examinations for 16–17-year-olds outside the educational system (0.05), and breast cancer screenings for statutory age groups (0.02) were loaded to *common practices*; systematic communications on the prevention of accidents were assigned to *resources* (0.10); and planned health assessments at maternity clinics by a public health nurse for primiparae were assigned to *monitoring* (0.02).

A similar analysis was conducted with the 36 subdimensions as an initial partition. In this analysis, three iterations were required in which 12 indicators were assigned to a subdimension different from the initial partition. These assignments resulted in an increase in the internal consistency of nine subdimensions and in decrease in seven subdimensions.

The biggest gain in internal consistency, from 0.63 to 0.73, was to be achieved in the subdivision of *systematic mass communications* by relocating two indicators. Relocating five indicators from *special needs counselling and guidance* to *written practice of identifying problems* and *health counselling available* increased the internal consistency of the *special needs counselling and guidance* subdimension from 0.81 to 0.90 without notably affecting the internal consistency of the receiving subdimensions. Due to negative correlations between the items, the subdimension concerning the *offering of screenings* had the lowest internal consistency both in the initial partition (0.01) and the resulting partition (–0.14; Table 2.)

Conclusion

After the seminal work of Hawe and colleagues (4), health promotion capacity-building has evolved on several tracks. Following the work of Labonté and Laverack (5,6), many recent models concentrate on community capacity-building. The framework assessed in this article focuses on organizational development, combining aspects of capacity-building with complexity science and quality management.

Many dimensionality reduction techniques – such as principal component analysis, factor analysis, and independent component analysis – are based on transforming high-dimensional data into a space of fewer dimensions. The resulting synthetic variables can be difficult to interpret in terms of the original variables. The advantage of variable clustering is that even if it is based on synthetic variables, it deals with the original variables. Grouping variables into clusters on statistical grounds has straightforward practical implications. By finding the leading variables of each cluster it is possible to reduce the amount of data required. This is especially an issue in the primary health care data of this analysis, because the number of variables exceeds the number of observations in the data.

Testing the theoretical framework with empirical data showed that the internal consistency of the seven dimensions was considerably high, varying from 0.62 to 0.93. This clearly indicated that the initial classification of indicators was accurate. The clustering analysis further confirmed that the framework was useful for developing and presenting the indicators and showed that the number of indicators can be justly reduced.

Previous studies

While assessing the initial allocation of indicators to dimensions, Saaristo and colleagues (14) tested the internal consistency of four dimensions in the 2008 data. The Cronbach's alphas varied from 0.563 (for *management*) to 0.743 (for *commitment*). The internal consistency of *resources* and *other core functions* were not reported, and *participation* was not measured at all in 2008. All reported consistencies were lower than the corresponding ones in this study, indicating that the internal consistency of dimensions has improved since the first data collection.

In other contexts, Jung and colleagues (25) tested a community capacity framework derived from the work of Labonté and Laverack (5,6) with survey

Table 2. Standardized Cronbach's alpha and number of indicators by subdimension before and after the analysis.

		Before		*After*	
		alpha	*n*	*alpha*	*n*
Commitment	Programmes discussed by elected officials	0.76	6	0.76	6
	Programmes discussed by management group	0.81	6	0.81	6
	Targets of the Health 2015 public health programme in the operating and financial plan	0.87	7	0.87	7
	Health centre involved in municipal activities	0.45	2	0.47	3
Management	Implementation plan approved by management group	0.90	10	0.90	10
	Management responsibility for health promotion	0.49	6	0.55	5
	Definition of problems and indicators	0.52	2	0.52	2
	Collaboration agreement with hospital district	0.75	5	0.72	6
	Assigning of responsibilities	0.74	8	0.75	9
	Quality management and self-monitoring	0.75	6	0.79	5
Monitoring	Reporting by age group to elected officials	0.81	5	0.81	5
	Reporting by gender to elected officials	0.82	5	0.82	5
	Reporting by educational group to elected officials	0.86	5	0.86	5
	Systematic monitoring	0.79	5	0.76	6
	Reporting in the annual report	0.75	5	0.75	5
	Oral health monitoring	0.92	8	0.91	9
Resources	Public health nurse resources compared to national recommendations	0.44	3	0.44	3
	Physician resources compared to national recommendations	0.55	3	0.55	3
	Factors influencing dimensioning in school health care	0.72	4	0.72	4
	Factors influencing dimensioning in student health care	0.80	4	0.80	4
	Other health professionals at health centres	0.49	6	0.53	5
Common Practices	Written practice for identifying problems	0.85	9	0.85	10
	Health counselling available	0.88	10	0.88	14
	Special needs counselling and guidance	0.81	10	0.9	5
	Early detection and intervention for alcohol use	0.72	4	0.72	4
	Screening for smoking and recording of results	0.83	5	0.83	5
Participation	Information available online	0.82	3	0.82	3
	Client feedback	0.24	2	0.24	2
Other Core Functions	Systematic mass communications	0.63	6	0.73	4
	Health examinations	0.45	3	0.45	3
	Planned health assessments at maternity clinics	0.68	4	0.68	3
	Planned health assessments as defined by decree	0.87	20	0.88	21
	Available prenatal screening	0.56	3	0.56	3
	Number of comprehensive health assessments	0.59	2	0.59	2
	Development and inspection of health and safety at school	0.80	6	0.70	7
	Cervical cancer and breast cancer screening	0.01	4	–0.14	3

data on health promotion workers in public health centres in Korea and found high internal consistency in each of the nine features of their framework. Kuentz-Simonet and colleagues (26) recently used the clustering-of-variables method for successfully assessing a conceptual quality-of-life framework

and the capacity of municipalities in France to adapt to climate change.

Limitations

Even if all indicators in TEAviisari are factual, and therefore independent of the informant, there may also be some degree of self-interpretation. To address this issue a few indicators are hand-picked for auditing at every data collection. As a result, misinterpreted data are corrected and ambiguous indicators discarded or developed further for the next data collection. Also, the volume of activity is not currently being assessed very well. For instance, an organization may have monitoring and evaluation in place, but how well these activities are carried out, and the extent to which they collect the data that is used to improve their programmes, is not assessed. These issues are acknowledged as limitations of this study as well as of the TEAviisari tool.

Utilization

While confirming clusters similar to those of the theoretical framework, the analysis indicated that it is possible to get even more consistent dimensions. This is especially relevant from a practical perspective. Because policymakers may take advantage of the TEAviisari (http://www.teaviisari.fi/en/) tool by only taking a look of the dimensions and their subdimensions (without drilling down to individual indicators), it is important that the dimensions and subdimensions are consistent and relevant. The more consistent the dimensions are, the smaller the number of indicators would be needed to describe the dimension. This helps in realizing one of the objectives of TEAviisari – that is, discovering the minimum possible number of indicators that reliably describes the health promotion capacity-building of the organization in question.

The data have been widely used at different levels of governance. Municipalities have used the data for example in setting performance targets, in mass communication, and in compiling comprehensive welfare reports. Regional state administrative agencies have used the data in the follow-up and monitoring of the implementation of legislation and hospital districts for supporting the development of primary health care in their area. The government of Finland has used the data in monitoring the fulfilment of the strategic targets of the government budget as well as in the preparation of legislation.

These analyses support the view that it is possible to assess the health promotion capacity-building of organizations in a coherent way with comparable and objective indicators. The presentation of the results in a transparent manner to local governments and the residents of municipalities is apt to increase the accountability of local authorities. The web-based user interface of TEAviisari provides a quick access to relevant, interpreted information for decision makers, including national-level policy making and guidance. The exceptionally high response rates demonstrate the commitment of local actors in promoting the health and welfare of their population, and also guarantee the quality and credibility of the tool.

The results of this paper encourage further developing the tool and the data collections while seeking the smallest possible set of indicators that would reliably describe the activities of municipalities, regions or units in a comparable manner. Given that the analyses showed, as discussed earlier, that the framework seems to work well with data from Finland, we expect it would work similarly in other countries as long as variations in governmental structures or political contexts are taken into account.

Conflict of interest

The authors declare that there is no conflict of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ORCID iD

Vesa Saaristo https://orcid.org/0000-0002-7953-1888

References

1. Lalonde M. A new perspective on the health of Canadians: a working document. Ottawa: Government of Canada; 1974.
2. World Health Organization. The Ottawa Charter for Health Promotion. Geneva: World Health Organization; 1986.
3. Ståhl T, Wismar M, Ollila E, Lahtinen E, Leppo K (eds). Health in All Policies: Prospects and Potential. Helsinki: Ministry of Health and Social Affairs; 2006.

4. Hawe P, Noort M, King L, Jordens C. Multiplying health gains: the critical role of capacity-building within health promotion programs. Health Policy. 1997; 39: 29–42.
5. Labonté R, Laverack G. Capacity building in health promotion, Part 1: for whom? And for what purpose? Crit Public Health. 2001; 11: 111–127.
6. Labonté R, Laverack G. Capacity building in health promotion, Part 2: whose use? Crit Public Health. 2001; 11: 129–138.
7. Nutbeam D. Evaluating health promotion – progress, problems and solutions. Health Promot Int. 1998; 13: 27–44.
8. Aluttis C, Van den Broucke S, Chiotan C, Costongs C, Michelsen K, Brand H. Public health and health promotion capacity at national and regional level: a review of conceptual frameworks. J Public Health Res. 2014; 3: 37–42.
9. Groene O, Garcia-Barbero M (eds). Health Promotion in Hospitals: Evidence and Quality Management. Copenhagen: WHO Regional Office for Europe; 2005.
10. Ståhl T, Rimpelä M. Väestön terveyden edistäminen kunnan tehtävänä [Population health promotion as the task of municipalities] In: Ståhl T, Rimpelä A (eds). Terveyden edistäminen tutkimuksen ja päätöksenteon haasteena [Health Promotion as a Challenge for Research and Decision-making]. Helsinki: National Institute for Health and Welfare; 2010, pp. 133–151.
11. Klassen A, Miller A, Anderson N, Shen J, Schiariti V, O'Donnell M. Performance measurement and improvement frameworks in health, education and social services systems: a systematic review. *Int J Qual Health Care* 2009; 22: 44–69.
12. Kernick D. Complexity and the development of organizational theory. In: Kernick D (ed.) Complexity and Healthcare Organization – A View from the Street. Cornwall: Radcliffe Medical Press; 2004.
13. Saaristo VMA, Alho LH, Rigoff AM, Ståhl TP, Rimpelä MK. Benchmarking of health promotion capacity in Finnish health centres [abstract]. Eur J Public Health. 2010; 20(Suppl 1): S264.
14. Saaristo V, Alho L, Ståhl T, Rimpelä M. Terveydenedi stämisaktiivisuutta perusterveydenhuollossa kuvaavat tunnusluvut ja niiden raportointi – menetelmäraportti [Benchmarking of Health Promotion Capacity Building in Primary Health Care – Development of Indicators]. Helsinki: National Institute for Health and Welfare; 2010.
15. Saaristo V, Ståhl T. TEAviisari. 2010 – Perustervey denhuollon menetelmäraportti [TEAviisari 2010 – The Methodology Report of Primary Health Care]. Helsinki: National Institute for Health and Welfare; 2011.
16. Saaristo V, Ståhl T, Rimpelä M. Terveydenedistämisaktiivisuus perusopetuksessa – menetelmäraportti [Health Promotion Capacity Building in Basic Education – Methodology Report]. Helsinki: National Institute for Health and Welfare; 2010.
17. Saaristo V, Kulmala J, Ståhl T. Terveyttä edistävä liikunta kunnan toiminnassa – menetelmäraportti [Health-enhancing Physical Activity in Local Government – Methodology Report]. Helsinki: National Institute for Health and Welfare; 2011.
18. Saaristo V. TEAviisari 2011 – Kuntajohdon aineiston muodostaminen ja opiskeluterveydenhuollon indikaattorit [TEAviisari 2011 – Processing of the Data on Municipal Management and Creating of Indicators for Student Health Care]. Helsinki: National Institute for Health and Welfare; 2012.
19. Saaristo V, Nummela O, Ståhl T. Terveydenedistämisaktiivisuus toisen asteen oppilaitoksissa – menetelmäraportti [Health Promotion Capacity Building in Upper Secondary Education – Methodology Report]. Helsinki: National Institute for Health and Welfare; 2015.
20. Wiss K, Frantsi-Lankia M, Pelkonen M, Saaristo V, Ståhl T. Neuvolatoiminta koulu- ja opiskeluterveydenhuolto sekä lasten ja nuorten ehkäisevä suun terveydenhuolto 2014 – asetuksen 338/2011 toimeenpanon seuranta ja valvonta [Maternity and Child Health Clinics, School and Student Health Care and Oral Health Care for Children and Young People 2014 – Follow-up and Monitoring of the Implementation of the Decree 338/2011]. Helsinki: National Institute for Health and Welfare; 2014.
21. Chavent M, Kuentz V, Liquet B, Saracco J. ClustOfVar: an R package for the clustering of variables. J Stat Softw. 2012; 50: 13.
22. Chavent M, Kuentz V, Liquet B, Saracco J. ClustOfVar: Clustering of Variables. R Package Version 0.8 [software]. 2013. Available from: https://CRAN.R-project.org/package=ClustOfVar
23. R Core Team. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, version 3.2.3 [software]. 2015. Available from: https://www.R-project.org/
24. Revelle W. Psych: Procedures for Personality and Psychological Research, version 1.5.8 [software]. Evanston (IL): Northwestern University. Available from: http://CRAN.R-project.org/package=psych, 2015.
25. Jung MK, Kwang WK, Byeng CY, Man JJ, Yoon JK, Yun HK. Assessment of community capacity building ability of health promotion workers in public health centers. J Prev Med Public Health. 2009; 42: 283–292.
26. Kuentz-Simonet V, Labenne A, Rambonilaza T. Using ClustOfVar to construct quality of life indicators for vulnerability assessment municipality trajectories in Southwest France from 1999 to 2009. Soc Indic Res. 2017; 131: 973–997.

The application of mHealth to monitor implementation of best practices to support healthy eating and physical activity in afterschool programs

Keith Brazendale[1], Michael W. Beets[1], Robert G. Weaver[1], Brie Turner-McGrievy[1], Allison B. Brazendale[1], Jessica L. Chandler[1], Justin B. Moore[2], Jennifer L. Huberty[3], Joshua Lemley[1] and Ross C. Brownson[4]

Abstract:

Background: Childhood obesity continues to be a global epidemic and many child-based settings (e.g. school, afterschool programs) have great potential to make a positive impact on children's health behaviors. Innovative and time-sensitive methods of gathering health behavior information for the purpose of evaluation and strategically deploying support are needed in these settings.

Purpose: The aim is to (1) demonstrate the feasibility of mobile health (mHealth) for monitoring implementation of healthy eating and physical activity (HEPA) standards and, (2) illustrate the utility of mHealth for identifying areas where support is needed, within the afterschool setting.

Methods: Site leaders (N = 175) of afterschool programs (ASPs) were invited to complete an online observation checklist via a mobile web app (Healthy Eating and Physical Activity Mobile, HEPA*m*) once per week during ASP operating hours. Auto-generated weekly text reminders were sent to site leaders' mobile devices during spring and fall 2015 and 2016 and spring 2017 school semesters. Data from HEPA*m* was separated into HEPA variables, and expressed as a percent of checklists where an item was present. A higher percentage for a given item would indicate an afterschool has higher compliance with current HEPA standards.

Results: A total of 141 site leaders of ASPs completed 13,960 HEPA*m* checklists. The average number of checklists completed per ASP was 43 (range 1–220) for healthy eating and 50 (range 1–230) for physical activity. For healthy eating, the most common challenge for ASPs was 'Staff educating children about healthy eating', and for physical activity checklists, 'Girls only physical activity is provided at ASP'.

Conclusion: HEPA*m* was widely used and provided valuable information that can be used to strategically deploy HEPA support to ASPs. This study gives confidence to the adoption of mHealth strategies as a means for public health practitioners to monitor compliance of an initiative or intervention. (Global Health Promotion, 2020; 27(1): 33–40)

Keywords: children, public health, school setting, physical activity, health promotion, obesity/overweight

1. University of South Carolina, Columbia, SC, USA.
2. Wake Forest School of Medicine, Winston-Salem, NC, USA.
3. Arizona State University, Phoenix, AZ, USA.
4. Washington University in St Louis, St Louis, MO, USA.

Correspondence to: Keith Brazendale, Department of Exercise Science, University of South Carolina, Arnold School of Public Health, 921 Assembly Street, 1st Floor Suite, Room 134, Columbia, SC 29208, USA. Email: brazendk@email.sc.edu

(This manuscript was submitted on 30 August 2017. Following blind peer review, it was accepted for publication on 14 February 2018)

Global Health Promotion 1757-9759; Vol 27(1): 33–40; 768442 DOI: 10.1177/1757975918768442 journals.sagepub.com/home/ghp

Introduction

Mobile health (mHealth) is the use of mobile phones, software applications, and portable devices to facilitate the accomplishment of health objectives (1). The increasing use of mHealth within the wider healthcare and public health communities is attributed to its ability to identify patient needs among hard to reach communities, allow patients more access to healthcare due to reduced time and expense of travel, and allow community health workers to assess compliance with interventions and public health guidelines (2–4).

One area where mHealth can hold considerable utility is its use in large-scale dissemination and implementation research where often the individuals and/or settings involved are geographically dispersed. Given the costs associated with sending people to conduct on-site visits to evaluate implementation, public health interventions and initiatives across geographically dispersed individuals/settings require the use of tools (e.g. mobile phones, text messaging) that are low cost, widely accessible, useful for lower literacy audiences, and can provide real-time feedback to the user (5,6). Theoretically, using an mHealth approach within dissemination and implementation research could serve as a low cost option to track and monitor implementation of a program, intervention, or set of policy standards. The application of mHealth, therefore, should help to reduce the geographic and economic constraints associated with the scaling up of public health interventions or initiatives. In addition, capturing information in this way would allow public health practitioners at a centralized location to use this information to identify patterns in responses to strategically deploy the necessary support to end-users who may be struggling with implementation, while minimizing unnecessary visits to locations with a high level of implementation.

Global rates of child overweight and obesity are at an all-time high, placing childhood obesity at the forefront of public health concern (7). Understandably, the majority of research investigating and intervening upon obesogenic behaviors, such as healthy eating and physical activity (HEPA), have focused on settings where children spend a large portion of their time, such as in schools and outside-of-school programs (e.g. afterschool programs, clubs, and camps) (8). Afterschool programs (ASPs) have the potential to influence the HEPA of more than 10 million USA children (ages 5–13 years) attending yearly (9). Recognizing this potential, various associations and leading youth development organizations (e.g. National Afterschool Association, YMCA of the USA) have adopted standards pertaining to daily HEPA in ASPs. For example, an ASP must provide 30 min for physical activity and serve a fruit or vegetable, daily (10). Currently, ASPs struggle to meet HEPA benchmarks (11–13). Thus, support for achieving the HEPA standards is needed, yet the number of ASPs and their geographical separation necessitates this to be low-cost.

Theoretically, mHealth strategies would allow for real-time identification of HEPA information, and provide public health practitioners and support agencies with specific information related to HEPA promotion straight from those individuals who are responsible for the day-to-day operations of the ASP; commonly referred to as 'site leaders' (14). Targeted approaches to assist ASPs in achieving HEPA standards that are tailored, cost-effective, and timely can be developed and delivered based on the information received from ASPs. Researchers recognize the potential of mHealth approaches as a tool to prevent or treat childhood obesity (15–17), yet, this remains a relatively unexplored approach, particularly in monitoring and evaluating policies that may impact weight-related aspects of child-care environments (18). The purpose of this study is to (1) demonstrate the feasibility of employing an mHealth approach to monitor implementation of policy standards targeting HEPA, and to (2) illustrate the utility of how the information can be used to identify HEPA areas of support, within an ASP setting.

Methods

*About HEPA*m

An interdisciplinary team consisting of computer scientists, public health experts, graphic designers, and ASP site leaders (i.e. end-users) were involved in the design of a mobile web app conceived as Healthy Eating and Physical Activity Mobile (HEPA*m*). The HEPA*m* mobile web app was designed to gather information pertaining to an ASPs' daily HEPA practices. There are two main content areas – 'healthy eating' and 'physical activity' – with

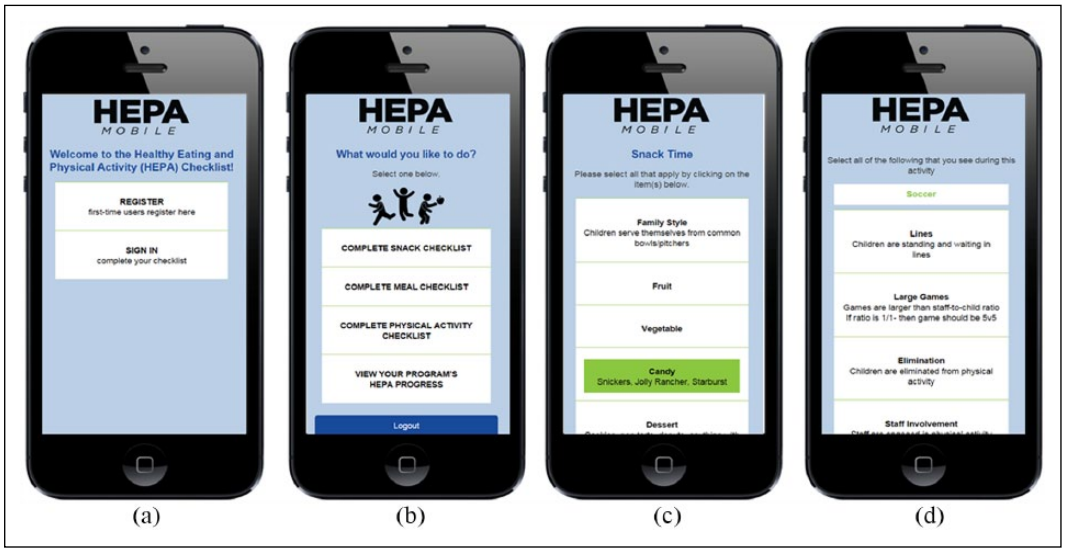

Figure 1. HEPA*m* user interface showing a (a) login page, (b) checklist option, (c) snack observation checklist, and (d) physical activity checklist.

separate observation checklists for each composed of 'fill in the blank', 'select all', and 'yes/no' response scale items for healthy eating (total of 29 items) and physical activity (total of 16 items). HEPA*m* is intended to be completed during program time on a respondent's mobile device (i.e. smartphone or tablet) connected to the internet. All items on the observation checklists either collect contextual information regarding the ASP (e.g. grade level of children being observed) or align with existing HEPA standards and best practices for achieving HEPA standards in ASPs (19,20). Figure 1 illustrates the HEPA*m* user interface. Prior to launch, several rounds of beta testing were conducted with internal (public health experts) and external users (site leaders of ASPs) to assess initial acceptance, usability, and feasibility, during the month of January 2015.

Study overview

ASPs located in a southeastern state of the United States of America (USA) were recruited through several large organizations committed to improving HEPA across all of their programs. A total of 175 site leaders representing 175 ASPs were invited to register for HEPA*m* between spring 2015 and 2017. Site leaders were asked to complete HEPA*m* at least once per week (i.e. fill out one healthy eating and one physical activity checklist) during their programs operating hours. After initial registration with HEPA*m*, auto-generated weekly text reminders were sent to program leaders' mobile devices immediately before the start of the program every Monday during the 2015 and 2016 spring and fall and 2017 spring school semesters. All methods were approved by the University of South Carolina's institutional review board.

Data analysis

Data from the HEPA*m* checklists were downloaded and expressed as a percent of checklists where an item was present for each individual user (Table 1). The HEPA standards call for ASPs to achieve daily compliance that would be indicated by scoring 100% on HEPA*m* checklist items (13). A higher percentage for a HEPA*m* checklist item would indicate an ASP had higher compliance with the HEPA standards. For example, if a site leader observed a fruit being served for snack on only one of the days they completed HEPA*m* – but completed three HEPA*m* checklists overall – then the HEPA compliance score given for that specific item would be 33%. Each completed HEPA*m* checklist had a

Table 1. Identification of healthy eating and physical activity (HEPA) areas where support is needed in ASPs from HEPA*m* data.

Level of demand on resources	*Support*	*HEPA checklist items*	*% of HEPAm checklists*[b]		*SD (±)*	*Range*	*ASPs reporting 0% HEPA compliance*[c]	
			Mean	*Median*			#	%
Healthy eating								
High	Email/ telephone/ site visit/ training	Serve water for snack	61	75	41	0–100	23	21.1
		Serve a fruit or vegetable for snack	57	63	39	0–100	15	13.8
		Did not serve sugar sweetened beverages for snack	82	100	28	0–100	3	2.8
Medium	Email/ telephone	Staff did not drink inappropriate drinks	97	100	8	67–100	0	0.0
		Staff did not eat inappropriate foods	99	100	4	67–100	0	0.0
		Staff sitting/eating snack with children	30	85	30	0–100	6	5.5
Low	Email	Staff educating children about healthy eating	14	0	25	0–100	89	63.3
		Staff encouraging children to eat healthy foods	48	50	35	0–100	22	20.2
		Snack menu present at ASP	76	100	36	0–100	16	14.7
		Snack menu posted for parents at ASP	61	81	42	0–100	26	23.9
Physical activity (PA)								
High	Email/ Telephone/ Site Visit/ Training	Children do not wait in lines for PA	87	100	21	0–100	2	1.9
		Children are not eliminated from PA	89	100	17	20–100	0	0.0
		PA with small team sizes	86	100	22	0–100	2	1.9
		Girls only PA is provided at ASP	3	0	12	0–100	122	86.7
Medium	Email/ Telephone	PA schedule followed	79	91	27	0–100	4	3.8
		Staff engaged with children during PA	72	80	30	0–100	7	6.7
		Staff encouraging children during PA	74	78	26	0–100	3	2.9
		PA schedule present at ASP	83	95	23	0–100	2	1.9
		PA schedule posted for parents at ASP	60	75	39	0–100	22	21.0
		Staff not withholding PA from children	96	100	15	0–100	2	1.9
Low	*Email*	Staff wearing appropriate clothing for PA	89	100	22	0–100	1	1.0

[a]Based on ASPs operating hours of 2:00–6:00 p.m.
[b]Higher percentage indicates greater HEPA compliance.
[c]Based on 141 ASPs.
ASPs: afterschool programs; HEPA: healthy eating and physical activity; PA: physical activity.

timestamp that allowed for the investigation of whether end-users were completing the checklists during typical ASP operating hours (~2–6 p.m.) (21). Data were examined by identifying the ASPs reporting 0% HEPA compliance with any of the HEPA*m* checklist items. Data were analyzed summer 2017 using Stata (v.14.1, College Station, TX).

Lastly, the level of demand placed on the public health practitioners to help ASPs meet HEPA standards was assigned to HEPA*m* checklist items by categorizing each checklist item as low, medium, or high demand on public health practitioner resources (Table 1). Support was classified into the following three categories: email communication (low demand on resources), email and telephone communication (medium demand on resources), and email, telephone, and site visit/training (high demand on resources). The creation of the three categories and the assignment of HEPA checklist items were established on cost analysis information from previous published research projects in large diverse samples of ASPs across the southeastern state, and is representative of the monetary investment required to provide the relevant level of support (14,22–26). For example, these multi-year large-scale randomized controlled trials intervening on HEPA outcomes required trained research assistants to visit, evaluate, train, and provide feedback to staff on HEPA outcomes. The demand on the resources required to do so was quantified and categorized into different levels (low, medium, high) and, thus, provides a real-world accurate representation of the level of demand on resources to categorize HEPA checklist items in this study.

Results

Feasibility

A total of 141 unique ASPs registered for HEPA*m* out of the 175 ASPs that were contacted representing ~80% of potential users in the southeastern state of the USA. The total number of checklists completed between February 2015 and May 2017 was 13,960. Of these total checklists, 6842 were healthy eating (ASP mean = 43, range = 1–220) and 7118 were physical activity (ASP mean = 50, range 1–230). Users registered for HEPA*m* at different times between spring 2015 and 2017, however, approximately 86% of HEPA*m* users completed a HE and a PA checklist at least once per school week. Over two thirds of the checklists (~9350) were completed during typical ASP operating hours (~2–6 p.m.) by HEPA*m* users.

Utility

HEPA checklist items (N = 21) directly aligning with the HEPA standards are presented in Table 1. Across all ASPs, no site leader reported 100% HEPA compliance for all of the HEPA*m* checklist items. Overall, the number of ASPs reporting 0% HEPA compliance for any given HEPA*m* checklist item ranged from 0 to 91 ASPs. For healthy eating checklist items, the most common challenge and area requiring support represented 89 out of 141 ASPs (63.3%) for 'Staff educating children about healthy eating'. For physical activity checklist items, the most common challenge and area requiring support represented 122 out of the 141 ASPs (86.7%) for 'Girls only physical activity is provided at ASP'.

Discussion

This study demonstrated the feasibility and utility of collecting information on HEPA practices in a large sample of ASPs via a mobile web app. From the information provided by HEPA*m* users (i.e. site leaders), specific areas where support was needed was identified along with the level of demand on resources required to address HEPA promotion within this area. Adopting this unique approach to this public health setting has several advantages including (1) site leaders being well-positioned to self-monitor the HEPA practices of their program, (2) the use of mobile technology helps to alleviate geographical barriers related to collecting real-time information, (3) public health practitioners can continuously monitor compliance of multiple ASPs' with the HEPA standards, and (4) public health practitioners can use the information to strategically allocate support to ASPs as needed, avoiding unnecessary costs often associated with employing a 'one size fits all' approach (27).

In broader terms, this study illustrates the potential of mHealth to give public health practitioners the ability to receive real-time, constant feedback and evaluate implementation of an initiative or intervention (i.e. meeting HEPA

standards) of a large number of users (i.e. >140 ASPs) from a centralized location. Similar to other studies adopting an mHealth approach (28), this study did not employ any existing standardized or validated measurement tools or methods to assess feasibility, however, the percent of potential users who registered and completed HEPA*m* checklists (>80%) and the percent of registered users (>85%) who completed at least one HEPA*m* checklist (>85%) establishes confidence in the degree of feasibility of adopting this approach in this setting, and is in accordance with other studies incorporating mHealth approaches reporting weekly user compliance (29).

Furthermore, utilizing mHealth to surveil and identify areas where support is needed is a method that can allow effective implementations and the opportunity to scale up. In the case of larger dissemination/implementation studies this is a noteworthy advantage, as broadening the amount of users by gaining access to hard-to-reach or new populations makes research more generalizable (30). As stated previously, mHealth can allow for the continued monitoring of compliance in several instances such as intervention implementation or adherence (2). In this illustration of utility, using a mHealth approach not only gives public health practitioners the ability to examine and monitor patterns in data but empowers the practitioners (e.g. site leaders) with a self-monitoring feedback tool that can be used to monitor compliance with organization/industry standards (e.g. HEPA Standards). Further, public health practitioners have the ability to examine the information on a program-by-program basis or at an organizational level (e.g. multiple ASPs operate within a given geographical area) with provision for strategic and data-driven deployment of resources.

The data collected in this study can be used to illustrate the utility of HEPA*m* as a means to identify and evaluate HEPA progress, and strategically deploy support to an ASP as needed. For example, the majority of ASPs struggled to implement healthy eating education at their programs (89 of the 141 ASPs reported 0% HEPA compliance). Here, any monetary investment needed from the public health practitioner is considered 'low'. Simple email communication between the site leader and public health practitioners to provide new or different healthy eating education resources and strategies (e.g. nutrition trivia sheets, fruit and vegetable coloring templates, fun facts during snack times) would be an appropriate action. Conversely, ASPs in this study struggled to provide a girls-only physical activity at their program (87% of ASPs reported 0% HEPA compliance). In this instance, the support and monetary investment is considered 'high', most likely in the form of a site visit from qualified personnel to observe current physical activity promotion practices and subsequently train ASP staff on best practices/strategies for incorporating a girls only physical activity opportunity into their ASP. Additionally, site visits to the ASP would be supplemented with continuous follow-up phone calls and email communication between the site leaders and public health practitioner(s). Thus, collecting data using mHealth methods allows for continuous, up-to-date monitoring of HEPA compliance across several ASPs and gives public health practitioners the ability to evaluate progress and tailor deployment of resources to address any area of concern.

Strengths of this study include the novel approach of using mHealth to monitor compliance with a set of standards in a setting that cares for children and the capacity of mHealth to capture real-time continuous data across a large sample of users. In the specifics of this illustration, no site leaders reported 100% compliance with HEPA standards across all items, giving a degree of credibility to the information reported by the users. The large sample of ASPs ($n > 140$) that registered and completed over 13,000 checklists also demonstrates the feasibility and utility of employing mHealth in this particular setting. This study is limited in its generalizability beyond the ASP setting, although the adoption and utility of such an approach in other settings with similar intentions (e.g. continuous monitoring of compliance to initiatives or interventions; identifying where support is required) is not expected to produce widely disparate conclusions in terms of utility. This study is lacking any formal measure regarding the reliability of the reported data and any formal qualitative information (e.g. high users versus low users) from the end-users' (i.e. site leaders) perspective regarding the burden of using mobile technology during ASP time which would help assess feasibility in more detail.

In summary, this study demonstrated the utility and feasibility of employing an mHealth approach to

monitor compliance and identify areas where support is required in a public health setting. Specifically, users demonstrated that HEPA*m* is a feasible approach to collecting large volumes of information on how ASPs are performing in relation to an initiative or intervention – in this case, the HEPA standards. When evaluating compliance with policies or standards, HEPA*m* should not be viewed as a replacement to on-the-ground evaluation by appropriately trained personnel, but serve as a bridge between policies or standards and practice by enhancing the ability to identify where programs struggle and deliver appropriate support to a large number of geographically-dispersed users. Neighboring public health disciplines have demonstrated success through the use of mHealth strategies to facilitate the creation of professional networks, by which real-time advice, information, and support can be provided (2). This study gives confidence to the adoption of mHealth strategies as a means for public health practitioners to monitor compliance of an initiative or intervention and provide tailored, intentional support to a large number of geographically dispersed users.

Declaration of conflicting interests

None declared.

Funding

Research reported in this publication was supported by the National Heart, Lung, And Blood Institute of the National Institutes of Health under Award Number R01HL112787. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

ORCID iDs

Keith Brazendale https://orcid.org/0000-0001-9233-1621

Justin B. Moore https://orcid.org/0000-0003-4059-0538

References

1. Olla P, Shimskey C. mHealth taxonomy: a literature survey of mobile health applications. Health Technol. 2015; 4: 299–308.
2. Braun R, Catalani C, Wimbush J, Israelski D. Community health workers and mobile technology: a systematic review of the literature. PLoS One. 2013; 8: e65772.
3. Stinson N, Burley MM, BSpThy G, Briggs AM. End user and implementer experiences of mhealth technologies for noncommunicable chronic disease management in young adults: systematic review. J Med Internet Res. 2017; 19: e406.
4. Chen H, Chai Y, Dong L, Niu W, Zhang P. Effectiveness and appropriateness of mhealth interventions for maternal and child health: systematic review. JMIR mHealth and uHealth. 2018; 6: e7.
5. Fox S, Duggan M. Mobile Health 2012. Washington, DC: Pew Internet & American Life Project; 2012.
6. Turner-McGrievy GM, Hales SB, Schoffman DE, Valafar H, Brazendale K, Weaver RG, et al. Choosing between responsive-design websites versus mobile apps for your mobile behavioral intervention: presenting four case studies. Transl Beh Med. 2016; 7(2): 224–232.
7. World Health Organization. Global Strategy on Diet, Physical Activity and Health [Internet]. WHO; 2016 [cited 2017 Aug 3] Available from: http://www.who.int/dietphysicalactivity/childhood_why/en/.
8. Ross SE, Flynn JI, Pate RR. What is really causing the obesity epidemic? A review of reviews in children and adults. J Sports Sci. 2016; 34: 1148–1153.
9. Alliance A. America After 3PM: Afterschool Programs in Demand. Washington, DC: Afterschool Alliance; 2014.
10. Beets MW, Weaver RG, Turner-McGrievy G, Moore JB, Webster C, Brazendale K, et al. Are we there yet? Compliance with physical activity standards in YMCA afterschool programs. Child Obes. 2016; 12: 237–246.
11. Beets MW, Rooney L, Tilley F, Beighle A, Webster C. Evaluation of policies to promote physical activity in afterschool programs: are we meeting current benchmarks? Prev Med. 2010; 51: 299–301.
12. Trost SG, Rosenkranz RR, Dzewaltowski D. Physical activity levels among children attending after-school programs. Med Sci Sports Exerc. 2008; 40: 622.
13. Beets MW, Weaver RG, Turner-McGrievy G, Huberty J, Ward DS, Freedman DA, et al. Making healthy eating and physical activity policy practice: the design and overview of a group randomized controlled trial in afterschool programs. Contemp Clin Trials. 2014; 38: 291–303.
14. Beets MW, Weaver RG, Turner-McGrievy G, Huberty J, Ward DS, Pate RR, et al. Making policy practice in afterschool programs: a randomized controlled trial on physical activity changes. Am J Prev Med. 2015; 48: 694–706.
15. Turner T, Spruijt-Metz D, Wen CF, Hingle MD. Prevention and treatment of pediatric obesity using mobile and wireless technologies: a systematic review. Pediatr Obes. 2015; 10: 403–409.
16. Nezami B, Ward D, Lytle L, Ennett S, Tate D. A mHealth randomized controlled trial to reduce sugar-sweetened beverage intake in preschool-aged children. Pediatr Obes. Epub ahead of print 8 November 2017. DOI: 10.1111/ijpo.12258.
17. Chen J, Lieffers J, Bauman A, Hanning R, Allman-Farinelli M. The use of smartphone health apps and other mobile health (mHealth) technologies in

dietetic practice: a three country study. J Hum Nutr Diet. 2017; 30: 439–452.
18. Larson N, Looby AA, Frost N, Nanney MS, Story M. What can be learned from existing investigations of weight-related practices and policies with the potential to impact disparities in US child-care settings? A narrative review and call for surveillance and evaluation efforts. J Acad Nutr Diet. 2017; 117: 1554–1577.
19. Beets MW, Tilley F, Kim Y, Webster C. Nutritional policies and standards for snacks served in after-school programmes: a review. Public Health Nutr. 2011; 14: 1882–1890.
20. Beets MW, Wallner M, Beighle A. Defining standards and policies for promoting physical activity in afterschool programs. J School Health. 2010; 80: 411–417.
21. Brazendale K, Beets MW, Weaver RG, Huberty J, Beighle AE, Pate RR. Wasting our time? Allocated versus accumulated physical activity in afterschool programs. J Phys Act Health. 2015; 12: 1061–1065.
22. Beets MW, Weaver RG, Turner-McGrievy G, Huberty J, Ward DS, Freedman D, et al. Making healthy eating policy practice: a group randomized controlled trial on changes in snack quality, costs, and consumption in after-school programs. Am J Health Promot. 2015; 30: 521–531.
23. Beets MW, Weaver RG, Tilley F, Turner-McGrievy G, Huberty J, Ward DS, et al. Salty or sweet? Nutritional quality, consumption, and cost of snacks served in afterschool programs. J School Health. 2015; 85: 118–124.
24. Beets MW, Weaver RG, Moore JB, Turner-McGrievy G, Pate RR, Webster C, et al. From policy to practice: strategies to meet physical activity standards in YMCA afterschool programs. Am J Prev Med. 2014; 46: 281–288.
25. Weaver RG, Beets MW, Beighle A, Webster C, Huberty J, Moore JB. Strategies to increase after-school program staff skills to promote healthy eating and physical Activity. Health Promot Pract. 2016; 17: 88–97.
26. Beets MW, Weaver RG, Turner-McGrievy G, Saunders RP, Webster CA, Moore JB, et al. Evaluation of a statewide dissemination and implementation of physical activity intervention in afterschool programs: a nonrandomized trial. Transl Behav Med. 2017; 7: 690–701.
27. Kreuter MW, Strecher VJ, Glassman B. One size does not fit all: the case for tailoring print materials. Ann Behav Med 1999; 21: 276–283.
28. Al Ayubi SU, Parmanto B, Branch R, Ding D. A persuasive and social mHealth application for physical activity: a usability and feasibility study. JMIR mHealth uHealth. 2014; 2: e25.
29. Gabrielli S, Dianti M, Maimone R, Betta M, Filippi L, Ghezzi M, et al. Design of a mobile app for nutrition education (TreC-LifeStyle) and formative evaluation with families of overweight children. JMIR mHealth uHealth. 2017; 5: e48.
30. Kumar S, Nilsen WJ, Abernethy A, Atienza A, Patrick K, Pavel M, et al. Mobile health technology evaluation: the mHealth evidence workshop. Am J Prev Med. 2013; 45: 228–236.

Establishing a local coalition for addressing social determinants of hypertension in Quibdó (Colombia): a description and reflection on the process

Diego I. Lucumí[1], Amy J. Schulz[2], Jorge E. Torres-Gil[3], Lenin Gonzales[4] and Kielvis Ramírez[5]

Abstract: One-fourth of the adult population of Colombia is estimated to have hypertension. However, there has been relatively little attention to participatory approaches that address the social determinants of hypertension at the local level in Colombia. Early stages of a coalition for addressing hypertension in Quibdó (Colombia) included a stakeholder analysis and engagement of local organizations. This was followed by defining mutual goals, agreement of rules for decision making, and refining a shared vision. Based on a unified understanding of factors influencing hypertension risk, 12 organizations joined the local coalition. They developed an action plan for preventing hypertension and eliminating social disparities in its distribution. Lessons learned during this process suggest that, in marginalized urban areas of middle- and low-income countries, particular attention should be paid, at early implementation stages of coalition, to context specific challenges and opportunities, coalition membership and structure, reframing health, and strengthening capacity. (Global Health Promotion, 2020; 27(1): 41–50)

Keywords: hypertension, social determinants of health, community coalitions, participatory research, health equity

Background

Hypertension is a growing problem throughout Latin America, with variations across and within countries (1). For example, one-fourth of the adult population of Colombia is estimated to have hypertension, with social and geographic variations within the country (1). Despite the importance of hypertension as a public health problem in Colombia, limited attention has been paid to the underlying social and economic factors that shape the distribution of hypertension prevalence. This inattention may contribute to the persistence of cardiovascular disease as the leading cause of mortality in Colombia, as well as to geographic disparities in cardiovascular risk (2).

A growing literature in high income countries has found an association between social conditions and

1. School of Government, Universidad de los Andes, Bogotá, Colombia.
2. Department of Health Behavior and Health Education, School of Public Health, University of Michigan, Ann Arbor, MI, USA.
3. Community Health Researcher Group. Department of Nursing at Universidad Tecnológica del Chocó in Quibdó, Colombia.
4. Community Leader and Former President of the Neighborhood Associations of the Localities 5 and 6 of Quibdó, Colombia.
5. Legal representative of the Chocóvisible Corporation in Quibdó, Colombia.

Correspondence to: Diego I Lucumí. School of Government, Universidad de los Andes, Carrera 1 No 19-27, Bloque Aulas AU, tercer piso. Bogotá, 110121, Colombia. Email: di.lucumi@uniandes.edu.co

(This manuscript was submitted on 27 September 2016. Following blind peer review, it was accepted for publication on 5 March 2018)

Global Health Promotion 1757-9759; Vol 27(1): 41–50; 774784 DOI: 10.1177/1757975918774784 journals.sagepub.com/home/ghp

hypertension risk. Living in disadvantaged urban areas constrains access to economic opportunities and physical infrastructure, reduces social cohesion, and increased exposure to crime and other environmental maladies (3–5). Living under these circumstances has been linked with psychosocial and biobehavioral mechanisms that contribute to increase risk of high blood pressure (6,7).

The adoption of a social determinants of health framework for addressing complex health problems and health inequities requires the participation of multiple stakeholders, including those affected by patterns of concentrated disadvantage (8,9). Engaging the insights of those who are most adversely affected by the health issues contributes to identification of critical determinants, selection of alternative strategies for addressing the problem, and the development and implementation of interventions for social change that are both culturally based and effective (8,10). The development of community coalitions is one mechanism for collaboration among multiple stakeholders, each bringing their own perspectives and resources to the process (11), to address the shared goal of reducing health inequities (12).

An abundant literature from high-income countries has described stages for coalitions development and demonstrated their benefits for addressing complex health problems (13), including systems and policy change to influence chronic health conditions (14,15). There are few examples, however, of the application of a participatory approach to coalition building to address social determinants of health from middle-income countries, in part due to a greater focus in these countries to date on health care services (16).

In this paper, we examine one of the few examples of a coalition developed to address social determinants of hypertension (henceforth SDH) in a middle-income country. Specifically, we analyze the formation and early implementation of a coalition for understanding and addressing SDH in Quibdó, a middle-sized city in Colombia with one of the highest levels of poverty in the country. By analyzing the case of coalition development in this context in relation to the literature in higher income countries, we aim to inform similar efforts in low- and middle-income settings.

Local context

Quibdó, located in the Colombian Pacific Coast, is the capital city and main urban area of the department of Chocó. Of its 115,052 inhabitants, 92% identify as black, with the remainder identifying as mixed or indigenous. The level of poverty in the city has remained around 50%, compared to 28.0% in Colombia as a whole (17). Quibdó is among the Colombian cities with the highest rates of displaced residents, with more than 20% of the current population arriving there after being forcibly displaced from their former communities (18). Although the prevalence of hypertension in Quibdó is unknown, the high rate of mortality due to coronary disease and stroke in people 45 years old and older (211.6 and 311.9 per 100.000, respectively) in the city (19), suggests that hypertension is an important public health problem.

A qualitative study carried out in Quibdó in 2012 identified forced displacement, unemployment, and unplanned urban space as social determinants of hypertension (20). Participants in that study described those determinants influence urban living conditions for Quibdó's residents (e.g. low social capital, lack of facilities for physical activity). These social processes were linked to more proximal risk factors for hypertension, including exposure to stress, poor dietary practices, and limited physical activity. Some participants requested that findings be used to address hypertension in the city, offering an important impetus for the formation of the coalition described in this paper. In response, the first author worked with the Community Health Research Group (CHRG), an academic group affiliated with the Department of Nursing at the Universidad Tecnológica Del Chocó (UTC), to establish the initiative called *Addressing Social Determinants of Hypertension in Quibdó*.

To our knowledge, this coalition is the first in Colombia to address SDH. Below, following a brief description of the early stages of coalition development and implementation, we close with a discussion of lessons and their implications for development of coalitions to address SDH in similar contexts, examining challenges and opportunities that arose in that process in relation to the literature on coalition and partnership development, derived primarily from higher income contexts.

Formation and early implementation of the coalition

In May 2013, the CHRG conducted a stakeholder analysis to identify organizations from the community,

the government, and academia who might participate in the coalition. Community organizations included those established to represent the interests of specific social groups (e.g. displaced population) or to provide social services (e.g. communication services) in the city. Informed by the literature on inclusive coalition development (11,21), and due to the multiracial composition of Quibdó and historical processes of marginalization, we explicitly sought out organizations that represented indigenous groups. Governmental organizations included local public institutions addressing issues such as social participation, public health, and sports and recreation. Academic institutions included UTC, the single public university in the city and the only university in Chocó with an academic health program.

CHRG convened a meeting with representatives of organizations identified through the above process that expressed interest in joining the coalition. Findings from the qualitative study (20) described above were presented and discussed, with 12 organizations subsequently committing to participate in the coalition to address SDH in Quibdó. Of these, eight represented community groups, three were governmental, and one was academic. Nine of these organizations did not work directly on health issues, but recognized that their activities influenced SDH in Quibdó. The participating organizations chose the name *Coalición Interétnica por la Salud Integral (COAINTSI)* (Interethnic Coalition for Comprehensive Health).

Defining mutual goals

Following guidance from the coalition literature regarding the importance of identifying shared goals (10), coalition members identified three overarching objectives for addressing social determinants of health (22,23): (a) to advocate for public policies that promote health and prevent cardiovascular disease; (b) to carry out health education initiatives for health promotion that reach multiple audiences; and (c) to articulate different sectors and actors interested in health promotion and prevention of cardiovascular disease in the city who might help to move the work forward.

Decision making

Again, following recommendations from participatory approaches (10), COAINTSI adopted a horizontal structure, consisting of a general assembly of all members, with responsibility for decision making and supervision of agreements and activities. Initially a quorum of more than 50% of members was required for finalizing decisions. Sporadic participation created challenges in adhering to this rule and, after multiple attempts to increase participation in meetings, a decision was reached to modify the initial structure to consist of four core community organizations, one from academia, and one from the government, with regular participation. Organizations not able to participate regularly remained as allied members.

Refining a shared vision

Following COAINTSI's initial development and identification of shared overarching objectives (described above), the coalition worked to refine its shared vision. In a 2-day workshop participants identified social, economic, and political factors related to hypertension in Quibdó, created a visual representation of how these determinants worked to perpetuate hypertension inequalities, and analyzed examples of other projects that had addressed similar issues. These factors were grouped into three categories, represented using the visual imagery of a tree: fundamental factors (root), intermediate factors (trunk), and proximal factors (crown). Through discussion of alternatives, participants proposed that future interventions address these determinants.

Action plan development and early implementation

Coalition members developed an action plan with goals, activities, actors, and approaches to address SDH in Quibdó. The plan was oriented toward hypertension prevention and control, and used an equity perspective that focused attention on equity across groups as well as overall improvements in population health. Priorities included: research to improve understanding of local SDH; implementation of evidence-based and culturally sensitive interventions; and training coalition members through formal academic programs, regular workshops, and other capacity building activities. Underlying approaches identified by coalition partners to guide their work included: participatory approaches that actively and equitably engage all partners in the process,

a focus on social determinants of health, and a life course perspective.

Components of the plan have been, or are in the process of being, implemented. These include the Community Survey on Cardiovascular Health and Disease of Quibdó to estimate the prevalence of hypertension and its association with environmental, biobehavioral, and psychosocial factors (December 2016); a pilot study to design a culturally sensitive intervention to increase leisure time physical activity and promote the consumption of low fat food and local products to address economic insecurity (December 2016); two workshops to strengthen partner capacity to conduct participatory research (September 2015, June 2017); the training of members of CHRG interested in master's programs (2016–2108); and a qualitative study to examine residents' perspective of SDH (2018). Dissemination of community survey results (e.g. town hall meetings, neighborhood discussions) is planned, and will inform an updated action plan (2018).

Examination of coalition development

COAINTSI engaged multiple organizations in collaborative efforts to understand and develop and implement a public health action plan to address SDH in Quibdó, as described in the preceding section. In moving through the early stages of the coalition development process (11), COAINTSI faced a number of important challenges. Here we analyze those challenges, with particular attention to the local context in which COAINTSI formed and focused on the formation and early implementation stages of coalition efforts, toward the end of suggesting lessons that may be relevant for similar initiatives in marginalized urban areas of middle- and low-income countries. Lessons learned are, in keeping with the stage of the work of the COAINTSI coalition described above, grouped in four major arenas: context specific challenges and opportunities, coalition membership and structure, reframing health, and strengthening capacity (Table 1).

Context-specific challenges and opportunities: armed conflict, displaced populations and limited resources

Particular challenges to coalition formation and maintenance were apparent in Quibdó and may be relevant for coalitions in similar contexts, where a number of pressing and complex health issues compete for the attention of community organizations and governmental institutions, with limited resources available to address them. Due to armed conflict in the area, large numbers of displaced individuals have moved into the city. City officials, organizations and community members struggle to address the many pressing social and economic challenges associated with displacement, with limited resources (20). The immediacy of the needs of displaced persons, for example, and the limited resources available to organizations whose focus is on providing services to those groups, create particular challenges to organizations' ability to maintain active participation in coalition efforts.

Lessons learned

A social determinants of health approach offers the potential to connect pressing social and economic concerns to increased risk of hypertension and other adverse health outcomes, with opportunities to engage multiple constituents in coalition planning for health promotion and equity (24). Furthermore, such approaches can offer opportunities for coalition members to identify synergies that may further their respective missions.

Streamlining decision making by, for example, placing decision making power in the hands of a subgroup (e.g. steering committee), rather than requiring that a quorum of members be present, may facilitate decision making about coalition activities while minimizing the burden on members (24). However, these strategies must also be balanced against the importance of community control in the agenda setting process (10).

Assuring active participation of marginalized communities in decision making, however, is particularly critical when considering efforts to streamline decision making. This is especially important for marginalized communities, such as those who have been displaced by armed conflict, who confront considerable challenges in maintaining regular engagement, and for whom engagement may be especially important for establishing trustworthiness and assuring that decisions made do not contribute to further marginalization and potential harm. Thus, creative and effective strategies that recognize the importance of engagement while

Table 1. Key challenges and lessons learned from the coalition for addressing social determinants of hypertension in Quibdó.

Key challenges	*Lessons learned*
Context specific challenges and opportunities: armed conflict, displaced populations and limited resources	A social determinants of health approach offers the potential to connect pressing social and economic concerns to increased risk of hypertension and other adverse health outcomes. Streamline decision making to reduce member burden Balance streamlined decision making against the importance of community participation. Identify strategies to assure active participation of marginalized communities in decision making.
Coalition membership and structure	Process and timeline for coalition formation are both influenced by a community's history and capacity, as well as active efforts by the coalition to strengthen engagement. Consider modifying membership over time as needed, recognizing variations in the degree of readiness and capacity for engagement. Consider modifications of structure and process as needed. Develop and implement clear mechanisms for monitoring member participation as well as differentials in decision making power and commitment to decisions over time (e.g. formative evaluation).
Reframing health: from health care to social determinants	Building the evidence base is critical to increase recognition and awareness of hypertension as a local health problem, strengthening local capacity to engage in a conversation about addressing social determinants of health and health equity, and understanding the underlying causes and distribution of hypertension and to develop middle-range and long-term approaches to addressing it.
Capacity for collaborating to promote health	Establishment of linkages with outside allies. Having at least one organization that can play the role of coalition convener. A capacity building approach that creates opportunities to increase and exert new leadership. Identify and address factors that could facilitate regular organizational participation, as well as barriers to such participation.

not overtaxing such communities are particularly important in contexts such as Quibdó. They include, for example, maintaining bidirectional relationships with organizations who face particular challenges attending meetings, with regular communication to assure that their perspectives and voices are included in coalition efforts, and building in resources to support staffing and participation in coalition activities (10,24).

Coalition membership and structure

The literature on coalitions emphasizes the importance of histories of participation and organization in shaping coalition development and processes (13). The extent to which there is a history of collaboration among members has been linked to maturation of coalitions (25). Although Quibdó has a strong tradition of social participation and organization, organizing around health issues, and in particular, social determinants of health, has been less common. In part, this may reflect prescriptive, top-down approaches to health that have privileged the perspective of national governmental organizations or health care professions, with less attention to how underlying conditions affect health. Thus, consistent attention to membership and structures for engagement in the COANTSI was of particular importance in Quibdó.

Lessons learned

Both the process and timeline for coalition formation is influenced by a community's history and capacity, as well as active efforts by the coalition to strengthen engagement. The literature on

coalitions, derived primarily from higher income contexts, suggests that coalition formation may unfold over an average period of 12 months (13). In Quibdó, where socioeconomic resources were limited and histories of collaboration were limited, coalition formation unfolded over a 2-year period. During this time, the organizers developed several strategies for strengthening membership and capacity for collaboration.

For example, COAINTSI *modified membership* over time, adjusting to variations in the degree of readiness and capacity for engagement. Not all of the 12 founding organizations were able to sustain active participation across all coalition activities. In an effort to address this issue, while maintaining relationships and engagement with organizations with fewer resources, COAINTSI modified its structure to one in which more formal organizations (with greater resources) were more actively engaged in long-term efforts, with smaller and lower resourced organizations involved in more strategic and specific activities to maintain a voice in the coalition.

This structure is not without its risks, as lower resourced organizations can easily come to have reduced influence on the vision and day-to-day activities of the coalition. Based on our experience, coalitions facing similar challenges should develop clear mechanisms for monitoring member participation as well as differentials in decision making power and commitment to decisions made that may result. Ongoing monitoring through, for example, formative evaluation processes, can allow coalitions to track unintended results of differential engagement, and discuss and identify strategies to address concerns as they arise (10,26). Strengthening capacity for ongoing participation and engagement is discussed in greater detail in the section entitled "Strengthening capacity" below.

Reframing health: health care to social determinants

An important challenge that has been identified in the literature in high-income countries is shifting the conversation from medical and health care and individual frameworks to one focused on social determinants of health (27). The experience of COAINTSI in Colombia was consistent with this finding. Traditional approaches for research and intervention to address hypertension in Colombia have prioritized prevention at the individual level, largely in the context of health care settings. Such interventions are relevant to prevention and treatment, but less effective in addressing underlying social conditions that contribute to excess risk of disease in low-income communities and communities of color. As a result, they may have less of an impact on reducing disparities between more and less privileged groups (28). A shift to a focus on social determinants of health is likely to take time as sectors other than health care begin to recognize their potential role in addressing social determinants of hypertension, as well as the key role of local communities in fostering social and policy change (29).

Lessons learned

As described above, the COINTSI organizations found a similar focus on health care treatment, rather than prevention through addressing social determinants of health, in Colombia. A complementary challenge for this Quibdó-based coalition included relative neglect of hypertension as a health concern within this setting, a dearth of information available at the local level, and a near absence of evidence-based and comprehensive interventions (1).

To address a relative lack of attention to hypertension as a critical health outcome of relevance in Quibdó, COANTSI worked to initiate conversations about, and to increase recognition and awareness of hypertension as a local health problem. To address the lack of local evidence related to hypertension and to link it to underlying social and economic conditions, COAINTSI also found it necessary to generate local evidence for understanding the underlying causes and distribution of hypertension and to develop middle-range and long-term approaches to addressing it that are in keeping with local resources, capacity, and culture (30,31). In Quibdó, this work has included projects that contribute to generate local evidence about hypertension and work with local groups and organizations to plan and implement activities to disseminate and translate findings to a broad audience. Building the evidence base has been critical to strengthening local capacity to engage in a conversation about addressing social determinants of health and health equity.

Strengthening capacity for collaborating to promote health

The experience of COAINTSI also reinforced the importance of capacity building as part of local participatory and collaborative efforts processes (31). Capacity building focused on enhancing understanding of the problem (see previous section on "Reframing health"), identification of resources, strengthening leadership, and creation and maintenance of networks (32) have been areas of particular focus in Quibdó, and lessons learned described below may be of particular relevance in comparable contexts. The coalition literature from higher income countries suggests that building capacity while organizations simultaneously work together to address specific problems such as hypertension contributes to coalition sustainability while also strengthening organizational capacity to address other challenges (32). Capacity building offers an important opportunity to move toward a shared understanding among coalition members, based in part on a collaborative learning process (31). To strengthen its capacity, COAINTSI built what has been referred to in the literature as "bridging social capital" (33), strengthened and broadened the base of coalition leadership, and identified specific mechanisms to support continued engagement of partners who came to the table with fewer resources to support their work.

Lessons learned

COAINTSI made use of capacity building workshops, regular discussions among coalition's members, and engagement in a wide variety of active learning opportunities (e.g. planning workshops, surveys, and interventions). In this process, COAINSTI established linkages with outside allies, bringing crucial resources and expertise to support the coalition's work. Bridging social capital was an important mechanism for engaging skills and resources that extended beyond those available immediately within the local community. Coalitions in under-resourced communities may find it of particular importance to identify opportunities to tap such outside resources to strengthen capacity to meet their goals.

Leadership is key to engage organizations, maintain interest, and support the shared vision and work of all organizations involved (11,34,35). For COAINSTI, initial and ongoing leadership from CHRG was instrumental, made possible given the recognition of the UTC by community and governmental sectors. Through the CHRG, UTC provided administrative resources (e.g. setting agendas, facilitating communication) and physical infrastructure to support the coalition. Mirroring reports in the existing literature, CHRG was able to play the role of coalition convener, given its administrative and management infrastructure, existing community relationships, and support for coalition efforts (13). Having at least one organization with these characteristics may be particularly relevant in low resources settings, where other organizations, although committed in principle, may not have the resources to adequately support coalition development.

Also consistent with the existing literature (35), COAINSTI recognized the importance of *creating opportunities for new leadership to emerge* from within the partnership itself in order to move toward transformational social change. A capacity building approach that creates opportunities to increase and exert new leadership as it emerges across a wide range of coalition organizations and community contexts will be central to this process as it continues to unfold.

Finally, COAINSTI worked continually to identify factors that could facilitate regular organizational participation, as well as barriers to such participation. The importance of balancing participation in coalitions working to address complex problems such as hypertension, against the costs and obstacles that individuals and organizations face in participating, is a key challenge highlighted in previous literature (11). Failure to attend to this challenge may have negative implications in terms of diversity of organizations represented in the coalition, and in the effectiveness of the coalition in achieving its goals. There is a particular risk that the voice of those usually excluded from decision making processes may not be reflected, as these groups often have the fewest resources and are attempting to address profound issues confronted by their constituents.

To address this issue, coalitions can mobilize resources (11) to, for example, support the costs of participation for small organizations or individuals with limited resources (36). They can also enact strategies that support engagement of small,

under-resourced organizations including: assure that meeting schedules accommodate member availability; rotate leadership to assure that all have opportunities to participate and build leadership skills; provide regular information about the coalition through multiple channels in order to assure opportunities for input by organizations not always able to attend meetings; identify funding for smaller organizations to expand their capacity and to enable them to participate (e.g. earmark specific funds and roles to both support ongoing participation and strengthen capacity for engagement).

Limitations

There are several limitations of this paper. First, COAINTSI is in early stages of development and implementation, thus we are unable to report impact on long-term objectives of reducing hypertension in the community. In addition to impact and outcomes, future research is needed to address process evaluations of coalition development. From a methodological perspective, we acknowledge that the records we have about this experience consist of field notes that do not include the actual voices of participants. We have attempted to describe in detail how the process was conducted and lessons from it. Future studies of this nature would benefit from using different sources that allow the incorporation of participant perspectives in the findings.

Conclusion

Despite these limitations, the analysis presented here offers several important insights into the development of local coalitions with a focus on addressing social determinants of health and health inequities in marginalized communities in middle-income countries. While evidence from high-income countries suggest that coalitions are a good mechanism to bring together the wide range of skills, influence and knowledge needed for addressing the complexity of process that influence health (9,11,13,24), such evidence is limited in low to middle income countries. The case study presented here suggests that additional attention is needed to understand the potential and challenges encountered by coalitions to promote health in marginalized communities with significant health disparities in those countries. Preliminary insights about the challenges of using a participatory approach in the context of a middle-sized city in Colombia include the importance of attending to competing demands for organizational attention in a city with limited available resources, contributing to mistrust and competing relationships between organizations.

Primary tasks of partnership building in this context include several, which are consistent with the literature from higher income communities: promote trust between organizations; identify shared interests and values; and adopt a shared vision. Strategies to achieve these tasks also resonate with those identified in the existing literature, including opportunities for open discussions, collaborative work, and mutual recognition among coalition members. However, we have also identified a number of ways that the context of marginalized communities in low income communities may influence partnership development, including for example, additional needs for support for organizational capacity to engage in meetings and other decision making responsibilities, additional opportunities to invest in membership development and capacity building, and the importance of equitable distribution of resources to support coalition actions. Finally, additional research is needed to understand the potential impacts of coalitions working to address social determinants of health in low- to middle-income countries, including contributions to an expanded definition of health and subsequent potential to expand an understanding of strategies for promoting health and health equity to encompass social determinants of health.

Acknowledgements

This publication was approved by COAINTSI. We thank all members of COAINTSI for their contributions to this work and to Carolina Ibarra and Alejandra Gutiérrez who supported the activities for the initial development of the coalition and elaboration of the action plan. The initial development of the coalition was supported by the Social Inclusion Grant awarded by LASPAU and Fulbright Colombia to the first author in 2012. The ADSH-Q initiative receives funding from the Office of the Vice President for Research and the School of Government of the Universidad de los Andes (Grants P16.283622.006/01 and P16.283622.006/02, respectively).

Conflict of interest

The authors declare that there is no conflict of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

1. Lucumi D. Disparities in Hypertension in Colombia: A Mixed-Methods-Study. Ann Arbor (MI): University of Michigan; 2014.
2. Instituto Nacional de Salud. Enfermedad Cardiovascular. Principal Causa de Muerte en Colombia Bogotá D.C.: Instituto Nacional de Salud; 2013.
3. Diez Roux AV, Mair C. Neighborhoods and health. Ann N Y Acad Sci. 2010; 1186: 125–145.
4. Matheson FI, White HL, Moineddin R, Dunn JR, Glazier RH. Neighbourhood chronic stress and gender inequalities in hypertension among Canadian adults: a multilevel analysis. J Epidemiol Community Health. 2010; 64: 705–713.
5. Mujahid MS, Roux AVD, Morenoff JD, Raghunathan TE, Cooper RS, Ni HY, et al. Neighborhood characteristics and hypertension. Epidemiology. 2008; 19: 590–598.
6. Spruill TM. Chronic psychosocial stress and hypertension. Curr Hypertens Rep. 2010; 12: 10–16.
7. Oparil S, Zaman MA, Calhoun DA. Pathogenesis of hypertension. Ann Intern Med. 2003; 139: 761–776.
8. Barten F, Mitlin D, Mulholland C, Hardoy A, Stern R. Integrated approaches to address the social determinants of health for reducing health inequity. J Urban Health. 2007; 84: 164–173.
9. Schulz AJ, Krieger J, Galea S. Addressing social determinants of health: community-based participatory approaches to research and practice. Health Educ Behav. 2002; 29: 287–295.
10. Israel BA, Eng E, Schulz AJ, Parker EA. Introduction to methods in community-based participatory research for health. In: Israel BA, Eng E, Schulz AJ, Parker EA (eds). Methods in Community-based Participatory Research for Health. San Francisco: Jossey-Bass; 2012. pp. 3–38.
11. Butterfoss FD, Goodman RM, Wandersman A. Community coalitions for prevention and health promotion. Health Educ Res. 1993; 8: 315–330.
12. Cacari-Stone L, Wallerstein N, Garcia AP, Minkler M. The promise of community-based participatory research for health equity: a conceptual model for bridging evidence with policy. Am J Public Health. 2014; 104: 1615–1623.
13. Butterfoss FD, Lachance LL, Orians CE. Building allies coalitions: why formation matters. Health Promot Pract. 2006; 7: S23–S33.
14. Clark NM, Lachance L, Doctor LJ, Gilmore L, Kelly C, Krieger J, et al. Policy and system change and community coalitions: outcomes from allies against asthma. Am J Public Health. 2010; 100: 904–912.
15. Clark NM, Quinn M, Dodge JA, Nelson BW. Alliance system and policy change: necessary ingredients for improvement in diabetes care and reduction of disparities. Health Promot Pract. 2014; 15: S11–S22.
16. Rasanathan K, Bennett S, Atkins V, Beschel R, Carrasquilla G, Charles J, et al. Governing multisectoral action for health in low- and middle-income countries. PLoS Med. 2017; 14: e1002285.
17. Departamento Administrativo Nacional de Estadísticas. Pobreza Monetaria y Multidimensional en Colombia 2016. Bogotá D.C.: Departamento Administrativo Nacional de Estadísticas; 2017.
18. Ibáñez AM, Velásquez A. El impacto del desplazamiento forzoso en Colombia: condiciones socioeconómicas de la población desplazada, vinculación a los mercados laborales y políticas públicas. Santiago de Chile: Comisión Económica para América Latina y el Caribe (CEPAL); 2008.
19. Organización Panamericana de la Salud. Indicadores Básicos en Salud Quibdó. Chocó, Colombia - 2008. Bogotá D.C.: Organización Panamericana de la Salud; 2008.
20. Lucumí DI, Schulz AJ, Israel BA. Local actors' frames of the role of living conditions in shaping hypertension risk and disparities in a Colombian municipality. J Urban Health. 2016; 93: 345–363.
21. Foster-Fishman PG, Berkowitz SL, Lounsbury DW, Jacobson S, Allen NA. Building collaborative capacity in community coalitions: a review and integrative framework. Am J Community Psychol. 2001; 29: 241–261.
22. Solar O, Irwin A. A Conceptual Framework for Action on the Social Determinants of Health. Social Determinants of Dealth Discussion Paper 2. Geneva: World Health Organization; 2010.
23. World Health Organization. A background paper prepared for the Commission on Social Determinants of Health. Geneva: World Health Organization; 2005.
24. Roussos ST, Fawcett S. A review of community partnerships as a strategy for improving community health. Annu Rev Public Health. 2000; 21: 369–402.
25. Kegler MC, Rigler J, Honeycutt S. How does community context influence coalitions in the formation stage? A multiple case study based on the Community Coalition Action Theory. BMC Public Health. 2010; 10: 90.
26. Schulz A, Israel B, Lantz P. Assessing and strengthening characteristics of effective groups in community-based participatory research partnerships. In: Garvin C, Gutierrez L, Galinsky MJ (eds). Handbook of Social Work with Groups. New York: Guilford Press; 2017, pp. 433–453.
27. Raphael D, Curry-Stevens A, Bryant T. Barriers to addressing the social determinants of health: insights from the Canadian experience. Health Policy. 2008; 88: 222–235.
28. Frohlich KL, Potvin L. The inequality paradox: the population approach and vulnerable populations. Am J Public Health. 2008; 98: 216–221.
29. Blankenship KM, Bray SJ, Merson MH. Structural interventions in public health. Aids. 2000; 14: S11–S21.

30. Shah A, Whitman S, Benjamin M. The importance of local data. In: Whitman S, Shah A, Benjamin M (eds). Urban Health Combating Disparities with Local Data. New York: Oxford University Press; 2011, pp. 31–33.
31. Giachello AL, Arrom JO, Davis M, Sayad JV, Ramirez D, Nandi C, et al. Reducing diabetes health disparities through community-based participatory action research: the Chicago Southeast diabetes community action coalition. Public Health Rep. 2003; 118: 309–323.
32. Goodman RM, Speers MA, McLeroy K, Fawcett S, Kegler M, Parker E, et al. Identifying and defining the dimensions of community capacity to provide a basis for measurement. Health Educ Behav. 1998; 25: 258–278.
33. Minkler M, Wallerstein N, Wilson N. Improving health through community organization and community building. In: Glanz K, Rimer B, Viswanath K (eds). Health Behavior and Health Education: Theory, Research and Practice. San Francisco, CA: Jossey-Bass; 2008, pp. 287–309.
34. Wynn TA, Johnson RE, Fouad M, Holt C, Scarinci I, Nagy C, et al. Addressing disparities through coalition building: Alabama REACH 2010 lessons learned. J Health Care Poor Underserved. 2006; 17: 55–77.
35. Downey LM, Ireson CL, Slavova S, McKee G. Defining elements of success: a critical pathway of coalition development. Health Promot Pract. 2008; 9: 130–139.
36. Caldwell WB, Reyes AG, Rowe Z, Weinert J, Israel BA. Community partner perspectives on benefits, challenges, facilitating factors, and lessons learned from community-based participatory research partnerships in Detroit. Prog Community Health Partnersh. 2015; 9: 299–311.

Comparative impact of fear appeals and induced hypocrisy advertising in encouraging intent to quit smoking: Applying self-construal theory to consumers' attitudes

Jae-woong Yoo[1] and Young-ju Jin[2]

Abstract: This study examined the effect of induced hypocrisy as a new anti-smoking advertisement approach on smokers' attitudes toward advertisements and their attitudes and intentions toward smoking cessation. It also comparatively analysed the effects of this tactic against those of the fear appeals that have traditionally been used in anti-smoking campaigns. The findings showed highly positive effects from induced hypocrisy on smoker attitudes and intentions toward cessation. Comparison of fear appeals and induced hypocrisy advertising on cessation showed stronger effects from the former on cessation intentions, although not to a statistically significant degree. When smokers were categorised according to self-construal, stronger cessation attitudes and intentions were found among those belonging to the 'interdependent self' group than among those in the 'independent self' group. Theoretical and practical implications for anti-smoking advertising are also discussed. (Global Health Promotion, 2020; 27(1): 51–58)

Keywords: Asia, communication, social marketing, education campaign, media communications, health promotion, quantitative

Introduction

The ravages of smoking have been the subject of much medical and social discussion. In response to the issue, many governments and public health groups have introduced policies and campaigns aimed at encouraging smokers to quit, and a considerable amount of research has examined ways of supporting cessation. Through the mid-1990s, most research was concerned with testing ways to reduce the prevalence of cigarette smoking among adolescents, with a focus on preventive interventions rather than cessation. As youth smoking prevalence rates climbed, attention shifted to ways to help adolescent smokers stop smoking (1). The problem of smoking is not limited to adolescents. Prevalence of and experience with smoking often continues from adolescence into adulthood and is an issue with direct bearing on adult health.

In view of this, this study seeks to explore the most effective advertising campaign approaches in terms of successfully encouraging adult smokers to quit. To this end, it aims to examine the effects of anti-smoking advertisements that incorporate induced hypocrisy on smokers' attitudes toward advertisements and smoking cessation and their intention to quit. Because smoking is so addictive, anti-smoking campaigns to date have mainly adopted appeals to fear, whereas induced hypocrisy has mainly been applied in general health-related fields. In that sense, this is distinct from preceding appeals in examining the relationship between induced hypocrisy and smoking cessation.

Hypocrisy is a trait that social perceivers are quite willing to attribute to others over inconsistencies in word and action, even when they excuse their own (2). A hypocrisy paradigm that reminds an

1. Eulji University, Seongnam, South Korea.
2. Ewha Womans University, Seoul, South Korea.

Correspondence to: Young-ju Jin, Assistant Professor, Ewha Womans University, Entrepreneurship Center 03760, 52 Ewhayeodae-gil, Seodaemun-gu, Seoul, Korea. Email: apijyj@hanmail.net

Global Health Promotion 1757-9759; Vol 27(1): 51–58; 783425 DOI: 10.1177/1757975918783425 journals.sagepub.com/home/ghp

individual of contradictions between his or her attitude and actual behaviour represents a method for clearly triggering cognitive dissonance, and is also likely to induce behavioural changes by making the individual aware of the lack of correspondence between attitude and behaviour (3). It may therefore be said to represent a typical method for triggering cognitive dissonance as described by Festinger (4).

In view of the potential for viewers to differ in attitudes toward smoking according to their individual characteristics, this study also seeks to apply self-construal theory, which has yet to be examined in the area of anti-smoking campaign effects, to compare groups of individuals classified as corresponding either to the 'independent self' or 'interdependent self'.

Research on anti-smoking advertisements

Fear appeals are perhaps the single most representative form of appeal used in anti-smoking campaigns today. The findings on these appeals' effects, however, remain varied and inconsistent. Many fear appeal theories point to positive linear results, but are unable to explain the boomerang or curvilinear results found in other studiesdies,(5) Witte(5) identified three models to account for fear appeal effects (Witte, 1992): (a) the drive model (6–8), (b) the parallel response model (9), and (c) expectancy value theories (10,11). By integrating these models into an advanced form of extended parallel process model, Witte identified several key concepts and constituent elements to fear appeals. Borrowing from the approach of O'Keefe (12), Witte argued that fear appeals can be defined in terms of their content, or by the reaction they engender from the audience. More specifically, Witte noted that fear appeals usually contain 'gruesome content' in the form of vivid language, personal language, or gory pictures. Alternatively, fear appeals have been defined in terms of the amount of fear aroused in and/or experienced by the audience. Fear appeals also offer feasible recommendations that are posited as effective in averting the threat. Thus, the three central constructs in fear appeals are fear, threat, and efficacy.

Also interesting are the findings from comparative analyses of theories applied toward anti-smoking advertising campaigns in the USA and South Korea, two countries with differing sociocultural characteristics. To examine the effects of communicative anti-smoking campaigns, Hong and Lee (2012) conducted a content analysis on samples of 71 television advertisements aired in the USA and Korea over the 7 years between 2005 and 2012. They found that the advertisements had been based on core theories of health communications, namely the health belief model, theory of reasoned action, and social cognitive theory. Although the findings showed different characteristics in countries' anti-smoking campaigns, Korean anti-smoking ads were found to rely mostly on social norm messages, followed by smoking attitudes. The message of modelling and self-efficacy was least used in Korea, whereas the US ads focused more on modelling and self-efficacy. Anti-smoking ads in both Korea and the USA most frequently adopted horror and humor as emotional effects rather than sadness, lack of appeal, and anger (13).

Cognitive dissonance theory and hypocrisy paradigm

Cognitive dissonance was defined by Festinger (1957) as an aversive state of psychological tension (dissonance), aroused when an individual holds two inconsistent cognitions. Festinger considered people to be motivated to reduce this uncomfortable state by changing one or both of the inconsistent cognitions (4,14). The classic theory of Festinger (4) of cognitive dissonance is in some respects a theory describing how hypocrisy leads to psychological tension. Using this idea, Dickerson *et al.* (15) and Fried and Aronson (16) induced recognition of hypocrisy in participants by confirming their support for specific issues and then reminding them that their own actions contradicted their past positions. They also confirmed that this induced recognition of hypocrisy gave rise to cognitive dissonance and made participants acutely uncomfortable.

Studies that have considered induced hypocrisy in the past have typically addressed public activities, e.g. the use of condoms (3,17), water conservation (15), recycling of household waste (16), respecting traffic laws (18), and sober driving (19).

Taken together, the above findings indicate that communication using induced hypocrisy may be applied to issues in which certain behaviours are judged to be socially desirable, and that induced

hypocrisy may be a useful technique in changing attitudes and behavioural intentions by generating cognitive dissonance. This study attempts an empirical examination of the effects of anti-smoking advertisements using the induced hypocrisy method on smoker attitudes and behavioural intentions toward smoking cessation. It also seeks to compare these effects with those of fear appeals, which have frequently been used in anti-smoking messages in the past. Because advertising effects may differ by respondent characteristics, it applies self-construal theory to examine differences by personal characteristics.

Self-construal theory

The origins of self-construal theory lie in criticisms of research on the self in areas such as psychology and anthropology. Markus and Kitayama (20) criticised previous research in self-construal theory as focusing only on forms of the self as manifested in Western culture, while ignoring various other aspects of the self.

The researchers identified two categories of self in self-construal theory, which they identified as the independent and interdependent self. People who fall into the independent self category tend strongly to perceive themselves as independent from others and to prefer expressions of their own strengths as distinct from those of others. People who fall into the interdependent self category, in contrast, are greatly influenced by relationships with others and tend to avoid revealing themselves in collective life, focusing mainly on their role in community living (20).

Arnocky et al. (21) further expanded self-construal theory by considering the question of whether individual differences in self-construal predict differences in environmental concern, resource sharing, and pro-environmental behaviour. In their findings, they reported differences in perspectives on environmental issues. In particular, they found that independent self-construal uniquely predicted egoistic environmental concern and competitiveness in sharing resources, whereas interdependent self-construal predicted resource cooperation and metapersonal self-construal uniquely predicted biospheric environmental concern, ecological cooperation, and self-reports of environmental conservation behaviour.

This study attempts an empirical examination of the effects of anti-smoking advertisements that use the induced hypocrisy method on smokers' attitudes and behavioural intentions toward smoking cessation. It also seeks to compare these effects with those of fear appeals, which have frequently been used in anti-smoking messages in the past. Because advertising effects may differ by respondent characteristics, it applies self-construal theory to examine differences by personal characteristics. The following research questions were thus formulated:

RQ1. What differences are present in consumers' attitudes and behavioural intentions toward smoking cessation before and after exposure to an anti-smoking advertisement?

RQ2. What differences are present in the effects of induced hypocrisy and fear appeal advertisements on consumers' attitudes and behavioural intentions toward smoking cessation?

RQ3. What differences according to self-construal tendency (independent vs. interdependent) are present in consumers' attitudes and behavioural intentions toward smoking cessation after exposure to anti-smoking advertisements?

Methods

Research design and experimental stimuli

To examine differences in responses to induced hypocrisy and fear appeal advertisements, this study adopted a between-subjects factorial design using two experimental groups. Mock anti-smoking newspaper advertisements were developed as experimental stimuli. Stimuli were respectively designed with induced hypocrisy and fear appeal content, although otherwise being kept as similar as possible in terms of size, layout, copy, and photographs. The mock advertisements were then examined by two professors of advertising with several years of experience producing advertisements at a professional agency, after which necessary adjustments were made.

The study's induced hypocrisy advertisement used an image of a crying child who has been exposed to cigarette smoke. The smoke in the advertisement was digitally altered into the shape of a clear plastic

bag to create the visual effect of the child being suffocated by it. The main copy on the advertisement read, 'You said you value your promises! Aren't you ashamed of yourself?'

The fear appeal advertisement used in the study shows the face of a smoking adult, but with the cigarette embedded in the subject's head rather than between the lips or fingers. The image of emerging smoke is depicted in a horrific manner. The headline reads, 'When you smoke, cigarettes burn your brain'.

Data collection and research procedure

This study adopted a web-based experimental method for sample extraction. The survey was conducted in August 2015 by a specialised company with a panel of 680,000 and ample experience with online questionnaires. Emails were sent to a randomly chosen group of the company's 680,000 panelists who had participated in at least one survey in the 12 months before the date of sending. To ensure consistency between experimental groups, gender and age ratios were selected to conform to their distribution in the 2010 population census as announced by Statistics Korea.

In view of the average recent rate of response for the company, emails were sent to a total of 1400 participants who indicated that they were currently smokers. Measures were taken to ensure that no participant would participate in multiple surveys. Emails for the sample in the induced hypocrisy advertisement condition were sent to a total of 700 people, of whom 387 opened the email. One-hundred did not participate in the survey, leaving a group of 287 who participated. A total of 207 responses were discarded according to quota or because of responses judged to be insincere, such as those with a response time of 30% or less compared to the average or identical responses to multiple items. The final sample group thus consisted of 80 individuals.

For the fear appeal advertisement sample, emails were sent to another 700 individuals, of whom 401 opened the email. A total of 102 did not participate, leaving a group of 299 who participated. Out of those responses, 219 were discarded according to quota or because of responses judged to be insincere, such as those with a response time of 30% or less of the average or identical responses to multiple items, leaving a final sample group of 80 individuals. Each experimental group consisted of 40 males (50%) and 40 females (50%), with 15 respondents aged 20–29 (18.8%), 17 aged 30–39 (21.3%), 18 aged 40–49 (22.5%), and 30 aged 50 or over (37.5%).

The experimental survey consisted of the following steps. For the group exposed to the induced hypocrisy condition, participants first received an explanation of the study's purpose, after which their self-construal tendencies and attitudes toward smoking cessation were measured. After presentation of the induced hypocrisy stimulus, their attitude toward smoking cessation and intention to quit were measured. The same standards were applied in the experimental group exposed to a fear appeal advertisement.

Measures

Self-construal tendency. The self-construal tendency was measured on a nine-point Likert scale using seven items adapted from the measure in Hardin et al. (22). Statements to measure self-construal included 'Speaking up during a class (or a meeting) is not a problem for me', 'I am comfortable with being singled out for praise or rewards', 'I do my own thing, regardless of what others think', 'I feel comfortable using someone's first name soon after meeting', 'I enjoy being unique and different from others in many respects', 'Personal identity, independent of others, is very important to me', and 'I act the same way no matter who I am with'.

Attitude toward smoking cessation. The attitude toward smoking cessation was measured on a nine-point Likert scale using six items also adapted from those used in Holbrook (23) and Simons et al. (24). Statements included, 'I have positive feelings about quitting smoking', 'I think quitting smoking is useful', 'I think quitting smoking is beneficial', 'I think quitting smoking has considerable value', 'I think quitting smoking would be satisfactory for me', 'I think other people would think positively about me quitting smoking', and 'Quitting smoking is something of high quality'.

Intention to quit. The intention to quit was measured on a nine-point Likert scale using three items adapted from the measures in Bearden and Mason (25). Statements included, 'I may quit smoking (possible)', 'I would advise that others quit smoking (likely)', and 'I think it would be wise for someone close to me to quit smoking (probable)'.

Table 1. Differences in pre- and post-exposure consumer responses.

Items		*N*	*Mean*	*SD*	*Mean difference [(2) – (1)]*	*t*	*Significance*
Response	*Pre- vs. post-*						
Attitude toward smoking cessation	Pre[a]	160	6.68	1.52	0.22	–2.531	0.012*
	Post[b]	160	6.90	1.59			
Intention to quit	Pre[a]	160	6.51	1.57	0.19	–2.4729	0.007**
	Post [b]	160	6.70	1.60			

N: number; *SD*: standard deviation; *t*: $t = \frac{\sum D}{\sqrt{\frac{\left(n\sum D^2\right) - \left(\sum D^2\right)}{n-1}}}$.

[a]Before exposure to anti-smoking ad.
[b]After exposure to anti-smoking ad.
*$p < 0.05$.
**$p < 0.01$.

Although the aforementioned research design, experimental stimuli, and data collection methods were used for empirical testing of the research questions, a number of limitations suggest that caution is warranted in interpreting or generalizing the findings. First, because the participants in the study were all Korean, it may be possible to draw more meaningful theoretical and practical implications by applying the same approach to countries with different sociocultural characteristics. Moreover, only printed advertisements were used in both the fear appeal and induced hypocrisy conditions. Because effects may differ according to advertisement form, future researchers may reach more effective conclusions by examining a broader range of media, including broadcast, online, and mobile advertisements.

Results

An exploratory factory analysis was conducted to identify common factors in the multi-items used in the study and the validity of the variables. A principal component analysis extraction model was used for factor analysis, and Varimax for rotation. The Kaiser-Meyer-Olkin measure was set at 0.6, which is regarded as strict, whereas communality, which indicates correlations between items, was set at 0.4, which is the commonly used level (26). For factor loadings, a variable with a level of 0.4 or higher was regarded as significant (27). The factor extraction standard was set as an Eigenvalue > 1.

Extraction sums of squared loadings showed values of 58.71% for self-construal tendency, 91.04% for attitudes toward smoking cessation, and 82.87% for intention to quit, all of which exceeded the 50% threshold. Communality and factor loading also exceeded the strict standard of 0.4 for all items, indicating that they were valid measures for the experiment. In addition to the suitability testing, the Cronbach's alpha measure was used to confirm the internal consistency of the items used in the study and verify their reliability. Reliability testing adopted the standard of 0.7, which is the most widely used. After the validity and reliability of the measures were tested, the final analysis was conducted.

RQ1. *Anti-smoking advertisement effects: Differences in consumer attitudes and behavioural intentions before and after exposure*

A T-test (paired sample) was conducted to examine differences in consumer attitudes before and after exposure to an anti-smoking advertisement. As Table 1 shows, a statistically significant difference ($p < 0.05$) was observed in consumer attitudes toward smoking cessation between the pre-exposure (Average = 6.68, SD = 1.52) and post-exposure (Average = 6.90, SD = 1.59) conditions. A statistically significant difference ($p < 0.01$) was also found in intention to quit between the pre-exposure (Average = 6.51, SD = 1.57) and post-exposure (Average = 6.70, SD = 1.60) conditions.

Table 2. Differences in consumer responses by anti-smoking ad type.

Items		*N*	*Mean*	*SD*	*Mean difference [(2) – (1)]*	*t*	*Significance*
Response	*Ad Type*						
Attitude toward smoking cessation	Hypocrisy[a]	80	6.96	1.49	–0.13	–0.509	0.611
	Fear[b]	80	6.83	1.69			
Intention to quit	Hypocrisy[a]	80	6.82	1.64	–0.24	–0.937	0.350
	Fear[b]	80	6.58	1.57			

N: number; *SD*: standard deviation; $t = \frac{\sum D}{\sqrt{\frac{\left(n\sum D^2\right) - \left(\sum D^2\right)}{n-1}}}$.

[a]Induced hypocrisy advertising type.
[b]Fear appeal advertising type.

In terms of RQ1, consumer attitudes in favour of smoking cessation and intention to quit were thus confirmed to rise after exposure to an advertisement from an anti-smoking campaign.

RQ2. *Differences in consumer attitudes and behavioural intentions by advertisement type*

A *T*-test (independent sample) was conducted to examine differences in consumer attitudes by advertisement type (induced hypocrisy vs. fear appeal). As shown in Table 2, no statistically significant difference was found in consumer attitudes toward smoking cessation between the induced hypocrisy (Average = 6.96, SD = 1.49) and fear appeal (Average = 6.83, SD = 1.69) conditions. The difference in intention to quit between the induced hypocrisy (Average = 6.82, SD = 1.64) and fear appeal (Average = 6.58, SD = 1.57) conditions was similarly not found to be statistically significant. With regard to RQ2, no statistically significant differences were found between induced hypocrisy and fear appeal advertisements in terms of consumers' attitude toward smoking cessation or their intention to quit.

RQ3. *Differences in consumer attitudes and behavioural intention by self-construal tendency*

A *T*-test (independent sample) was conducted to examine differences in consumer attitude toward anti-smoking advertisements according to self-construal category (i.e., independent vs. interdependent self). As shown in Table 3, a statistically significant difference ($p < 0.001$) was observed in attitudes toward smoking cessation between the independent (Average = 6.37, SD = 1.56) and interdependent (Average = 7.34, SD = 1.48) groups. The difference in intention to quit was also found to be significant ($p < 0.001$) between the independent (Average = 6.16, SD = 1.44) and interdependent (Average = 7.12, SD = 1.60) groups. In terms of RQ3, consumer attitudes toward smoking cessation and intention to quit were found to be higher among participants in the interdependent group than among those in the independent group.

Discussion

The theoretical implications of this study lie in its comparison of the effects of induced hypocrisy in anti-smoking advertising with those of fear appeals in terms of consumer attitudes in an Eastern society. A number of specific implications may be drawn from the findings. To begin with, statistically significant increases in attitudes toward smoking cessation and intent to quit were observed in the pre-exposure and post-exposure conditions for both induced hypocrisy and fear appeal advertisements. In terms of attitude toward smoking cessation and intention to quit, comparison of effects from the two appeal types showed a larger effect with induced hypocrisy than with fear appeals, although not to a statistically significant extent. This finding suggests that induced hypocrisy exhibits a greater effect than the fear appeals that have predominated in past anti-smoking campaigns. Although induced hypocrisy has been used to date in areas associated with the environment

Table 3. Differences in consumer responses by self-construal tendency.

Items		*N*	*Mean*	*SD*	*Mean difference [(2) – (1)]*	*t*	*Significance*
Response	*Self-Construal*						
Attitude toward smoking cessation	Independent[a]	73	6.37	1.56	0.97	–4.067	0.000***
	Interdependent[b]	87	7.34	1.48			
Intention to quit	Independent[a]	73	6.16	1.44	0.99	–4.073	0.000***
	Interdependent[b]	87	7.15	1.60			

N: number; *SD*: standard deviation; $t = \frac{\sum D}{\sqrt{\frac{\left(n\sum D^2\right) - \left(\sum D^2\right)}{n-1}}}$

***$p < 0.001$.
[a]Independent tendency.
[b]Interdependent tendency.

and health, including recycling, water conservation, and condom use, it has rarely been used in campaigns against the use of nicotine, a highly addictive substance. The research findings indicate that anti-smoking advertisements using induced hypocrisy may exhibit greater effects than fear appeals, at least among Eastern societies or populations such as South Korea's. In other words, the findings may be said to suggest that the sociocultural characteristics of a given country or ethnicity should be considered when implementing anti-smoking campaigns.

Additionally, examination of differences by consumer self-construal tendency showed stronger attitudes in favour of smoking cessation and intention to quit for smokers in the interdependent group than those in the independent group for advertisements using induced hypocrisy. Individuals with independent self-construal tend to value their interests over those of others or society, whereas those with interdependent self-construal tend to value consideration for others and society over themselves. In this study, smokers belonging to the interdependent group showed high scores of 7.34 and 7.15 out of nine points in attitudes in favour of smoking cessation and intent to quit, respectively. These findings suggest that even among smokers, attitudes supporting smoking cessation and intention to quit are higher the more interdependent they are in terms of morality and ethics, consideration for others, and desire not to do harm. In terms of practical implementation of anti-smoking policy, one approach to boosting the effects of a campaign may therefore be to combine fear appeals and induced hypocrisy with appeals that take into account concepts such as morality, ethics, and consideration for others.

Conclusion

By referring to the practical implications of this research, institutions and groups promoting smoking cessation may be able to achieve more effective results. First, the findings show that it is possible to achieve greater effects with anti-smoking campaigns that take consumers' sociocultural characteristics into account. The tendency of campaigns thus far has been to focus on fear appeals in view of the highly addictive nature of cigarettes. As such intensely frightening messages may elicit a negative reaction from smokers, future campaigns should be made more sophisticated and tailored to the receivers' tendencies.

Second, the findings suggest that thorough analysis of the individual tendencies of audience members is as important as sociocultural characteristics when implementing anti-smoking campaigns. Advertisement effects were shown to differ according to consumers' self-construal tendencies, with the campaigns proving more effective with smokers exhibiting an interdependent-self tendency than with those exhibiting an independent-self tendency. In practice, self-construal theory could serve as a useful indicator when classifying the target audience prior to anti-smoking campaigns.

Third, the findings suggest that the highly addictive nature of smoking necessitates more

sophisticated strategies when selecting an anti-smoking campaign format. In view of these issues, a more beneficial strategy approach would be to consider various forms of campaign that have proven effective beyond a certain extent and to select the appeal best suited to the nature of the campaign actors or targets, rather than adhering to one particular form of anti-smoking campaign. Because some time is typically needed before smoking cessation occurs, a medium- to long-term approach should be considered. To this end, the ongoing use of many different forms of campaign appears necessary even when all of them share the aim of smoking cessation. Even if a particular form of anti-smoking advertisement is shown to be effective, repeated use of the same or similar advertising forms could lead consumers to develop a distaste or tolerance toward them.

Conflict of interest

The authors declare that there is no conflict of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

1. Solomon LJ, Bunn JY, Flynn BS, et al. Mass media for smoking cessation in adolescents. Health Educ Behav. 2009; 36(4): 642–659.
2. Valdesolo P, DeSteno D. The duality of virtue: deconstructing the moral hypocrite. J Exp Social Psychol. 2008; 44(5): 1334–1338.
3. Aronson E, Fried C, Stone J. Overcoming denial and increasing the intention to use condoms through the induction of hypocrisy. Am J Pub Health. 1991; 81(12): 1636–1638.
4. Festinger L. A theory of cognitive dissonance. Evanston, IL: Row, Peterson, 1957.
5. Witte K. Putting the fear back into fear appeals: the extended parallel process model. Commun Monographs. 1992; 59(4): 329–349.
6. Hovland C, Janis I, Kelly H. Communication and persuasion. New Haven, CT: Yale University, 1953.
7. Janis, II. Effects of fear arousal on attitude change: recent developments in theory and experimental research. In: Berkowitz L (ed.) Advances in experimental social psychology. New York: Academic Press, 1967, pp. 166–225.
8. McGuire WJ. The nature of attitudes and attitude change. In: Lindzey G, Aronson E (eds) The handbook of social psychology. Reading, MA: Addison-Wesley, 1969, pp. 136–314.
9. Leventhal H. Fear appeals and persuasion: the differentiation of a motivational construct. Am J Pub Health. 1971; 61(6): 1208–1224.
10. Rogers RW. A protection motivation theory of fear appeals and attitude change. J Psychol. 1975; 91(1): 93–114.
11. Sutton SR. Fear-arousing communication: a critical examination of theory and research. In: Eiser JR (ed.) Social psychology and behavioural medicine. London: Wiley, 1982, pp. 303–337.
12. O'Keefe DJ. Persuasion: theory and research. Newbury Park, CA: SAGE, 1990.
13. Hong EH, Lee CH. Content analysis of anti-smoking TV advertisements: different adaptation of health communication theories between Korean and the U.S.A. J Korea Contents Assoc. 2012; 12: 76–87 (in Korean).
14. Rubens L, Gosling P, Bonaiuto M, et al. Being a hypocrite or committed while I am shopping? A comparison of the impact of two interventions on environmentally friendly behaviour. Environ Behav. 2015; 47(1): 3–16.
15. Dickerson M, Hinchy J, England SL, et al. On the determinants of persistent gambling behaviour. I. High-frequency poker machine players. Br J Psychol. 1992; 83(2): 237–248.
16. Fried CB, Aronson E. Hypocrisy, misattribution, and dissonance reduction. Pers Soc Psychol Bullet. 1995; 21(9): 925–933.
17. Stone J, Wiegand AW, Cooper J, et al. When exemplification fails: hypocrisy and the motive for self-integrity. J Soc Behav Pers. 1997; 72(1): 54–65.
18. Fointiat V. 'I know what I have to do, but…' When hypocrisy leads to behavioural change. Soc Behav Pers. 2004; 32(8): 741–746.
19. Fointiat V, Grosbras JM. Saying one thing and not doing it: the impact of freedom in the induced hypocrisy paradigm. Psychol Francaise. 2007; 52(4): 445–458.
20. Markus HR, Kitayama S. Culture and the self: implications for cognition, emotion, and motivation. Psychol Rev. 1991; 98(2): 224–253.
21. Arnocky S, Stroink M, DeCicco T. Self-construal predicts environmental concern, cooperation, and conservation. J Environ Psychol. 2007; 27(4): 255–264.
22. Hardin EE, Leong FT, Bhagwat AA. Factor structure of the self-construal scale: revisited implications for the multidisciplinary of self-construal. J Cross Cult Psychol. 2004; 35(3): 327–345.
23. Holbrook MB. An effect on cause related marketing and product type. J Cons Res. 1987; 14(3): 404–420.
24. Simons J, Correia CJ, Carey KB, et al. Validating a five-factor marijuana motives measure: relations with use, problems, and alcohol motives. J Counsel Psychol. 1998; 45(3): 265–273.
25. Bearden WO, Mason JB. An investigation of influences on consumer complaint reports. Adv Cons Res. 1998; 11(3): 490–495.
26. Field A. Discovering statistics using SPSS for Windows. Thousand Oaks, CA: SAGE, 2000.
27. Goodman E, Dolan L, Morrison J, et al. Factor analysis of cluster cardiovascular risks in adolescence. Pediatr Cardiol. 2005; 111(15): 1970–1977.

Community readiness assessment for disseminating evidence-based physical activity programs to older adults in Changsha, China: a case for Enhance®Fitness

Minhui Liu[1,2], Xi Zhang[3], Jinnan Xiao[4], Feng Ge[4], Siyuan Tang[4] and Basia Belza[2]

Abstract: Physical activity (PA) has declined in China due to urbanization in the past two decades. Evidence-based programs are good approaches to promote PA, but are limited in China. Adopting existing programs can be a viable option. Prior to that, readiness assessment is needed. This study aimed to assess community readiness levels for disseminating evidence-based PA programs to older adults in Changsha, China. In-person interviews were conducted with 33 participants of five districts in Changsha to assess the community readiness level in five dimensions: community knowledge of efforts, community climate, community knowledge about the issue, leadership and resources. Data was transcribed, reviewed and compared with an anchored rating scale to provide a stage of readiness score ranging from 1 (no awareness) to 9 (high level of community ownership). Participants included 14 community staff, 13 older adults, four community leaders and three health professionals. The top three barriers to disseminating PA programs were lack of appropriate locations, funding and instructors. The top three resources were availability of indoor space, chairs and loudspeakers. Community leadership was the highest-rated readiness dimension (3.3 out of 9) followed by community climate (3.2), community knowledge of efforts (3.1) and resources (2.8); knowledge about the issue scored the lowest (2.7). The overall community stage readiness score of Changsha was 3.0 out of 9. The stage of readiness for communities in Changsha, China is 'vague awareness'. Developing strategies to improve community readiness levels may increase evidence-based PA program dissemination in Changsha, China. (Global Health Promotion, 2020; 27(1): 59–67)

Keywords: elderly/older adult, health promotion, healthy aging, physical activity, evaluation

Introduction

As the level of physical activity (PA) has declined globally, China has also experienced a decline in PA (1), mainly due to rapid urbanization (2–4). A reduction in total PA was found to be associated with age, as older adults were more sedentary than their younger counterparts (2). With the aging of our society, physical inactivity, a risk factor for chronic diseases, has resulted in a call for increased public health efforts to promote PA and improve older adults' health (2,5).

Evidence-based PA programs have undergone research and adaptions validating their effectiveness,

1. Johns Hopkins University School of Nursing, Baltimore, Maryland, USA.
2. University of Washington School of Nursing, Seattle, Washington, USA.
3. Zhengzhou Railway Vocational & Technical College, Zhengzhou, China.
4. Central South University, Xiangya School of Nursing, Changsha, Hunan, China.

Correspondence to: Minhui Liu, Johns Hopkins University School of Nursing – Community Public Health, 525 N. Wolfe St, #301 SON House, Baltimore, Maryland 21205, USA. Email: leoryliu@uw.edu

(This manuscript was submitted on 15 September 2017. Following blind peer review, it was accepted for publication on 18 May 2018)

Global Health Promotion 1757-9759; Vol 27(1): 59–67; 785144 DOI: 10.1177/1757975918785144 journals.sagepub.com/home/ghp

producing substantial and reliable benefits for individuals (6). The Centers for Disease Control and Prevention is committed to making evidence-based PA programs more broadly available for older adults in the United States of America (USA) (6). However, evidence-based programs are still limited in China, especially in community settings (7). A recent scoping review of evidence-based nursing implementation also made an urgent call to increase evidence-based programs and resources in China (8). Adopting existing well-designed evidence-based programs might be a viable option for promoting PA in Chinese older adults (9). Enhance®Fitness (EF) is a low-cost, highly adaptable evidence-based group PA program that is appropriate for various physical function levels of older adults (10). EF could be an ideal evidence-based program to disseminate in China, given that EF has been offered at 700+ sites across 40 states in the USA to 68,000+ unduplicated participants over the past two decades (11).

Given the cultural, social and structural differences between the USA and China, it is important to know whether the communities in China are ready for disseminating EF. Therefore, as a first step, this study aims to assess the readiness levels of communities for disseminating evidence-based programs in China using EF as an example.

Methods

A cross-sectional study was conducted to assess readiness levels in communities of five districts in Changsha, China between August and September 2016.

Conceptual model

This study is guided by the Community Readiness Model (CRM), which was originally developed for alcohol/drug abuse prevention (12). The scope of application for this model spans substance use, health and nutrition issues (e.g. HIV/AIDS, heart health, obesity/nutrition), environment issues (e.g. water and air quality, litter and recycling), social issues (e.g. child abuse, taxation, intimate partner violence), and personal problems (e.g. depression, suicide) (13–15). The CRM has been widely applied in behavioral changes at the community level. It can be tailored to a particular issue (i.e. disseminating EF), based on input from local experts, and provides scores for five dimensions: (a) community knowledge of efforts; (b) community climate; (c) community knowledge about the issue; (d) leadership; and (e) resources (12). The CRM assumes that communities are at different stages of readiness in addressing an issue, and interventions can be developed based on assessed readiness to address the issue (12). According to the CRM, the issue under consideration in this study is 'the lack of evidence-based PA programs in the community'. The CRM includes an interviewer-administered survey for participants that can be tailored, and the survey has shown strong construct validity and high interrater consistency (15,16).

Settings and participants

The study was conducted in Changsha, a provincial city with 7.4 million residents in Hunan Province, China. Changsha was particularly chosen for this study because it is representative of the current status quo of elderly people in most major cities in China. Readiness levels were assessed in communities of five districts in Changsha. Three to four communities were randomly selected based on geographic distance from each district to recruit participants. According to CRM, at least six participants per community are needed to provide insights into their community's efforts to disseminate EF for older adults (14). Participants included community staff, older adults, community leaders and health professionals because they were most likely to know the issues of the community. In addition, participants must have worked or lived in the corresponding district for at least one year to be included in this study. The study team partnered with a local university because they could provide an official reference letter, which helped connect with the community leader and facilitated the recruitment.

Community staff, older adults and community leaders were recruited from community centers/workplaces, and health professionals were recruited from community health centers. The study team first approached the community leader in each community because he/she could refer the team to the community staff responsible for older adults' daily physical activities. A convenience sampling strategy was used to approach older adults in the community center and a snowball technique was

employed after the interview to identify other older adults who were likely to know most about the issue in the community. Health professionals such as physical therapists and rehabilitation therapists were chosen because they could provide insights on PA. The study team obtained consent from all participants for the interview. This study was approved by the University of Washington Human Participants Division (#51929).

Instrument

An interview guide consisted of the following sections: (a) introduction & consent form; (b) a three-minute video on EF which was dubbed in Mandarin; (c) demographic data collection form including age, gender, occupation and number of years having worked/lived in the community; and (d) a survey measuring the five dimensions of community readiness levels including community knowledge of efforts, community climate, community knowledge about the issue, leadership and resources. The readiness survey was tailored with input from experts with knowledge of EF and readiness assessment, and by deleting irrelevant items according to the Chinese version of the *Community Readiness Handbook* (2nd edition) (14). The final survey contained 28 questions about community members' awareness about the lack of evidence-based PA programs for older adults, current promotional efforts by community leaders, and potential barriers/resources to program adoption (please see Table 1 for question examples). Survey questions were in one of four formats: yes/no questions, numerical rating scales (1 indicating not a concern/no knowledge to 10, a great concern/detailed knowledge), Likert scales (1 indicating not at all supportive to 5, very supportive), and open-ended questions. The survey was pilot-tested with two participants and revised to ensure the clarity of questions and capture more information from participants.

Data collection

Two of the three interviewers (ML, JX and FG) paired for each participant interview: one conducted the in-person interview and the other took field notes. In-person interviews were chosen instead of phone interviews because more information could be captured in this way. In order to accurately capture information, the research team originally planned to digitally record the interviews. However, considering the reality that most community staff and leaders were not willing to give permission for audio recording, the study team got permission from them to take detailed notes in order to capture what they said as accurately as possible.

Each in-person interview lasted about 30 minutes. After the interviewers introduced the study and obtained consent, they showed a three-minute video on EF, answered any questions regarding EF and explained to participants what 'evidence-based program' meant and why EF was used as an example. Interviews were transcribed verbatim for those from whom permission was obtained for recording. No more interviews were conducted when data saturation was reached for all participants in the district. To ensure the quality of data collection, a quiet and private location was secured for each interview. The interviewers debriefed using interview notes after each interview.

Data analysis

Descriptive statistics (mean, standard deviation, range, frequencies and proportions) were calculated for demographics, yes/no questions, numerical rating scales, and Likert scales. Two of the interviewers (ML, JX and FG) independently reviewed the transcriptions and scored each dimension by using an anchored rating scale with nine statements on readiness level (1 = low to 9 = high readiness level), and calculated a stage of readiness score which ranged from 1 to 9 (no awareness, denial/resistance, vague awareness, pre-planning, preparation, initiation, stabilization, expansion/confirmation and community ownership). Two interviewers discussed any discrepancies among their scores until consensus was achieved. The third interviewer was involved in the review process if the primary interviewers could not reach agreement on discrepancies. The stage of readiness scores were calculated by summing the dimension scores and dividing by five (the number of dimensions). Stata 14.0 was used for data analysis.

Results

A total of 37 participants were recruited; two declined to participate. Thirty-five participants

Table 1. Responses from participants on community readiness assessment in disseminating evidence-based physical activity programs for older adults in Changsha.

Dimensions/Items	*Obs*	*Percentage*	*Mean*	*SD*	*Range*
• To what extent older adults concerned about the lack of evidence-based physical activity programs	33	100.0%	5.7	2.4	1–10
• To what extent community staff concerned about the lack of evidence-based physical activity programs	33	100.0%	5.9	2.8	1–10
Dimension A: Knowledge of efforts					
• Whether evidence-based physical activity programs have been implemented in the community or not	33	100.0%	Not applicable		
Yes	20	60.6%			
No	10	30.3%			
Unknown	3	9.1%			
• Whether the community had made efforts to implement evidence-based physical activity programs or not	33	100.0%			
Yes	19	57.6%			
No	13	39.4%			
Unknown	1	3.0%			
Dimension B: Community climate					
• To what extent older adults valued implementation of evidence-based physical activity programs	32	97.0%	6.1	2.6	1–10
• To what extent community staff valued implementation of evidence-based physical activity programs	31	94.0%	5.6	2.8	1–10
• The overall attitude of older adults for implementing evidence-based physical activity programs	32	97.0%	4.0	0.9	2–5
Against (1)	0	0.0%	Not applicable		
Not concerned (2)	2	6.2%			
Neutral (3)	7	21.9%			
Attentive (4)	10	31.3%			
Supportive (5)	13	40.6%			
• The overall attitude of community staff for implementing evidence-based physical activity programs	32	97.0%	4.2	1.0	2–5
Against (1)	0	0.0%	Not applicable		
Not concerned (2)	2	6.2%			
Neutral (3)	6	18.8%			
Attentive (4)	8	25.0%			
Supportive (5)	16	50.0%			
Dimension C: Community knowledge about the issue					
• Older adults' knowledge level of evidence-based physical activity programs	33	100.0%	4.9	2.1	1–10
• Community staff's knowledge level of evidence-based physical activity programs	32	97.0%	5.4	2.5	1–10
Dimension D: Leadership					
• To what extent community leaders concerned about the lack of evidence-based physical activity programs	32	97.0%	6.1	2.0	1–10
• Levels of community leaders' efforts in making the change	23	69.7%	5.4	2.9	1–10
Dimension E: Resources					
• To what extent specialization of the staff who is responsible for evidence-based physical activity programs	26	78.8%	4.3	2.9	1–9.5

Notes: Obs: observations; SD: standard deviation.

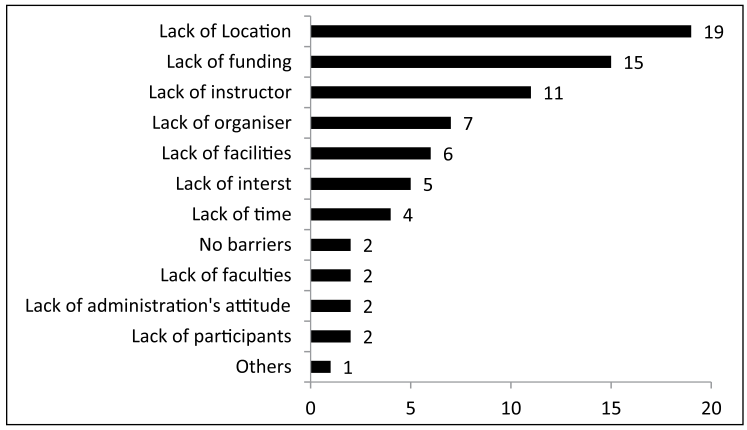

Figure 1. Frequencies of barriers to conducting evidence-based physical activity program (times).

consented and were interviewed; one declined to continue in the middle of the interview, and one provided limited information. Thirty-three participants were included for final data analysis. The average age was 52.9 years old (SD = 19.0) and 21 (61.8%) were female. Eight were from Kaifu District, eight from Furong District, eight from Tianxin District, seven from Yuelu District and three from Yuhua District. Participants included 14 (41.2%) community staff, 13 (38.2%) older adults, four (11.8%) community leaders, and three (8.8%) health professionals.

Dimension A: knowledge of efforts

Twenty (60.6%) participants responded that evidence-based PA programs had been implemented in the community, 10 (30.3%) responded 'not' and 3 (9.1%) responded unknown. Nineteen (57.6%) participants agreed that the community had made efforts to implement those programs and 13 (39.4%) responded 'not' (Table 1). However, it should be noted that almost all the programs in place were organized and led by community members themselves due to their own health needs. Community leaders were not directly involved in implementing those programs. Community staff had the higher level of knowledge of efforts (3.6 out of 9) compared with older adults, community leaders and health professionals.

Dimension B: community climate

Among participants who responded to the question 'To what extent do older adults/community staff value implementation of evidence-based PA programs?' community staff placed a slightly higher value on implementation of those programs compared with older adults (6.1 versus 5.6 out of 10). Community staff were slightly more supportive compared to older adults of implementing programs (4.2 versus 4.0 out of 10). Regarding the overall attitude to implementing evidence-based PA programs, 75% of community staff were supportive of the issue compared with 72% of the older adults. Community staff scored the highest on the dimension of community climate (3.5 out of 9) compared with other participant types.

By examining the frequencies of barriers to implementing evidence-based PA programs in the community, the three most commonly cited barriers to disseminating evidence-based PA programs were the lack of appropriate locations to offer programs (n = 19), lack of funding (n = 15), and lack of instructors (n = 11) (Figure 1).

Dimension C: community knowledge about the issue

Community knowledge about the issue was evaluated by asking how concerned older adults and community staff were about the lack of evidence-based PA programs, and how knowledgeable they were of those programs. Community staff were slightly more concerned about the lack of evidence-based PA programs compared with older adults (5.9 versus 5.7 out of 10). Similarly, community staff had a greater knowledge of PA programs compared with

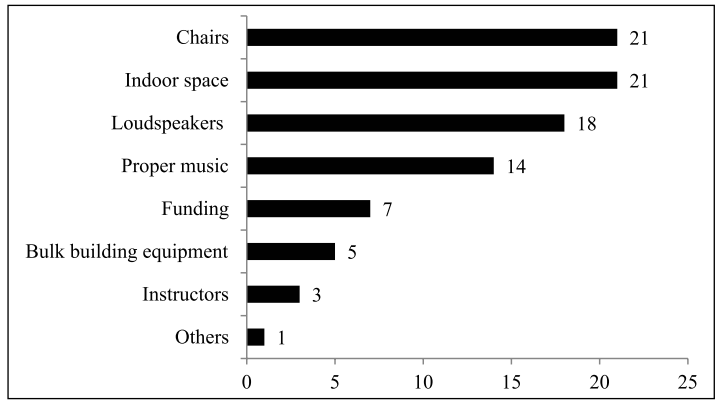

Figure 2. Frequencies of existing resources for disseminating Enhance®Fitness program (times).

older adults (5.3 versus 4.8 out of 10). Overall, community knowledge about the issue scored equivalently between community staff and older adults (2.8 out of 9) but it was the lowest among the five dimensions (2.7 out of 9).

Dimension D: leadership

The mean score for 'To what extent community leaders concerned about the lack of evidence-based PA programs?' was 6.1, which is higher than both older adults and community staff aforementioned. The level of community leaders' efforts in making the change to offer more evidence-based PA programs was 5.4 on average. Overall, community leadership scored the highest among community staff (3.8 out of 9) and the five dimensions (3.3 out of 9).

Dimension E: resources

The three most common resources supporting EF dissemination were availability of indoor space (n = 21), chairs (n = 21), and loudspeakers (n = 18) (Figure 2). In addition, participants were asked how much expertise the staff/instructors would have managing EF classes if EF was disseminated in their communities; they rated their expertise 4.3 out of 10. The dimension of resources scored the highest among the community staff (3.4 out of 9).

Stage of readiness

The mean score of stage readiness for participants from five districts in Changsha was 3.0 (SD = 0.7), which indicated overall they were still in the stage of 'vague awareness'. More specifically, Yuhua, Kaifu and Yuelu districts were in the stage of 'vague awareness' and Furong and Tianxin were still in the stage of 'denial/resistance'. The stage was 'vague awareness' among community staff and health professionals but 'denial/resistance' among older adults and community leaders. For the stage of 'vague awareness', community members were aware of the lack of evidence-based programs and local efforts, but knew little about the programs. Community members and leadership believed this was a concern but showed no immediate motivation to act. Community members had a vague knowledge about evidence-based programs. Resources for disseminating those programs were limited. For the stage of 'denial/resistance', community members did not think the issue was a concern. Incorrect knowledge about the efforts existed and community members had little knowledge about the issue. No available resources were used to address the issue.

Discussion

To our knowledge, this is the first study assessing community readiness to disseminate evidence-based PA programs in China using a validated assessment tool. Since the concept of community readiness has not been well developed and used in the Chinese context, this study could be a good example for researchers to conduct readiness assessment studies for other issues in the community. Our study also made a contribution to the implementation science in China by evaluating the feasibility of disseminating

Table 2. Dimension and stage of readiness scores for disseminating evidence-based programs by district and participant type ($N = 33$).

Dimension	*District*					*Participants type*				*Overall*
	Yuelu	*Kaifu*	*Furong*	*Tianxin*	*Yuhua*	*Community staff*	*Older adults*	*Community leaders*	*Health professionals*	
Community knowledge of efforts	2.6 (0.7)	3.8 (1.8)	2.4 (1.0)	3.1 (1.4)	4.2 (0.8)	3.6 (1.4)	2.7 (1.3)	3.0 (0.7)	2.8 (1.9)	3.1 (1.4)
Community climate	3.6 (0.5)	3.3 (0.5)	2.8 (0.4)	2.9 (1.2)	3.7 (0.6)	3.5 (0.5)	3.1 (0.9)	2.8 (0.3)	3.2 (0.8)	3.2 (0.7)
Community knowledge about the issue	2.7 (0.6)	2.9 (0.8)	2.6 (0.4)	2.6 (0.9)	3.0 (0.5)	2.8 (0.5)	2.8 (0.8)	2.6 (0.5)	2.5 (0.9)	2.7 (0.7)
Leadership	3.6 (0.8)	3.1 (1.3)	2.9 (0.7)	3.2 (1.8)	3.8 (0.8)	3.8 (1.2)	2.9 (1.1)	2.9 (0.6)	3.3 (1.0)	3.3 (1.2)
Resources	2.9 (0.8)	3.2 (1.2)	2.3 (0.5)	2.7 (1.3)	2.8 (1.0)	3.1 (0.9)	2.5 (1.1)	2.2 (0.5)	3.2 (0.8)	2.8 (1.0)
Stage of readiness score	3.1 (0.2)	3.3 (0.6)	2.6 (0.4)	2.9 (1.2)	3.5 (0.6)	3.4 (0.5)	2.8 (0.8)	2.7 (0.4)	3.0 (1.1)	3.0 (0.7)

an existing evidence-based program in a new setting with a different culture and infrastructure (17).

Knowing evidence-based programs are still very limited in China, especially in community settings, it is anticipated that communities might score low in their knowledge about the issue. The authors in fact found this to be true. Knowledge about the lack of evidence-based PA programs was consistently low across the districts. In recent years, living standards in China have improved, and community members have become more concerned about their health conditions and have paid more attention to improving their health (18). Yet there continues to be limited available information about evidence-based PA programs for Chinese older adults.

Community resources were found to be limited overall, but community staff and older adults had different opinions. The authors heard more positive comments on resources from the community staff's perspective that the government has been working on allocating reliable resources to communities for improving older adults' health. However, given the large older adult population in China, these resources seemed to be insufficient to meet PA needs of older adults at the population level. The Resource Dimension score varied across districts; Furong District had the lowest resource rating, citing lack of location to offer PA programs as the top barrier. This is not surprising because Furong District was built at an early time with inadequate infrastructure, and public space is very limited for older adults to get involved in PA programs. Middle-aged and older adults in China have traditionally participated in some kinds of PA, such as Chinese square dancing programs, which are performed to music in public squares. Therefore, location is very important to PA and has been reported to be associated with higher PA participation in China compared with other countries (19). Limited space also restricts the built environment including the presence of parks, which has been shown to be related to PA levels (20).

Some results should be interpreted cautiously. For example, more than half of participants believed evidence-based programs were implemented in their community, but this could represent an overestimation. Although the study team explained to participants what evidence-based programs are, some participants, especially older adults, might consider the square dancing programs to be evidence-based even though there is little research on the program. The Leadership Dimension scored the

highest (3.3 out of 5.0) among the five dimensions, but it might also have been over- or underestimated. Some participants stated that they knew little about the leader's perspective due to their insufficient interactions with the leaders. In addition, some interviews were conducted at their workplace, and thus, community staff might have evaluated their leaders highly given the presence of other co-workers.

Several limitations should be noted in this study. More information during the interviews could have been captured if recording permissions had been obtained from participants. Securing permission to audio record was difficult as many participants were government servants in China. However, with two personnel of the study team present during the interview and the comprehensive field notes, the authors feel that the key discussion items were captured during the interview. The study team attempted to recruit participants from more communities to better represent the current status of Changsha. Given the limited funding and the size of Changsha City, the sample size could still be small and more communities could be selected in each district for the study purpose.

Information derived from this study could be used to develop strategies to improve the community readiness levels in Changsha before evidence-based programs, including EF, can be widely disseminated. Overall, Changsha is still in the stage of 'vague awareness'. According to the CRM, dimensions with the lowest scores should be first to increase if readiness improves. Therefore, strategies should be first developed to improve the knowledge of the issue and increasing resources. To improve the knowledge of the issue, we should first collect the stories of local community members who have been affected by the lack of evidence-based PA programs. Second, we need to collect information and facts on benefits of evidence-based PA programs and how these are different from those that have not been well supported by research. Third, the stories, information and facts can be disseminated in local communities as flyers, posters or media articles. We can also present information at local community events and bring the information to locations where most older adults have their PA such as a public park. To increase resources, we should first present what we found from our study to the government authorities so that they will be aware of the gap between accessible resources and great demands from older adults. Local communities should reallocate existing resources and continue securing new resources and support from the local government. For example, some indoor places have been created for older adults to play cards or mahjong, which increases sedentary behavior. Some of these places can be reallocated to offer evidence-based PA programs which generate more health benefits for older adults.

In conclusion, our study indicates that the readiness levels of communities in Changsha, China for disseminating evidence-based PA programs are still relatively low. Community members have a vague knowledge about the lack of evidence-based PA programs, and the resources for disseminating programs appear to still be limited. Strategies should be immediately developed to improve their readiness levels prior to evidence-based PA program dissemination in Changsha, China.

Acknowledgements

The authors thank Dina Jones, PhD, PT for earlier consultation on the study design, Christina Miyawaki, PhD, Sarah Szanton, PhD, and Marlana Kohn, MPH for feedback on the manuscript, and Ms. Paige Denison at Sound Generations for giving suggestions on readiness survey and permission to revise the introduction video of EF (more information on EF: http://www.projectenhance.org/enhancefitness.aspx). The authors have no financial, institutional or other relationships that might lead to a bias or a conflict of interest in this manuscript.

Conflict of Interest

The authors declare that there is no conflict of interest.

Funding

Liu was supported by a GO Health Fellowship from the University of Washington Department of Global Health, R. Hunter Simpson Global Service Learning Fellowship from Center for Global Nursing at the University of Washington School of Nursing, Sigma Theta Tau International (STTI) Psi-at-Large Small Grant, and the China Scholarship Council Fellowship.

References

1. Zang J, Ng SW. Age, period and cohort effects on adult physical activity levels from 1991 to 2011 in China. Int J Behav Nutr Phys Act. 2016; 13: 40.
2. Zhu W, Chi A, Sun Y. Physical activity among older Chinese adults living in urban and rural areas: a review. J Sport Heal Sci. 2016; 5: 281–286.
3. Gong P, Liang S, Carlton EJ, Jiang Q, Wu J, Wang L, et al. Urbanisation and health in China. Lancet. 2012; 379: 843–852.

4. Miao J, Wu X. Urbanization, socioeconomic status and health disparity in China. Health Place. 2016; 42: 87–95.
5. Li F, Liu Y, Zhu W, Harmer P. China's challenges in promoting physical activity and fitness. Lancet. 2016; 388: 1278–1279.
6. Belza C, PRC-HAN Physical Activity Conference Planning Workgroup. Moving Ahead: Strategies and Tools to Plan, Conduct, and Maintain Effective Community-Based Physical Activity Programs for Older Adults. Atlanta, (GA): Centers for Disease Control and Prevention; 2007.
7. Shi J, Jiang C, Tan D, Yu D, Lu Y, Sun P, et al. Advancing implementation of evidence-based public health in China: an assessment of the current situation and suggestions for developing regions. Biomed Res Int. 2016; 2016: 2694030.
8. Cheng L, Feng S, Hu Y. Evidence-based nursing implementation in Mainland China: a scoping review. Nurs Outlook. Epub 2016 August 24. doi: 10.1016/j.outlook.2016.07.016.
9. Liu M, Belza B, Zhang X. Considerations when disseminating American-developed, evidence-based health promotion programs in China. J Gerontol Nurs. 2015; 41: 3–4.
10. Lord C. Autism: from research to practice. Am Psychol. 2010; 26: 815–826.
11. Snyder SJ, Thompson M, Denison P. EnhanceFitness: a 20-year dissemination history. Front Public Health. 2014; 2: 270.
12. Edwards RW, Jumper-Thurman P, Plested BA, Oetting ER, Swanson L. Community readiness: research to practice. J Community Psychol. 2000; 28: 291–307.
13. Kostadinov I, Daniel M, Stanley L, Gancia A, Cargo M. A systematic review of community readiness tool applications: Implications for reporting. Int J Environ Res Public Health. 2015; 12: 3453–3468.
14. Stanley LR, Oetting ER, Plested BA, Edwards PJ, Thurman K, Kelly J, et al. Community Readiness for Community Change: Tri-Ethnic Center Community Readiness Handbook. 2nd editio ed.. Fort Collins, (CO): Tri-Ethnic Center for Prevention Research Sage Hall Colorado State University; 2014.
15. Oetting ER, Jumper-Thurman P, Plested B, Edwards RW. Community readiness and health services. Subst Use Misuse. 2001; 36: 825–843.
16. Jones DL, Settipalli S, Goins RT, Goodman JM, Hootman JM. Community readiness for adopting a physical activity program for people with arthritis in West Virginia. Prev Chronic Dis. 2012; 9: E70.
17. Gitlin LN, Czaja SJ. Behavioral Intervention Research: Designing, Evaluating, and Implementing. New York: Springer Publishing Company; 2016.
18. Lee L. The current state of public health in China. Annu Rev Public Health. 2004; 25: 327–339.
19. Tu H, Liao X, Schuller K, Cook A, Fan S, Lan G, et al. Insights from an observational assessment of park-based physical activity in Nanchang, China. Prev Med Reports. 2015; 2: 930–934.
20. Ying Z, Ning LD, Xin L. Relationship between built environment, physical activity, adiposity, and health in adults aged 46–80 in Shanghai, China. J Phys Act Heal. 2015; 12: 569–578.

Original Article

Healthy Universities. The development and implementation of a holistic health promotion intervention programme especially adapted for staff working in the higher educational sector: the ARK study

Siw Tone Innstrand[1] and Marit Christensen[2]

Abstract: Underpinned by the Healthy Universities settings concept, this paper presents a holistic intervention approach, called ARK, to improve the health and well-being of academic staff. ARK (a Norwegian acronym for work environment and climate study) has been conducted in 18 universities and university colleges in Norway. The survey has collected information on employees' perceptions of the psychosocial work environment, well-being, and health from over 15,000 respondents. Further, it has provided valuable information and experiences on organizational development processes on how to successfully implement a health-promoting intervention programme. The aim of this paper is to present the ARK project and provide suggestions on how to conduct a health-promoting intervention programme in a university setting based on the experience and knowledge acquired from ARK. This understanding can inform and inspire the planning of future Health Promoting University initiatives to meet the distinctive needs of its employees. (Global Health Promotion, 2020; 27(1): 68–76)

Keywords: Healthy University, health promotion, intervention, psychosocial work environment

Introduction

The Ottawa Charter for Health Promotion suggests that health is created and lived where people learn, work, play and love (1). Universities provide an ideal setting to promote health and well-being to students, staff and the wider community through their education, research, knowledge exchange and institutional practices. Although there has been a growing interest in applying a healthy settings approach within higher education, there is a lack of any formal programme for Healthy Universities (2) or guidelines on how to implement a healthy settings approach into practice within higher education (3). Moreover, since most health-related reviews, guidelines and policy documents (and hence health-related interventions and activities) within higher education have focused on students (2), we know less about how the health and well-being of the employees in higher education can be promoted. The health and motivation of workers is critical for universities and colleges to deliver a high-quality service (2). Building upon the Healthy Universities settings' line of thought, the aim of the present study is to present a holistic intervention approach, called ARK, aimed at improving the health and well-being among university employees.

Healthy Universities

The concept of Healthy Universities, sometimes also called Health Promoting Universities, addresses a healthy settings approach for higher education

1. NTNU Center for Health Promotion Research, Department of Public Health and Nursing, Norwegian University of Science and Technology, Trondheim, Norway.
2. Department of Psychology, Norwegian University of Science and Technology, Trondheim, Norway.

Correspondence to: Siw Tone Innstrand, NTNU Center for Health Promotion Research, Department of Public Health and Nursing, Norwegian University of Science and Technology, Håkon Jarls gate 11, Trondheim 7491, Norway. Email: siw.tone.innstrand@ntnu.no

(This manuscript was submitted on 29 November 2017. Following blind peer review, it was accepted for publication on 18 May 2018)

Global Health Promotion 1757-9759; Vol 27(1): 68–76; 786877 DOI: 10.1177/1757975918786877 journals.sagepub.com/home/ghp

institutions. Although not clearly defined, Healthy Universities aim to 'create a learning environment and organisational culture that enhances the health, well-being and sustainability of its community and enables people to achieve their full potential' (4). This implies not only a university defined by the absence of illness, but a community in which people can thrive and flourish (5).

There has been a growing interest in Healthy Universities as universities, policy-makers and stakeholder organizations recognize the beneficial impact of higher education on the health and well-being of students, staff and the wider community (2). In particular, the Healthy University approach has the potential of enhancing the quality, reputation and distinctiveness of the higher education 'market'. Other potential benefits are greater student recruitment, enhanced staff performance and productivity, and improved health among students and staff, leading to institutional and societal productivity and sustainability (2). In fact, a recent study conducted among Norwegian academic employees suggests that employee work engagement is related to productivity as measured by an increase in publication points on an aggregated level (6). Thus, in times when universities are increasingly exposed to market trends in which their economies are vital for a sustainable knowledge-based economy (5), a health promotion approach to universities is crucial.

In 1998, the World Health Organization (WHO) published a working document for Health Promoting Universities, suggesting important concepts, experiences and frameworks for action (7). Although this document raised awareness about the potential for Healthy Universities, it did not result in any formal programme (2). In general, knowledge on how to implement a Healthy University approach remains poorly documented (3). In a systematic review, Suárez-Reyes and Van den Broucke (3) identified nine intervention studies describing the implementation of the Health Promoting University concept. In these studies, the most common items of work targeted the health problems of young people, such as prevention of alcohol and drug abuse, mental health, healthy eating, sexual health, road safety, physical activity and smoking. Unfortunately, this limited understanding of health promotion strategies as initiatives that address behaviour risk factors only is also reflected in approaches to health promotion in general (8). Dooris et al. (5) argued that a 'pathogenic' perspective and a focus on health problems facing universities needs to be complemented by a more salutogenic perspective and research that focuses on strengthening positive health assets and potential. Elimination of the risk of illness and infirmity does not automatically ensure motivation. There is growing consensus that in order to help employees thrive and organizations survive, knowledge about both health impairment *and* motivational processes is required, as a healthy individual and a healthy culture are strongly and mutually connected to healthy profits for the organization. Building upon the theoretical framework of the Job Demand-Resources (JD-R) theory (9–11), the ARK Intervention Programme offers a holistic approach to Healthy Universities by targeting both obstacles and possibilities in the university sector. Moreover, in line with health promotion initiatives, it provides a bottom-up approach, 'enabling people to increase control over their health and its determinants, and thereby improve their health' (12).

ARK

ARK is a comprehensive plan for the investigation and implementation of interventions addressing the work environment in higher education. ARK is a Norwegian abbreviation for '*Arbeidsmiljø og klima undersøkelser*' (work environment and climate survey). The development of ARK was founded by the Norwegian Council for Higher Education and initiated by the four largest universities in Norway, who wanted to collaborate in order to make a common work environment survey specially adapted to the university sector and its challenges and needs.

The idea was that a common work environment survey promotes knowledge exchange and learning across universities and university colleges, and that by collecting data and storing these in a common database freely available for research, new knowledge and knowledge exchange arise. ARK has a steering committee to which academic and administrative personnel from several universities and university colleges contribute. A learning and experience conference is arranged annually for all parties involved.

Since 2011, 18 universities and university colleges have joined and used the ARK Intervention Programme, with survey responses from over 15,000 participants, and even more people participating in the intervention programme. Figures

from 2015 indicate that the sample was equally distributed across gender with 54% women and 46% men, and that age was distributed as follows: under 30 years, 9.8%; 30–39, 23.2%; 40–49, 27.2%; 50–59, 24.3%; and 60 years or older, 15.5%. About 38% had an academic position, 12% were doctoral research fellows, 45% were technical/administrative staff and 5% had a position as a leader. The ARK Intervention Programme and its corresponding KIWEST (Knowledge Intensive Work Environment Survey Target) questionnaire were translated and adapted to Swedish and implemented as a pilot study at a university college in Sweden in autumn 2017. The KIWEST questionnaire was also translated into English and Dutch.

Development of ARK

A work group, a steering group and a reference group with representatives from human resource management, scientific employees, organizational psychologists and practitioners, were created to develop a tool for systematic mapping of the psychosocial conditions that would: (a) cover the most important psychosocial working environment factors; (b) generate the basis for working environment interventions; (c) be adapted to the special characteristics of the university sector; and (d) satisfy the statutory requirement for systematic and documented Health, Environmental and Safety (HES) activities with psychosocial factors (13). The development of the KIWEST questionnaire was based on the outcome of these meetings, a literature review and qualitative interviews. It was determined that the questionnaire should be sector-specific, theory-driven and consist of previously validated measures. The KIWEST questionnaire was pilot tested on a small sample before a full survey with survey feedback was tested first at one faculty (n = 70), and then on a whole university (n = 5600). The final Intervention Programme was launched for the university sector's use in 2013 and consisted of: (a) the KIWEST questionnaire; (b) Fact Sheets I and II, giving key information about the unit size, etc., and a self-evaluation of the implementation process and actions completed; (c) structured guidelines for follow-up results from KIWEST and about how to conduct feedback meetings; and (d) the ARK Research Platform, a database for storing data from completed surveys.

The theoretical underpinning of ARK is the JD-R model (9–11), (see Figure 1). In short, the model states that health will be impaired when prolonged exposure to high psychosocial demands is paired with inadequate resources. Conversely, when adequate resources are provided in high-demanding work environments, work motivation increases and well-being improves (14,15). Thus, the ARK Intervention Programme focuses on both stresses and resources in the work environment and arranges for a participatory approach in which the employees discuss the pros and cons of their work environment and develop actions for what they would keep and improve based on the screening using the KIWEST questionnaire. More specifically, the implementation of the ARK Intervention Programme is divided into five phases as seen in Figure 2, which is inspired by the work of Nielsen et al. (16).

Implementation of ARK – the five phases

Phase I

The initial phase aims to prepare the organization for the implementation of ARK and the adaptation of its processes to the pertinent needs and issues of the individual organization. Risk assessment, distribution of responsibility and a collaborative progress plan are created. As suggested by many studies and as experienced during the ARK implementation, good anchoring and readiness for change in management, as well as well-defined goals, good communication routines, and 'progress plans' are highly crucial for the process to be successful (16, 17). For example, a promotional video of the ARK Intervention Programme made by faculty management in one of the universities was sent to all employees by email, which increased the response rate significantly. As part of the preparation, Fact Sheet I is sent to all unit managers and filled in by the manager in co-operation with a safety representative.

Phase II

The KIWEST measure plays an essential part in the screening phase and is specially adapted to the job demands and resources of academics. The psychometric properties of the measure have proved to be valid and reliable (18). A set of standard analyses (e.g. average scores) is calculated for each defined organizational unit (e.g. faculty, department,

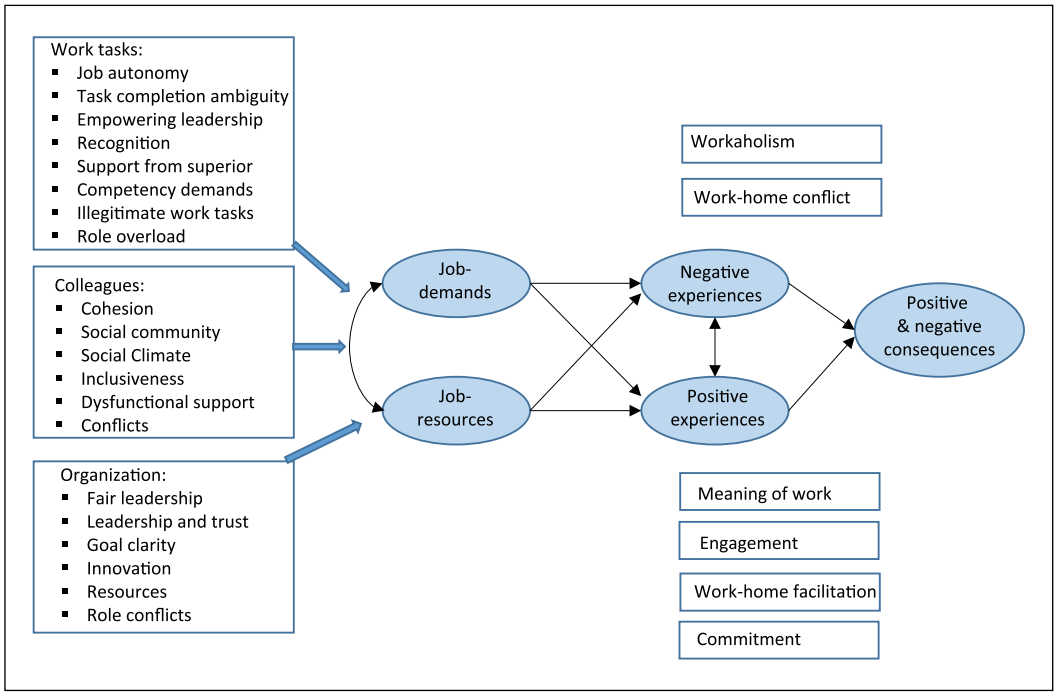

Figure 1. KIWEST and the JD-R model (13 p. 8).

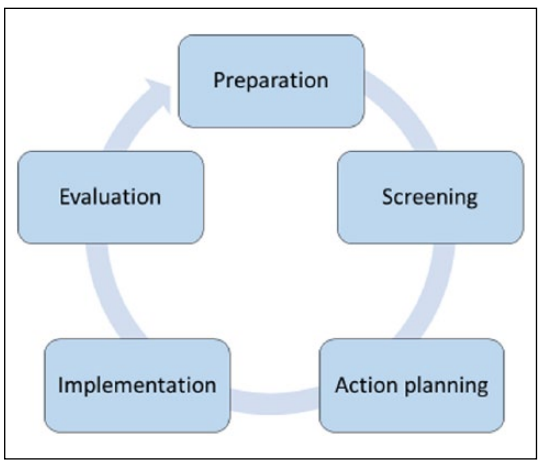

Figure 2. The five phases of an ARK process.

section) by representatives at ARK and given in a report to each unit. Figures from this report are presented at feedback meetings for all the staff at each unit by a process facilitator. This process facilitator can be the unit manager, a human resource representative at the university or an externally trained facilitator. This varies between units and across different universities, but needs to be determined in the preparation phase. A short film explaining the theoretical background (the JD-R model) is made in English and Norwegian (see Supplementary materials below) to facilitate these feedback meetings. All data are stored in a common and made freely available for research. This research and these findings provide feedback to the ARK Intervention Programme on how to enhance the health and well-being of its community, and hence its sustainability.

Phase III

The results from the survey are presented in survey feedback meetings, where they are interpreted and discussed by the employees. The employees are asked to identify three things they are satisfied with and would like to preserve, and three things that can be improved. After prioritizing these different needs,

they are asked to develop appropriate interventions. Initial experience indicates that these actions most often are concerned with improving information and communication systems, organization of work/work tasks and meetings, career development and skill enhancement, or fostering social support and relationships.

Phase IV

To secure the implementation of actions, it is recommended that the action plans and the progression are communicated and discussed. A clear deadline should be set for when actions are to be completed and by whom. In this phase, the responsibility for further implementation of the ARK Intervention Programme should be transferred from the process facilitator to the unit's management, if the process facilitator running the feedback meeting was someone other than the unit manager.

Phase V

Finally, to evaluate the whole process and complete the follow-up processes, Fact Sheet II, an electronic questionnaire, is distributed to all unit managers. Fact Sheet II is answered by the manager in collaboration with the safety representative, and involves a self-evaluation of the implementation process and actions completed in the ARK Intervention Programme. All information from the processes and experiences of the unit managers and other associates is gathered to further improve the ARK Intervention Programme. The written evaluation and the experiences are an essential part of the preparation phase the next time the Intervention Programme is to be conducted. The ARK process is repeated at regular intervals of two or three years, and the work on the psychosocial work environment should be systematic and continuous. For more information, see The ARK Intervention Programme: Who – What – How (13).

Discussion

Despite a growing interest in the Healthy University approach, there is a lack of literature on the content of a Healthy University and how to implement such an approach into practice. The present paper responds to this need by describing the implementation of the ARK Intervention Programme, sharing experiences and discussing the potential of ARK as a Healthy University initiative. The following discussion aims to frame the ARK Intervention Programme in light of existing knowledge and previous suggestions on how to implement a Healthy University, such as the need for cultural tailoring, expected beneficial outcomes and potential.

In a systematic review on the implementation of a Health Promoting University, Suárez-Reyes and Van den Broucke (3) argued for the need for cultural tailoring or adaptation to local culture. Cultural differences relate not only to different countries or institutions but might also be found between different departments and research groups within universities at the local level. This cultural adaptation may be applied both superficially by adjusting language and using familiar images, and more profoundly through the recognition of the culture and the reinforcement of values, beliefs and behaviours. Whereas the former are assumed to improve the acceptance of the programme, the latter may influence its effectiveness (3). On one hand, in the ARK Intervention Programme, superficial cultural adaptations are ensured by tailoring the KIWEST questionnaire to the university culture and language. Profound cultural adaptations, on the other hand, are achieved by relying on the bottom-up process of the interpretation of the survey results and the development of actions. In general, it has been argued that the success of the implementation of a Healthy University programme is the result of the alignment of a top-down commitment by the university authorities with bottom-up action (3). This is consistent with the experience from the ARK project. A steering group with representatives from different universities and colleges, as well as the active involvement of a reference group in planning, implementation and evaluation have been the factors ensuring the successful adaptation of and commitment to the ARK Intervention Programme in each institution and department. The ARK Intervention Programme offers a tool and a theoretical framework which each university and college adapted to their culture and needs. In ARK, the implementation of the intervention programme requires different actions: some train their own human resource representatives to arrange the feedback meetings, while others train their leaders or hire consultants to support the feedback processes.

Nevertheless, the goal of the ARK programme is to empower the members of the community to embrace health and a healthy work environment in their daily lives and practices. Statements such as 'this has given us a tool and framework affording us the opportunity to talk about our work environment and guiding us in how to do so' indicate it is not only what comes out of the intervention but also the processes in which the employees participate and take responsibility for their own working environment that are important. Moreover, the positive approach and focus of resources (as opposed to what is wrong and not working) is pointed out by many to be a more suitable approach to target the work environment. The evaluation at the local level is done by reviewing Fact Sheet II. This ensures continuity and a commitment to the follow-up process. Thus, the ARK Intervention Programme is made for and by the university sector and aims to improve the health and well-being of the employees of universities and university colleges by means of a bottom-up approach. This aligns with the concept of a health promotion initiative, but does the implementation of ARK promote health?

The conceptual framework of Healthy Universities suggests that the expected outcomes or the result of an implementation programme should be demonstrated by: (a) the integration of health in the culture, structures and processes of the university; (b) the improvement of the health of its members; and/or (c) the improvement of service, academic performance and conditions for good health (3). The ARK Intervention Programme touches upon these three facets. First, embedded in the Norwegian Health and Safety at Work Act, ARK is a response to the Labour Inspection Authority requirement to address psychosocial work environment factors through systematic interventions. The use of the JD-R model has created a common awareness of health within universities as more than the absence of illness. The positive focus on possibilities and how to enhance resources to create motivated and engaged employees has been a way of thinking about the work environment appreciated by universities. Secondly, regarding whether or not ARK has improved the health of its members, it has been argued by many researchers that the effectiveness of workplace interventions cannot be assessed by looking only at final outcomes, such as health. A more feasible approach is the combination of an effect evaluation, with an evaluation of the processes of the intervention (17, 19–21). By using the RE-AIM framework to assess the public health impact of health promotion interventions, Glasgow *et al.* (22) argued that dimensions such as reach, adoption and implementation are especially crucial in evaluating programmes intended for wide-scale dissemination. Currently, Fact sheets I and II in the ARK Intervention Programme give key information about the unit size, etc., and a self-evaluation of the implementation process and actions completed. However, to understand what works for whom in which circumstances, ARK is currently developing a tool for helping leaders with the implementation process as well as assessing the process as perceived by the employees; this is inspired by the work of Randall *et al.* (23). Finally, Suárez-Reyes and Van den Broucke (3) assess improvement of services, academic performance and conditions for good health in the evaluation of the effectiveness of an intervention programme pertaining to Healthy Universities. In general, investment of human capital has proven to be beneficial for organizational outcomes. For example, recent findings from ARK suggest that perceived inclusiveness in academia is positively related to organizational commitment, work engagement and improved work–life balance (24). Similarly, by using data from ARK, Christensen *et al.* (6) found work engagement to be related to productivity as measured by an increase in publication points on an aggregated level. This is valuable knowledge as there is a lack of studies on productivity benefits related to psychological aspects in the work environment. As ARK has a focus on the beneficial aspects of the psychosocial work environment and on how to preserve and improve these resources, there is reason to believe that the programme will beneficially affect academic performance in years to come. So, what is the potential of ARK?

Exploring the potential for a national Healthy University programme, Dooris and Doherty (2) found that the two most frequently highlighted perceived benefits related to such a programme would be (a) the potential for increased networking and learning from others, and (b) the provision of an accepted common baseline, a national standard or standardized approach. A conference for people involved in the implementation of the ARK Intervention Programme is arranged annually.

Building upon different topics related to the implementation process (see Figure 2), interactive workshops and related lectures are provided for knowledge exchange and further development of ARK. The use of ARK outside of Norway also allows the possibility for international comparisons and knowledge exchange across countries. Moreover, in reference to creating Healthy Universities, it has been suggested that gaining a better understanding of what works, for whom and in which contexts, is required, and more research and evaluation to create benchmarking data are needed (2). ARK does provide such benchmarking data by collecting all data from participating universities and university colleges in a common database, freely available to all researchers who want to research the psychosocial work environment in universities or explore the implementation of health promotion interventions in academia. The ARK Intervention Programme is usually conducted annually and will be scaled up and provide longitudinal data in the future.

Is ARK compliant with the Healthy University objectives? The answer is yes and no. At a systemic level, ARK has managed to integrate health and the awareness of a healthy work environment within the university culture. It is carefully adapted to the culture of the university both in the development of the questionnaire and in the implementation of the interventions. The continuity of the ARK process and the integration of ARK within most of the largest universities and colleges in Norway, with knowledge exchange and learning across institutions, creates a platform for networking and a common tool and a national standard for Healthy Universities. The empowerment and training of the universities to use the ARK Intervention Programme promotes involvement, commitment and continuity. Another objective of the Healthy University approach is the improved health and well-being of its members. This can be easily evaluated by exploring change in important indicators, such as engagement, meaning, commitment and health within the KIWEST questionnaire after the implementation of an action. However, changes in the university structure both at a national level (e.g. political decisions and regulations) and locally (e.g. merging processes) might affect the health and well-being of the employees as well, and are hard to control for. A better approach is to combine such measures with a process evaluation. Thus, we advise the participants not to pay too much attention to actual figures and instead use ARK as a guiding tool and a way of discussing their work environment with colleagues. Integrating and improving health within the university culture, as with any other culture, is a long-term process in which results cannot be immediately observed.

However, if compliance with the Healthy University objectives implies a whole university approach that involves students, employees and the wider community, ARK does not respond to this criterion directly as it currently targets the staff. Yet the indirect effect of a healthy and productive staff would affect the students and the wider community as well. Nevertheless, ARK could be easily adapted to the learning environment of the students and its systematic approach would benefit the wider community, as suggested by Stanton et al. (25). We are currently collaborating on a student survey with Healthy Workplaces at UC Berkeley with the aim of creating a whole university approach for Healthy Universities. Such a psychosocial approach should also be complemented by knowledge of how the physical environment might benefit the working, living and learning environments at universities. The extension of such knowledge and research could contribute to the health and sustainability of the wider community, in line with the aims of a Healthy University approach (2).

Conclusion

Healthy Universities is an ambiguous and broad concept consisting of many aspects that need to be adressed before it becomes a tangible reality. ARK offers a systematic approach on how to implement interventions in a university setting by using a bottom-up strategy, empowering the university to take action and take responsibility for its members' health and well-being. So far, the strength of the use of ARK lies in the following: (a) it utilizes a theoretical model that illustrates the associations between variables and enables the possibility to analyse and plan for actions; (b) it is sector-specific; (c) it has a salutogenic perspective focusing on strengthening positive health assets and potential; (d) it provides a systematic approach to the implementation process; (e) it is in line with health promotion initiatives as it uses a bottom-up

approach; (f) it provides sector-specific reference data (benchmarks); and (g) it establishes a safe and structured communication channel in the work environment and an awareness of the psychosocial work environment. With these strengths ARK might serve a pioneering example of good practice for other institutions that want to place the health and well-being of their employees on their agenda. It is hoped that the present study will stimulate health-promoting initiatives and encourage more research and practices related to Healthy Universities for the future.

Conflict of interest

The authors declare that there is no conflict of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Supplementary materials

ARK webpage: https://www.ntnu.no/ark (most material in Norwegian, some English material)
ARK the film: https://www.youtube.com/watch?v=7SpNwY7gobU&index=2&list=PLUHTGp7T4Zn8yPeDpg2cba64KOPlahKzH

ORCID iD


Siw Tone Innstrand https://orcid.org/0000-0002-8132-962X

References

1. World Health Organization. Ottawa Charter for Health Promotion. Geneva: World Health Organization; 1986.
2. Dooris M, Doherty S. Healthy Universities – time for action: a qualitative research study exploring the potential for a national programme. Health Promotion Int. 2010; 25: 94–106.
3. Suárez-Reyes M, Van den Broucke S. Implementing the Health Promoting University approach in culturally different contexts: a systematic review. Glob Health Promot. 2015; 23(Suppl 1): 46–56.
4. healthyuniversities.ac.uk [Internet]. Lancashire: The University of Central Lancashire and Manchester Metropolitan University [cited 2017 Nov 29]. Available from: www.healthyuniversities.ac.uk.
5. Dooris M, Doherty S, Orm J. The application of salutogenesis in universities. In: Mittelmark MB, Sagy S, Eriksson M, Bauer GF, Pelikan JM, Lindstrøm B, et al. (eds). The Handbook of Salutogenesis. Cham: Springer; 2017, pp.237–245.
6. Christensen M, Dyrstad JM, Innstrand ST. Academic work engagement, resources and productivity: empirical evidence with policy implications. *Studies in Higher Education* 2018; 1–14. DOI: 10.1080/03075079.2018.1517304.
7. Tsouros A, Dowding G, Thomson J, Dooris M. Health Promoting Universities [Internet]. Copenhagen: WHO Regional Office for Europe; 1998 [cited 2017 Nov 27]. Available from: http://www.euro.who.int/__data/assets/pdf_file/0012/101640/E60163.pdf.
8. Chu C, Breucker G, Harris N, Stitzel A, Gan X, Xueqi G. Health promoting workplaces: international settings development. Health Promot Int. 2000; 15: 155–167.
9. Bakker AB, Demerouti E. The job demands-resources model: state of the art. J Manage Psychol. 2007; 22: 309–328.
10. Bakker AB, Demerouti E. Job demands-resources theory. In: Chen PY, Cooper CL (eds). Work and Wellbeing: Wellbeing: A Complete Reference Guide. Chichester, UK: Wiley-Blackwell; 2014, pp.37–64.
11. Bakker AB, Demerouti E. Job demands–resources theory: taking stock and looking forward. J Occup Health Psychol. 2017; 22: 273–285.
12. World Health Organization. The Bangkok Charter for health promotion in a globalized world. Health Promot J Austr. 2005; 16: 168–171.
13. Undebakke KG, Innstrand ST, Anthun KS, Christensen M. ARK. The ARK intervention Programme. Who-What-How. Series of reports from the center for health promotion research Hist/NTNU. Report 2015/01; 2014.
14. Innstrand ST, Langballe EM, Falkum E. A longitudinal study of the relationship between work engagement and symptoms of anxiety and depression. Stress Health. 2012; 28: 1–10.
15. Fredrickson BL, Losada M. Positive affect and the complex dynamics of human flourishing. Am Psychol. 2005; 60: 678–686.
16. Nielsen K, Randall R, Holten A-L, González ER. Conducting organizational-level occupational health interventions: what works? Work Stress. 2010; 24(3): 234–259. DOI: 10.1080/02678373.2010.515393.
17. Nielsen K, Randall R. The importance of employee participation and perception of changes in procedures in a teamworking intervention. Work Stress. 2012; 26: 91–111. DOI: 10.1080/02678373.2012.682721.
18. Innstrand ST, Christensen M, Undebakke KG, Svarva K. The presentation and preliminary validation of KIWEST using a large sample of Norwegian university staff. Scandinavian J Public Health. 2015; 4: 855–866.
19. Abildgaard JS, Saksvik PØ, Nielsen K. How to measure the intervention process? An assessment of qualitative and quantitative approaches to data collection in the process evaluation of organizational interventions. Front Psychol. 2016; 7: 1–10. DOI: 10.3389/fpsyg.2016.01380.
20. Nielsen K, Randall R. Opening the black box: a framework for evaluating organizational level

occupational health interventions. Eur J Work Organ Psychol. 2013; 22: 601–617.
21. Nielsen K. Organizational occupational health interventions: what works for whom in which circumstances? Occup Med. 2017; 67: 410–412. DOI: https://doi.org/10.1093/occmed/kqx058.
22. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. Am J Pub Health. 1999; 89:1322–1327.
23. Randall R, Nielsen K, Tvedt SD. The development of five scales to measure employees' appraisals of organizational-level stress management interventions. Work Stress. 2009; 23: 1–23.
24. Innstrand ST, Christensen M, Grødal K. *Inclusiveness - a prerequisite for a sustainable work life in the future?*. Institute of Work Psychology International Conference 2018. Work Psychology: Shaping the future; 2018-06-19 - 2018-06-21.
25. Stanton A, Chernenko V, Dhaliwal R, Gilbert M, Goldner EM, Harrison C, et al. Building healthy campus communities: the adaptation of a workplace tool to understand better student well-being within higher education settings. Educ Health. 2013; 31: 84–90.

Effectiveness of a school-based mental health education program in an impoverished urban area of Peru

Ha Yun Kim[1,2], Eun Woo Nam[1,2], Ki Nam Jin[2] and Ae Young So[3]

Abstract: This study aimed to evaluate the effectiveness of a school-based mental health education program in preventing adolescent suicide attempts in an impoverished urban area in Peru, as part of an Official Development Assistance project by the Korea International Cooperation Agency. The PRECEDE-PROCEED model informed the effectiveness study. In this intervention, the participants were first to fifth grade students in public secondary schools. The pre-post intervention survey was conducted with a stratified random sampling method. A sample of 768 and 738 students in experimental and control groups was analyzed comparatively, using chi-squared tests and logistic regression. This study found that the program had a positive effect on adolescent mental health-related risk behaviors and suicide attempts in the experimental group compared to the control group. Thus, the intervention may have helped prevent the increase in mental health-related risk behaviors and suicide attempts. Further, parental affection, when included in the intervention, had a significant effect on suicide attempts. As such, the involvement of parental affection in the intervention might be effective in preventing suicide attempts. To enhance the effectiveness of interventions aiming to prevent adolescent suicide, the participation and attention of parents, as well as adolescents, must be encouraged. Further, to maintain the effectiveness of the intervention and expand coverage to other schools in the neighborhood, a strategy for project sustainability is needed, particularly with regards to capacity-building in schools and communities. (Global Health Promotion, 2020; 27(1): 77–86)

Keywords: health education, Korea International Cooperation Agency (KOICA), mental health, Official Development Assistance, Peru, PRECEDE-PROCEED, school health, suicide

Introduction

Adolescents experience significant physical and mental transformations at both individual and social levels. These changes are especially important among low- and middle-income countries, as 90% of children and adolescents live in these countries (1,2). Adolescent suicide and mental health issues, including depression, bipolar disorder, and panic disorder, are cited as major causes of ill health among adolescents in both low- and middle-income countries, as well as in high-income countries (3). The prevalence of mental health problems among adolescents in low- and middle-income countries is 10–20%, which is similar to that of high-income countries (2,4,5). Further, the risk factors for mental disorders identified in low- and middle-income countries are similar to those found in high-income countries (2). Despite such high rates, most adolescents in low-income countries do not receive adequate mental health services, adding to the

1. Yonsei Global Health Center, Yonsei University, Wonju, Republic of Korea.
2. Department of Health Administration, College of Health Sciences, Yonsei University, Wonju, Republic of Korea.
3. Department of Nursing, Gangneung-Wonju National University, Wonju, Republic of Korea.

Correspondence to: Eun Woo Nam, Yonsei Global Health Center, Yonsei University, 1 Yonseidae-gil, Wonju-City, Gangwon-Do, 26493, Republic of Korea. Email: ewnam@yonsei.ac.kr Tel.: +82-33-760-2413; Fax: +82-33-760-2519

(This manuscript was submitted on 17 September 2017. Following blind peer review, it was accepted for publication on 21 May 2018)

Global Health Promotion 1757-9759; Vol 27(1): 77–86; 786728 DOI: 10.1177/1757975918786728 journals.sagepub.com/home/ghp

broadening gap between the needs and availability of resources for such services (2,6). Peru has seen a high prevalence of suicide attempts and suicidal ideation, particularly in its impoverished urban areas (7). In a pre-intervention survey in 2014, Peru's impoverished areas showed a prevalence of 6.3% in suicide attempts, which is higher than the national average of 5.9%. Similarly, these impoverished areas have a prevalence of suicidal ideation of 25.7%, which is higher compared to the national average of 20.5% (7,8). Many existing studies (9–12) have sought to identify the factors related to adolescent suicidal behavior. However, most have been conducted in high-income countries. Intervention programs in low- and middle-income countries therefore merit further investigation.

The government of the Republic of Korea received an ODA (Official Development Assistance) request from the government of the Republic of Peru for a health promotion program in an impoverished urban area. The project locations are adjacent to the capital Lima, but the Korea–Peru health center was built in an impoverished area at the request of the Peruvian government in order to improve health care. This area was found to have an urgent need for a medical facility to improve its poor medical services, particularly since it continues to see a rapid growth in population (13). Accordingly, the Korea International Cooperation Agency (KOICA), the Ministry of Health of Peru and the regional government of Callao of Peru collaborated on the development of a health promotion program in North Lima and Callao (2013–2017). The Yonsei University, as a project management consultant, received funds from KOICA and dispatched experts to Peru to implement the program. The health promotion program includes a school health promotion program particularly focused on mental health (14).

One advantage of the familiar setting of school for the provision of mental health services is that students and families avoid the stigma and intimidation they may feel when they go to unfamiliar, and perhaps less culturally compatible mental health settings:

> Moreover, schools have a wealth of opportunities to acquire information on how children deal with physical and social stresses and challenges and on how they perform in the academic setting, on community-related roles in which children engage, and on the nature and extent of many sorts of interpersonal relationships (15).

KOICA's health promotion program remains significant as it serves as a guide and tool for the prevention of adolescent mental health problems based on the school environment. This program was designed to be evaluated and to report progress annually during the implementation period (14). It was carried out with the main goal of preventing adolescent suicidal behavior. The current study assessed the data on suicide attempts as well as the effectiveness of this particular program and its influential components.

This study aimed to evaluate the effectiveness of a school-based mental health education program in impoverished urban areas in Peru. First, the study assessed social, epidemiological, behavioral, environmental, educational, ecological, administrative and policy components to gauge the mental health status of adolescents. Second, through process, impact and outcome evaluations, it aimed to analyze the effectiveness of the intervention on adolescent suicide attempts.

Methods

Research design

The PRECEDE-PROCEED model informed the intervention(16) as shown in Figure 1 (supplementary material). This study was designed based on the guidelines set by the Transparent Reporting of Evaluations with Non-randomized Designs (TREND) group. The TREND guidelines were developed to increase transparency in reporting non-randomized trials through systematization (17).

Intervention

The project team of KOICA–Yonsei conducted a pre-intervention survey and identified mental health needs. The results of the pre-intervention assessment in adolescents show that suicide attempts, suicidal ideation, and health risk behaviors such as drug use, high-risk sexual behavior, and physical abuse, and feelings of intimidation and humiliation, were more common. There was also a lack of closeness between parents and children. The project team then developed the school-based mental health education intervention based on the findings. Therefore, this intervention was carried out with the main goal of preventing adolescent suicidal behavior and reduce its risk factors.

Accordingly, this intervention consisted of mental health, smoking, drinking and drug use prevention and sexual education for students. Moreover, parents play an important role in the health behavior of their children, so health education sessions for parents and family workshops were conducted. This intervention was openly explained to all parents and/or guardians.

The final version of the intervention was assessed by the technical committee, which consisted of stakeholders at KOICA, Yonsei University, the Pan American Health Organization, the Ministry of Health of Peru and the Ministry of Education of Peru. The main roles of the technical committee were to develop and monitor the program and make decisions about further actions during meetings. Finally, the intervention was implemented across public secondary schools between March and November 2015. The proportion of parents participating was about 50%. All parents were welcome to participate.

Participants

In this intervention, the target participants were all grade 1–5 students in public secondary school. The project team of KOICA–Yonsei visited 17 public secondary schools in the areas of Comas and Callao for the selection of schools. Schools were excluded if they already had mental health education programs or if they did not want to participate in such a program. In the end, four schools were assigned to the experimental group and two other schools were selected to be part of the control group. The sample size of the experimental group was 2144 students, distributed amongst 64 classrooms. The sample size of the control group was 2078 students, distributed amongst 84 classrooms. However, because a census was not conducted due to time and financial constraints, a stratified random sampling with replacement was carried out for 4222 students (six schools). The stratified units (classrooms) were set by the school. Students in each stratification (classroom) were selected through a simple random sampling for gender and random stratification was used to select the study sample. The sample was probabilistic, two-stage, and independent in each school area. In the first-stage sampling (classroom selection), a systematic sampling, with a probability proportional to the size of students, was used. In the second stage (student selection), a simple random sampling was carried out. To calculate the sample size, the formula used by the National Commission for Development and Life without Drugs in 'The 4th National Survey: Drug Use and Prevention of Students in Secondary School (2012)' was adopted and validated by the National Institute of Statistics and Informatics of Peru.

There was sample loss during the survey period, so the number of samples for the pre-assessment in 2014 and post-assessment in 2015 surveys is not the same. Finally, a sample of 768 students in 2014 (381 in the experimental group and 387 in the control group) and 738 students in 2015 (379 in the experimental group and 359 in the control group) was analyzed (Table 1-supplementary material). The sample calculation program, G*Power 3.1 (18), was used to confirm the appropriate sample size for the analyses of this study, following the sample calculation formula, and then Cohen's Priori Power Analysis method (19) was applied. Under the conditions of probability = 0.05, power = 0.95, and odds ratio = 1.5, the optimal sample size calculated was 417; therefore, our sample of 738 participants was deemed suitable for testing the logistic regression model.

Scales of measurement

Questionnaire. A self-administered structured questionnaire was developed based on the 2010 Global School-based Student Health Survey in Peru and the World Health Organization (WHO) Global School-based Student Health Survey Questionnaire Modules (3,20). The Global School-based Student Health Survey questionnaire is a self-administered questionnaire that assesses risk factors and protective factors related to adolescents' behavior. The questionnaire was adopted after being reviewed by the Ministry of Health of Peru, the Pan American Health Organization and the KOICA Peru office from July to September 2014. Both questionnaires have been adopted by the WHO and have been used in many countries globally. The questionnaire was modified and translated into Spanish so that the information could be collected from the students in their native language. The questionnaire comprised 180 questions.

Variables

A total of 35 variables were measured in the analysis. The independent variables included general

characteristics, health knowledge, program satisfaction, predisposing, reinforcing and enabling factors, behavioral and environmental factors, and psychological factors. In the reinforcing factors of the independent variable, the operational definition of parental affection refers to how often parents expressed their love for their child during the last 30 days. The scale was divided into 'always', 'almost always', 'sometimes', 'rarely', and 'never'. The dependent variable was a reported suicide attempt. Participants were asked about suicide attempts during the past year, to which they responded with either 'yes (0)' or 'no (1)'.

Data collection

The pre-intervention survey was conducted from the 27th to the 31st of October, 2014, and the post-intervention survey was conducted after the completion of the intervention from the 25th to the 30th of November, 2015. The pre- and post-intervention surveys were conducted after obtaining an informed consent from the students and their parents or guardians. The students filled out the self-administered questionnaires. All data were treated as anonymous.

Analytical method

The data analysis was carried out using the statistical package SPSS WIN 21.0, in which a *p*-value of less than 0.05 was considered statistically significant. A chi-squared test was conducted to test homogeneity between the experimental and control groups. The differences in predisposing, reinforcing and enabling factors, behavioral and environmental factors, mental health status, and suicide attempts between the experimental and control groups were compared using the chi-squared test. A logistic regression was performed for two purposes. The first was to compare the size of the change in suicidal behavior across the experimental and control schools, according to the 'participation in the program' variable, with the experimental group coded as '1' and the control group as '0'. The second was to assess whether psychological, environmental, behavioral, reinforcing, and enabling factors in the PROCEED model influenced suicide attempts. The fit of the model was tested using the Hosmer and Lemeshow test. The logistic regression model in this study was proven to be a good fit, as the *p*-values were above 0.05.

Test of homogeneity

To check for significant differences between the experimental and control groups before the intervention of the school-based mental health education program, a test of homogeneity was conducted. The results of the analysis showed that there was no significant difference in general characteristics, predisposing, reinforcing, enabling, behavioral, environmental, psychological factors, and suicide attempt factors between the experimental and control groups. Thus, the groups were judged as homogenous (Table 2-supplementary material).

Ethical considerations

This study was reviewed and approved by the Institutional Review Board (IRB) of Yonsei University (1041849-201410-BM-048-02). It was approved by the IRB (2014.10.17) of the Regional Health Directorate of Callao State Government in Peru. The IRB review and approval was also renewed annually from Yonsei University and the Direcciones Regionales de Salud Callao state government. Prior consent was obtained from each school administration and parents or guardians. Informed consent was obtained from individual participants. An anonymous questionnaire was used.

Results

Effectiveness of program on predisposing, reinforcing, and enabling factors

Predisposing factors were compared among those who participated in the program and those who did not participate. There was a significant difference in the stage of behavior change in terms of smoking (χ^2 = 24.92, p = <0.001), alcohol consumption (χ^2 = 20.62, p = <0.001), and contraception (χ^2 = 8.52, p = 0.036). There were significant differences in the reinforcing factors, including the number of close friends (χ^2 = 10.26, p = 0.006) and the level at which parents are understanding (χ^2 = 8.56, p = 0.014). Among the enabling factors, significant differences were found in the experience of acquiring information regarding smoking (χ^2 = 5.06, p = 0.024), drug use (χ^2 = 13.26, p = <0.001), and sexual behavior (χ^2 = 5.63, p = 0.060) (Table 3-supplementary material).

Effect of program on behavioral and environmental factors

The behavioral factors of participants and non-participants of the school-based mental health education program were compared, and significant differences were found in terms of history of smoking (χ^2 = 11.54, p = 0.001), current smoking (χ^2 = 10.32, p = 0.001), history of drug use (χ^2 = 7.45, p = 0.006), and history of high-risk sexual behavior (χ^2 = 8.53, p = 0.003). Among the environmental factors, significant differences were found in the experience of feeling intimidated or humiliated (χ^2 = 9.63, p = 0.008) (Table 3-supplementary material).

Effect of program on psychological factors

The Psychological factors of participants and non-participants in the school-based mental health education program were compared. There were significant differences in terms of depression (χ^2 = 4.44, p = 0.035), self-rated health (χ^2 = 11.68, p = 0.003) and subjective happiness (χ^2 = 9.36, p = 0.009) (Table 3-supplementary material).

Effect of program on suicide attempts

In order to analyze the factors affecting suicide attempts, the related variables were classified. In Model 1, the effects of the program experimental group and the control group on suicide attempts were examined. In Model 2, psychological factors (depression, self-rated health, and subjective happiness) were added to the group classification presented in Model 1 to see the effect on suicide attempts. In the case of Model 3, in addition to the variables identified as influential factors in Model 2, environmental factors (physical abuse, feelings of intimidation or humiliation physical violence between parents), which are considered to affect suicide attempts were added. In the case of Model 4, we analyzed further by adding behavioral factors (smoking history, alcohol consumption history, illicit drug use history, high-risk sexual behavior, involvement in fights). In Model 5, we analyzed the extent to which suicide attempts were affected, including reinforcing factors (number of close friends, parents are understanding, time spent with parents, parental affection) and enabling factors (information acquisition, academic performance). Table 1 shows that in model 1, students who did not participate in the intervention experienced more suicide attempts (odds ratio (OR) = 1.77, 95% confidence interval (CI) = 1.18–2.68, p = 0.006). Participation in the program did not have a significant effect in model 4, but when parental affection (OR = 3.21, 95% CI = 1.54–6.68, p = 0.002) and gender (OR = 3.02, 95% CI = 1.58–5.77, p = 0.001) were added to model 5, it again had a significant effect on suicide attempts (OR = 1.86, 95% CI = 1.06–3.27, p = 0.031). Moreover, Table 1 shows that psychological, environmental, behavioral, reinforcing, and enabling factors influence suicide attempts. In model 5, the results showed that the experience of depression (OR = 2.30, 95% CI = 1.25–4.23, p = 0.007), subjective happiness (OR = 3.36, 95% CI = 1.50–7.51, p = 0.003), history of smoking (OR = 3.25, 95% CI = 1.65–6.40, p = 0.001), history of high-risk sexual behavior (OR = 2.40, 95% CI = 1.22–4.71, p = 0.011), involvement in fights (OR = 1.47, 95% CI = 1.26–1.85, p = 0.014), parental affection (OR = 3.21, 95% CI = 1.54–6.68, p = 0.002), and gender (male) (OR = 3.02, 95% CI = 1.58–5.77, p = 0.001) had a significant impact on suicide attempts.

Discussion

This study examined the effectiveness of the school-based mental health education program implemented through KOICA's ODA program in an impoverished area of Peru. It found that the program had a positive effect on adolescent mental health-related risk behaviors and suicide attempts in the experimental group compared to the control group. This indicates that the intervention may have helped prevent an increase in mental health-related risk behaviors and suicide attempts in adolescents. According to the outcome evaluation, the intervention program was effective in decreasing suicide attempts. The proportion of students with a reported suicide attempt was 11.6% among the experimental group and 18.9% in the control group. Participants were sorted into groups according to their suicide risk based on the number of suicide attempts made. The results showed that 6.3% of those in the experimental group were sorted into the high-risk group, and 8.1% of those in the control group were sorted into the high-risk group. This is similar to the results of a

Table 1. Influencing factors of suicide attempt after the program.

Category			*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
			OR (95% CI)	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*
Participation in the program		Experimental group	1	1	1	1	1
		Control group	1.77 (1.18–2.68)**	0.65 (0.42–1.01)	0.62 (0.40–0.98)*	0.74 (0.45–1.19)	1.86 (1.06–3.27)*
Psychological factors	Depression	No		1	1	1	1
		Yes		4.51 (2.66–7.66)***	3.31 (1.91–5.73)***	2.81(1.59–4.96)***	2.30 (1.25–4.23)**
	Self-rated health	Good		1	1	1	1
		Normal		1.11 (0.53–2.32)	0.91 (0.41–2.00)	0.84(0.36–1.95)	0.76 (0.30–1.92)
		Poor		1.51 (0.62–3.65)	1.21 (0.48–3.04)	1.14(0.43–3.02)	0.89 (0.29–2.65)
	Subjective happiness	Happy		1	1	1	1
		Normal		3.21 (1.71–5.99)***	2.64 (1.37–5.12)**	3.27(1.62–6.61)**	2.81 (1.30–6.09)**
		Unhappy		4.12 (2.13–7.97)***	3.17 (1.59–6.29)**	3.54(1.70–7.35)**	3.36 (1.50–7.51)**
Environmental factors	Physical abuse	No			1	1	1
		Yes			1.43 (0.89–2.28)	1.14 (0.69–1.90)	1.06 (0.61–1.84)
	Feel intimidated or humiliated	Never			1	1	1
		1–2 times			1.20 (0.59–2.45)	1.25 (0.59–2.64)	1.00 (0.44–2.26)
		More times			1.55 (0.82–2.90)	1.56 (0.79–3.05)	1.27 (0.61–2.64).
	Physical violence between parents	No			1	1	1
		Yes			2.10 (1.22–3.64)**	2.10 (1.20–3.69)**	1.72 (0.94–3.14)
	Verbal violence between parents	No			1	1	1
		Yes			1.23 (0.70–2.15)	1.10 (0.62–1.95)	1.16 (0.63–2.13)
Behavioral factors	Smoking history	No				1	1
		Yes				2.56 (1.40–4.67)**	3.25 (1.65–6.40)**
	Alcohol consumption history	No				1	1
		Yes				0.99 (0.55–1.77)	0.85 (0.44–1.62)
	Illicit drug use history	No				1	1
		Yes				1.17(0.55–2.45)	1.41(0.62–3.23)
	High-risk sexual behavior history	No				1	1
		Yes				1.68 (0.93–3.02)	2.40 (1.22–4.71)*
	Involvement in fights	Never				1	1
		1–3 times				1.65 (0.71–3.82)	1.63 (0.65–4.10)
		≥4 times				1.54 (1.32–1.91)*	1.47 (1.26–1.85)*

Table 1. (Continued)

Category			*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
			OR (95% CI)	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*
Reinforcing factors	Number of close friends	⩾1					1
		1–3					1.19 (0.47–3.00)
		None					1.37 (0.58–3.23)
	Parents are understanding	Always/most of the time					1
		Sometimes					1.68 (0.88–3.23)
		Rarely/never					1.66 (0.77–3.59)
	Time spent with parents	Always/most of the time					1
		Sometimes					0.68 (0.35–1.32)
		Rarely/never					0.77 (0.36–1.64)
	Parental affection	Always/most of the time					1
		Sometimes					1.84 (0.91–3.68)
		Rarely/never					3.21 (1.54–6.68)**
Enabling factors	Information acquisition	No					1
		Yes					1.34 (0.60–2.96)
	Academic performance	Upper					1
		Normal					0.65 (0.343–1.232)
		Below					0.62 (0.297–1.309)
General characteristics	Gender	Female					1
		Male					3.02 (1.58–5.77)**
	Age range	12–14 years					1
		15–18 years					1.59 (0.88–2.88)
	Type of living arrangement	Both parents					1
		Single parent					0.71 (0.18–2.85)
		Separation					0.79 (0.26–2.35)
Nagelkerke R^2			0.018	0.182	0.230	0.307	0.393
p-value[a]			—	0.950	0.178	0.720	0.530

$N = 738$.
OR: odds ratio; CI: confidence interval.
[a]Hosmer and Lemeshow Test.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

previous study, which confirmed the positive effect of a school-based suicide prevention education program on the students' attitudes toward suicide and in decreasing suicide risk (21).

The program's effectiveness in decreasing suicide attempts was analyzed. The results showed that students who did not participate in the intervention had more suicide attempts. In addition, when parental affection was part of the intervention, it had a significant effect on suicide attempts (OR = 3.21, 95% CI = 1.54–6.68, p = 0.002) in model 5. This indicates that the intervention might have prevented an increase in suicide attempts, and the involvement of parental affection in the intervention might be effective in preventing suicide attempts. Previous studies have also demonstrated similar findings wherein there was a decrease in suicidal ideation and related behavior when adolescents felt understood by members of their family and had effective communication with their family members (22). Parent-child disagreements, negative parental attitude, and lack of open communication were found to be risk factors for suicidal behavior (23).

The variables that had a significant effect on suicide attempts included depression, subjective happiness, smoking experience, history of high-risk sexual behavior, involvement in fights, parental affection, and gender (male). Previous studies have shown the effects of various risk factors, protective factors, psychological and behavioral problems, and social adaptation skills on the mental health of adolescents (24,25). The results of the current study show that adolescent suicide does not simply depend on a couple of factors, but arises from situations in which individual, home, school and social factors influence one another. Therefore, adolescent suicide must be prevented and addressed through a multi-dimensional and integrated approach.

Once the program has run its course it is likely to stop because of the challenges associated with bringing in external staff and limited financial resources. Therefore, to not only maintain the effectiveness of the intervention but also scale it up it to other schools in the neighborhood, a strategy for project sustainability is needed. For the government of Peru to operate these programs autonomously after they are terminated, a strategy that involves the implementation of a health education training program, such as the 'WHO Urban School Health Kit (USHK)' might be useful. The USHK was developed with a school health education approach, by the WHO Western Pacific Regional Office, and aims to train school teachers on how to provide health education (26). The advantage of the USHK is that by educating teachers, they can develop the capacity to conduct health promotion activities in schools and communities. Therefore, it can be a useful tool for school health education if it is adapted according to the circumstances of each country.

Limitations

There are certain limitations to this study. First, there is a possibility that the measures of adolescent health risk behaviors and domestic violence were underestimated because the survey was self-administered. Second, although the school-based mental health education program included health education and family workshops targeting parents of the participating students, a quantitative evaluation of the effectiveness of the program for parents was not carried out. Third, the study was carried out at an impoverished region with a lower than average household income. Therefore, generalization of the effectiveness of the school-based mental health education program must be conducted with caution.

It is suggested that intervention programs for the prevention of adolescent suicide must encourage the active engagement, participation and attention of parents and their children for it to be more effective. This intervention program targeting impoverished areas of Peru was school-based and targeted adolescents currently attending school. Therefore, adolescents outside of school were not included. These adolescents must be supported so that they can return to school or be integrated safely into society through education and empowerment. There is thus a need for a health promotion intervention that includes adolescents who are outside of the school system and who otherwise remain invisible in the community, as they have a higher risk of suicide attempt, drug use, smoking, alcohol consumption, sexual violence, and abuse.

Conclusion

The school-based mental health education program in Peru improved the intent to change behavior, the ability to acquire health information, family bonding through increased parental affection,

and subjective happiness. Moreover, the program was effective in diminishing adolescent smoking, drug use, and high-risk sexual behavior. Among the environmental factors, significant differences were found in the experience of feeling intimidated or humiliated, depression, and suicide attempts. In addition, this intervention had a significant effect on decreasing adolescent suicide. This indicates that the intervention may have helped prevent an increase in mental health-related risk behaviors and suicide attempts in adolescents.

Specifically, fostering parental affection in interventions might be effective in preventing suicide attempts. This sheds light on the substantial influence that parents, the main source of social support, have on the suicidal behavior of adolescents, and suggests possible adverse effects of fighting, emotional differences, and lack of open communication with parents on the suicidal behavior of adolescents. Therefore, intervention programs aiming to prevent adolescent suicide must encourage the active engagement of parents and their children, to be more effective. Moreover, to maintain the effectiveness of the intervention and expand the intervention to other schools in the neighborhood, a strategy for project sustainability is needed so that schools and communities have the capacity to carry on the project.

Acknowledgements

We express our special thanks to the study participants, school staff, field enumerators, and all other partners in Peru who made the survey possible.

Conflict of interest

The authors declare that there is no conflict of interest.

Funding

This work was supported by the Korea International Cooperation Agency under the title of 'Health Promotion Program in Lima North and Callao, 2014-2017' (P2013-00151-1). This work was also supported in part by the Yonsei University Research Fund of 2017.

ORCID iD

Ha Yun Kim https://orcid.org/0000-0001-8022-8686

References

1. Bayer AM, Gilman RH, Tsui AO, Hindin MJ. What is adolescence? Adolescents narrate their lives in Lima, Peru. J Adolesc. 2010; 33: 509–520.
2. Belfer ML. Child and adolescent mental disorders: the magnitude of the problem across the globe. J Child Psychol and Psychiatr. 2008; 49: 226–236.
3. United Nations. Mental Health Matters Social Inclusion of Youth with Mental Health Conditions. New York: United Nations; 2014.
4. Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, et al. Child and adolescent mental health worldwide: evidence for action. Lancet. 2011; 378: 1515–1525.
5. Patel V, Flisher AJ, Hetrick S. McGorry P. Mental health of young people: a global public-health challenge. Lancet. 2007; 369: 1302–1313.
6. Jordans MJ, Tol WA, Komproe IH, De Jong JV. Systematic review of evidence and treatment approaches: psychosocial and mental health care for children in war. Child Adolesc Ment Health. 2009; 14: 2–14.
7. World Health Organization, Pan American Health Organization. Encuesta Global de Salud Escolar. Resultados de Perú 2010. Global school-based student health survey (GSHS). 2011.
8. Sharma B, Nam EW, Kim HY, Kim JK. Factors associated with suicidal ideation and suicide attempt among school-going urban adolescents in Peru. Intl J Environ Res Public Health. 2015; 12: 14842–14856.
9. Choi R, Yim HW, Jo SJ, Bang MH, Ji YN, Lee WC. Effects of school-based depression awareness education program for adolescent. Korean J Health Promot. 2015; 32: 57–65.
10. Diekstra RF, Gravesteijn C. Effectiveness of school-based social and emotional education programmes worldwide. Soc Emot Educ: Int Anal. 2008; 255–312.
11. Houri D, Nam EW, Choe EH, Min LZ, Matsumoto K. The mental health of adolescent school children: a comparison among Japan, Korea, and China. Glob Health Promot. 2012; 19: 32–41.
12. Kataoka SH, Stein BD, Jaycox LH, Wong M, Escudero P, Tu W, et al. A school-based mental health program for traumatized Latino immigrant children. J Am Acad Child Adolesc Psychiatry. 2003; 42: 311–318.
13. Rosemary CC, Yoon YM, Nam EW. A local-level evaluation of capacity for health promotion in Lima, Peru: Comas and Callao health center areas utilizing the WHO health promotion capacity profile. Int J Health Promot Educ. 2017; 55: 318–332.
14. Yonsei Global Health Center. Annual Report for KOICA Health Promotion Program in Lima North and Callao. Wonju, Korea: Yonsei University; 2015.
15. Taras HL. School-based mental health services. Pediatrics. 2004; 113: 1839–1845.
16. Green LW, Kreuter MW. Precede-Proceed. Health Program Planning: An Educational and Ecological Approach. 4th ed. New York: McGraw-Hill; 2005.
17. Des Jarlais DC, Lyles C, Crepaz N. Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: the TREND statement. Am J Public Health. 2004; 94: 361–366.

18. Faul F, Erdfelder E, Lang AG, Buchner A. G* Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behav Res Methods. 2007; 39: 175–191.
19. Cohen J. Statistical Power Analysis for the Behavioral Sciences. Hillsdale, NJ: Lawrence Earlbaum Associates; 1988.
20. World Health Organization. Global School-Based Student Health Survey (GSHS), Questionnaire Modules; 2013.
21. Ciffone J. Suicide prevention: an analysis and replication of a curriculum-based high school program. Social Work. 2007; 52: 41–49.
22. Kandel DB, Raveis VH, Davies M. Suicidal ideation in adolescence: depression, substance use, and other risk factors. J Youth Adolesc. 1991; 20: 289–309.
23. Motohashi Y, Kaneko Y, Sasaki H, Yamaji M. A decrease in suicide rates in Japanese rural towns after community-based intervention by the health promotion approach. Suicide Life Threat Behav. 2007; 37: 593–599.
24. Pollard JA, Hawkins JD, Arthur MW. Risk and protection: are both necessary to understand diverse behavioral outcomes in adolescence? Soc Work Res. 1999; 23: 145–158.
25. Jessor R, Turbin MS, Costa FM. Risk and protection in successful outcomes among disadvantaged adolescents. Appl Devl Sci. 1998; 2: 194–208.
26. Nam EW, Chang CG, Park SW, Bonito S, Kim TH, Shin HR. An introduction of Urbani school health kit developed by World Health Organization. J Korean Soc Sch Commun Health Educ. 2011; 12: 117–129.

Abstracts

Power asymmetry in global health research partnerships: qualitative study with researchers in Ivory Coast

P. Gogognon and B. Godard

Background: The asymmetry of power in global health research partnerships is an issue of justice and equity for research institutions, researchers and communities, especially in developing countries. For researchers, asymmetry of power can be an obstacle to efficient and equitable research and they are at risk of being in a state of vulnerability.
Objectives: These issues are widely discussed in the literature, but this phenomenon is still studied on a theoretical level and little empirical data is available, particularly in developing countries. The objective of this study is therefore to identify the factors and mechanisms of power asymmetry in global health research from the perspective of researchers in the global south.
Methodology: A qualitative study was conducted with 19 researchers in the health field in Ivory Coast, including 17 clinicians in the University Hospital Center and 2 non-clinical researchers. All participants were pursuing a university career in teaching and research. Semi-structured interviews were conducted to assess their perception of the factors that influence power asymmetry and the mechanisms by which they operate.
Results: Two main themes emerged from the data analysis: the challenges of funding and the complexity of interpersonal relationships in partnerships.
Discussion: This study shows that the pressure surrounding access to resources contributes to worsening the conditions in which partnerships are implemented. In addition, the institutional research environment shows links of subordination which pose risks to the autonomy of young researchers and the integrity of their work. In this regard, we recommend an in-depth analysis of the environment in which these partnerships are implemented, in particular on the dimensions of accountability, responsibility and professional integrity.
(Global Health Promotion, 2020; 27(1): 92–101)

Global Health Promotion 1757-9759; Vol 27(1): 87; 908418 DOI: 10.1177/1757975920908418 journals.sagepub.com/home/ghp

Une stratégie consensuelle de promotion de la santé dans les Amériques

Hugo Mercer[1,2]

Les agences internationales, en particulier celles qui appartiennent au système des Nations-Unies s'expriment par le biais de documents, rapports, déclarations, qui peuvent avoir été élaborés par une équipe technique interne à une ou plusieurs Agences, y compris avec la participation d'experts extérieurs, spécialement convoqués pour ce faire. Tout ce processus comprend un rituel d'élaboration de consensus bien huilé pour éviter les obstacles qui pourraient le rendre inacceptable, en tout ou partie, pour un nombre important de pays signataires. C'est ainsi que les déclarations qui deviennent des jalons dans le domaine de la santé sont des témoignages de cette démarche de construction diplomatique. Le processus en soi d'élaboration d'une Déclaration peut devenir un sujet d'étude intéressant sur la façon dont des concepts qui, jusqu'à il y a quelques décennies, rencontraient une forte résistance, sont en train de se développer. Les déterminants sociaux de la santé, l' « empowerment » social, les inégalités en matière de santé, ou bien l'appel à passer d'un accent prononcé sur le comportement individuel à un large éventail d'interventions sociales et environnementales entre autres, étaient des concepts et des interventions étrangers au « mainstream » théorique des organismes de santé.

L'adoption très récente de la Stratégie et du Plan d'Action pour la promotion de la santé dans le contexte des objectifs de développement durable (1) lors de la 164ème Session du Comité exécutif de l'Organisation panaméricaine de la santé (OPS)/Organisation mondiale de la santé (OMS) qui s'est déroulée à Washington DC du 24 au 28 juin 2019, laisse entrevoir un certain nombre de changements importants dans la carte conceptuelle des politiques de santé dans les pays des Amériques. Elle place résolument la promotion de la santé au centre des politiques de santé. Elle souligne que la Stratégie a pour objectif de

> renouveler la promotion de la santé par des actions sociales, politiques et techniques qui abordent les déterminants de la santé dans lesquels les personnes naissent, grandissent, vivent, travaillent et vieillissent, afin d'améliorer la santé et de réduire les inégalités en matière de santé dans le cadre de l'Agenda 2030 pour le développement durable (1).

La Stratégie a été élaborée à partir de nombreux antécédents, qui rendent compte de l'avancée de la promotion de la santé comme une des fonctions essentielles de la santé publique. Ces antécédents retracent de 1978 à maintenant le consensus obtenu à Alma-Ata en 1978 (2), à Ottawa en 1986 (3) et dans les accords les plus récents contenus dans la Stratégie en faveur de l'accès universel à la santé et la couverture universelle de santé (4), dans la Déclaration de l'OMS sur la promotion de la santé, adoptée à Shanghai (5), jusqu'à ceux inclus dans la Déclaration d'Astana de 2018 sur les soins de santé primaires (6).

Le contexte social pour la Stratégie de promotion de la santé

La Stratégie reconnaît que dans les Amériques, on vit une situation de « fortes inégalités » où prédominent une croissance urbaine chaotique, un développement industriel non réglementé, la pollution environnementale et l'aggravation de la violence, tandis que d'autres obstacles incluent le déplacement des personnes, l'absence d'engagement et d'actions intersectoriels à long terme, la participation et l' « empowerment » limités de la communauté, et

1. Université Nationale de San Martín, San Martín, Buenos Aires, Argentine.
2. Membre du Comité éditorial de *Global Health Promotion.*

Correspondance à Hugo Mercer, Unidad Interdisciplinaria de Salud/ICRM, UNSAM Campus Miguelete, 25 de Mayo y Francia. C.P.: 1650. San Martín, Provincia de Buenos Aires, Argentina. Courriel : hugo.mercer@gmail.com

Global Health Promotion 1757-9759; Vol 27(1): 88–91; 909018 DOI: 10.1177/1757975920909018 journals.sagepub.com/home/ghp

l'insuffisance de preuves documentées de l'efficacité de la promotion de la santé qui entrave une action durable qui transcende les mandatures politiques. La caractérisation de la situation sociale va aussi loin que le plafond d'acceptation du consensus possible le permet. D'autres aspects de la situation actuelle des pays de la Région tels que la répression policière récente face aux manifestations sociales massives (7), les migrations de population à une échelle qui a peu de précédents sur le continent (8), l'augmentation du chômage et la fermeture des petites et moyennes entreprises (9), l'accroissement de la population en situation de pauvreté et d'indigence, en même temps que le démantèlement des politiques d'inclusion sociale (10) et l'affaiblissement du respect et de la primauté de l'État de droit et de la démocratie, ne sont pas explicités.

Le récent rapport de la Commission économique pour l'Amérique latine et les Caraïbes (CEPALC) sur le panorama social de la Région indique que

> malgré les progrès importants réalisés entre le début de la dernière décennie et le milieu de la présente décennie, des reculs ont été enregistrés depuis 2015, qui s'expriment en particulier dans l'augmentation de l'extrême pauvreté lorsque l'on considère la moyenne régionale (10).

L'expérience des années où la pauvreté a été réduite et l'inclusion sociale assurée à plus de 66 millions de personnes montre que seules des politiques publiques de protection sociale, de croissance de l'emploi et de redistribution des revenus ont permis d'atteindre une amélioration des conditions de vie et de santé de ceux qui souffrent de marginalisation depuis plusieurs générations.

La CEPALC note que

> dans la région, entre 2002 et 2014, un important processus de réduction de la pauvreté et de l'extrême pauvreté a été mis en place de même que divers indicateurs de l'inégalité sociale. Ce processus a été associé non seulement à un contexte économique plus favorable, mais aussi à un contexte politique dans lequel l'éradication de la pauvreté et la diminution des inégalités sociales, ainsi que l'objectif d'élargir l'inclusion sociale et d'étendre la protection sociale, ont gagné une place inédite dans l'agenda public de nombreux pays d'Amérique latine et, dans une certaine mesure, de l'ensemble de la région. L'agenda des droits a été élargi, l'action de l'État et des institutions sociales ont été renforcées, les investissements dans le domaine social ont augmenté et des politiques de redistribution ont été mises en œuvre dans le domaine social et sur le marché du travail (10).

Placer la citoyenneté au centre des politiques publiques relève d'une conception politique et d'un horizon social privilégiant l'inclusion sociale, la démocratie et l'équité sociale. Ces valeurs sont étroitement liées à la promotion de la santé; il faut des sociétés démocratiques et socialement justes pour que la promotion de la santé puisse pleinement se déployer.

Faire de la Stratégie de promotion de la santé une réalité dans les pays des Amériques

La stratégie proposée par l'OPS/OMS est une construction conceptuelle, politique et technique cohérente. Son objectif d'améliorer la santé de la population est clairement articulé avec les quatre axes stratégiques que sa mise en œuvre privilégie, à savoir :

1. « Renforcer les principaux environnements favorables à la santé » (entre autres : les écoles, les universités, les logements, les lieux de travail, les marchés et autres espaces communs dans les territoires et communautés urbaines et rurales).
2. « Faciliter la participation et l' « empowerment » des communautés et l'engagement de la société civile » (en comptant sur les gouvernements pour qu'ils s'engagent à créer ou à faciliter des opportunités permettant d'assurer la participation de la communauté à la prise de décisions qui affectent la vie de ses membres, en tirant parti de leurs ressources et de leurs capacités).
3. « Renforcer la gouvernance et le travail intersectoriel pour améliorer la santé et le bien-être et aborder les déterminants de la santé. » La Stratégie reconnaît que

> la gouvernance est un élément pertinent des quatre axes stratégiques. Cela implique, entre

autres, que les gouvernements aient la responsabilité principale, aux niveaux local, national et mondial, d'élaborer des politiques de santé et de justice sociale par le biais de processus démocratiques qui profitent à l'ensemble de la société et, en même temps, de s'attaquer aux effets néfastes de la production et de la consommation non durables et aux pratiques commerciales négatives (1).

Il s'agit là d'un point d'engagement majeur de la Stratégie, car elle demande aux États de défendre les intérêts collectifs de la citoyenneté, face à d'éventuels intérêts particuliers d'acteurs privés. Ce sera sans aucun doute une ligne stratégique où se définiront la faisabilité et la pleine mise en œuvre de la promotion de la santé en tant que politique publique.

4. « Renforcer les systèmes et les services de santé en adoptant une approche centrée sur la promotion de la santé ». Dans cette ligne stratégique, les actions proposées portent sur la performance de l'ensemble du système de santé, depuis la formation de ses employés jusqu'au mode de prise en charge de chacun des services qui le composent.

Ces lignes stratégiques sont ventilées en actions et, ce qui est très important, identifient des indicateurs de surveillance et d'évaluation à chaque niveau d'opération, depuis le niveau local et national jusqu'à celui de l'ensemble de la région. Avec une telle construction, les pays disposent déjà d'un instrument valable pour passer d'un discours sur les avantages de la promotion de la santé à sa mise en œuvre effective et atteindre les résultats escomptés en termes de qualité de vie et de justice sociale.

Cette stratégie pose aux institutions universitaires un défi supplémentaire en ce qui concerne leur responsabilité en matière d'éducation, de construction de connaissance critique et de mobilisation sociale qui est de rechercher et de travailler sur les obstacles que les accords internationaux ne peuvent mentionner explicitement et qui constituent des obstacles qui ségréguent et marginalisent de vastes contingents sociaux. Ce défi peut être interprété comme un Plan d'Action pour les universités, les centres de recherche, mais aussi pour des revues comme GHP engagés dans les valeurs de protection des droits humains, de justice et d'égalité sociale.

Références

1. Organización Panamericana de la Salud (OPS)/ Organización Mundial de la Salud (OMS). Estrategia y Plan de Acción sobre la Promoción de la Salud en el contexto de los ODS 2019-2030. 57º Consejo Directivo de la OPS/71ª Sesión del Comité Regional de La OMS para las Américas. Documento CD57/10. [Internet]. Washington, DC: PAHO/WHO; 2019 [cité le 21 novembre 2019]. Disponible è: https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=49688-cd57-10-s-promocion-salud&category_slug=cd57-es&Itemid=270&lang=es
2. Organización Mundial de la Salud (OMS). Declaración de Alma-Ata. Conferencia Internacional sobre sobre Atención Primaria de Salud, Alma-Ata, URSS. OMS; 1978.
3. Organización Mundial de la Salud (OMS). Carta de Ottawa para la Promoción de la Salud. Ontario: OMS; 1986.
4. Organización Panamericana de la Salud (OPS). Estrategia para el acceso universal a la salud y la cobertura universal de salud. 53º Consejo Directivo de la OPS; 66ª sesión del Comité Regional de la OMS para las Américas. Documento CD53/5, Rev. 2 [Internet]. Washington, DC: OPS/OMS; 2014 [cité le 21 novembre 2019]. Disponible à: https://www.paho.org/hq/dmdocuments/2014/CD53-5-s.pdf.
5. Organización Mundial de la Salud (OMS). Declaración de Shanghái sobre la promoción de la salud en la Agenda 2030 para el Desarrollo Sostenible. 9° Conferencia Mundial de Promoción de la Salud [Internet]. Shanghái: OMS; 2016 [cité le 21 novembre 2019]. Disponible à: https://www.who.int/healthpromotion/conferences/9gchp/Shanghai-declaration-final-draft-es.pdf.pdf?ua=1
6. Organización Mundial de la Salud (OMS). Declaración de Astaná. Conferencia Mundial sobre Atención Primaria de Salud [Internet]. Astaná: OMS; 2018 [cité le 21 novembre 2019]. Disponible à: https://www.who.int/docs/default-source/primary-health/declaration/gcphcdeclaration-sp.pdf.
7. ANSA LATINA [Internet]. Hay 3360 víctimas de trauma ocular. Santiago de Chile; 2020 [cité le 3 février 2020] Disponible à: http://www.ansalatina.com/americalatina/noticia/chile/2020/01/03/360-victimas-con-trauma-ocular-desde-18-o_2752b955-eec3-4706-bb5d-3413c85ef66b.html
8. Organización Internacional para las Migraciones (OIM). Refugiados y migrantes de Venezuela superan los cuatro millones [Internet]. OIM, ACNUR; 2019 [cité le 3 février 2020]. Disponible à: https://www.iom.int/es/news/refugiados-y-migrantes-de-venezuela-superan-los-cuatro-millones-la-oim-y-el-acnur

9. Instituto Nacional de Estadística y Censos (INDEC). Mercado de Trabajo. Tasas e Indicadores socio-económicos (EPH) [Internet]. Buenos Aires: INDEC; 2019 [cité le 3 février 2020]. Disponible à: https://www.indec.gob.ar/uploads/informesdeprensa/mercado_trabajo_eph_2trim19ED75D3E4D2.pdf

10. Comisión Económica para América Latina y el Caribe (CEPAL). Panorama Social de América Latina 2019 [Internet]. Santiago: CEPAL; 2019 [cité le 3 février 2020]. Disponible à: https://repositorio.cepal.org/bitstream/handle/11362/44969/5/S1901133_es.pdf

Asymétrie de pouvoir dans les partenariats de recherche en santé mondiale : étude qualitative auprès de chercheurs en Côte d'Ivoire

Patrick Gogognon et Béatrice Godard

Résumé :
Contexte : L'asymétrie de pouvoir dans les partenariats de recherche en santé mondiale constitue un enjeu de justice et d'équité pour les institutions de recherche, les chercheurs et les communautés, en particulier dans les pays en développement. Pour les chercheurs, l'asymétrie de pouvoir peut constituer un obstacle pour une recherche efficiente et équitable et ils sont à risque d'être en situation de vulnérabilité.
Objectifs : Ces enjeux sont largement discutés dans la littérature mais ce phénomène reste encore étudié au plan théorique et peu de données empiriques sont disponibles, particulièrement dans les pays en développement. Cette étude a donc pour objectifs d'identifier les facteurs et les mécanismes de l'asymétrie de pouvoir en recherche en santé mondiale dans la perspective de chercheurs dans un pays du sud.
Méthodologie : Une étude qualitative a été menée auprès de 19 chercheurs dans le domaine de la santé en Côte d'Ivoire. Tous les participants poursuivaient une carrière universitaire d'enseignement et recherche, dont 17 cliniciens en Centre Hospitalier Universitaire et 2 chercheurs non cliniciens. Des entrevues semi-dirigées ont été réalisées pour évaluer leur perception sur les facteurs qui influencent l'asymétrie de pouvoir et les mécanismes par lesquels ils opèrent.
Résultats : Deux thèmes principaux émergent de l'analyse des données : les défis du financement et la complexité des relations interpersonnelles dans les partenariats.
Discussion : Cette étude montre que la pression sur l'accès aux ressources contribue à détériorer les conditions dans lesquelles les partenariats sont mis en œuvre. Par ailleurs, l'environnement institutionnel de la recherche montre des liens de subordination qui font peser des risques sur l'autonomie des jeunes chercheurs et l'intégrité de leurs travaux. À cet égard nous recommandons une analyse approfondie de l'environnement dans lequel ces partenariats sont mis en œuvre notamment sur les dimensions de reddition de comptes, d'imputabilité et d'intégrité professionnelle. (Global Health Promotion, 2020; 27(1): 92–101)

Mots clé : Asymétrie de pouvoir, partenariats, santé mondiale, méthodologie qualitative

Introduction

Dans de nombreux pays en développement la recherche en santé fait face à des inégalités dans le financement et des contraintes institutionnelles qui limitent le développement scientifique (1–3). Pour réduire ces disparités, des initiatives comme la formation de partenariats équitables favorisent une

École de santé publique de l'Université de Montréal, Département de médecine sociale et préventive. 7101 Av du Parc. CP 6128, Succ Centre-ville, Montréal, Canada.

Correspondance à: Patrick Gogognon, Département de médecine sociale et préventive, Université de Montréal - Médecine sociale et préventive, CP 6128, Montréal, Quebec H3C3J7, Canada. Email: angespatrick@gmail.com

(Ce manuscrit a été soumis le 24 avril 2017. Après évaluation par des pairs, il a été accepté pour publication le 14 janvier 2018)

Global Health Promotion 1757-9759; Vol 27(1): 92–101; 764311 DOI: 10.1177/1757975918764311 journals.sagepub.com/home/ghp

meilleure répartition des bénéfices de la recherche pour les communautés et les chercheurs (4, 5) et le développement de la recherche scientifique témoigne de la place du partenariat dans ces pays (6). Les partenariats de recherche engagent des individus ou organisations dans une coopération qui exclut des rapports de subordination ou de compétition et privilégie des principes d'égalité et de responsabilité partagée (7). Mais ces partenariats soulèvent également des défis d'asymétrie de pouvoir pour les chercheurs dans les pays où ils sont mis en œuvre (8–11). L'asymétrie de pouvoir renvoie à une relation inégalitaire qui se déploie dans un contexte social ou institutionnel structurellement injuste (12). Par ailleurs depuis plus de deux décennies, plusieurs pays en développement se sont engagés à renforcer le financement des recherches en santé et à promouvoir les partenariats (3, 13).

La littérature sur l'asymétrie de pouvoir dans les partenariats présente toutefois des limites car on enregistre une paucité de données empiriques relatives à ce phénomène. Peu d'études se sont penchées sur l'expérience concrète des chercheurs de ces pays sur le financement des partenariats et l'asymétrie de pouvoir dans les partenariats sud-sud est peu documentée. L'objectif de cette étude est d'évaluer auprès des chercheurs en santé dans un pays du Sud les facteurs d'émergence de l'asymétrie de pouvoir ainsi que les mécanismes par lesquels ce phénomène se révèle.

Méthodologie

Nous avons conduit une recherche qualitative auprès de chercheurs en sciences biomédicales ou sciences sociales en Côte d'Ivoire. 86 chercheurs ont été invités à participer à cette étude et 19 ont accepté l'invitation soit 22% des chercheurs approchés. Un tel pourcentage peut être considéré significatif considérant les défis pour le recrutement et la constitution des échantillons de recherche qualitative dans la littérature scientifique. C'est ce que rapportent Baker et ses collègues à propos d'études sur des sujets peu explorés ou avec des participants détenant des positions privilégiées (14). Par ailleurs, Reilly et ses collègues décrivent que c'est la profondeur des entrevues qui détermine la qualité des données de recherche plutôt que le nombre de participants (15). Pour Hagaman et ses collègues, la saturation peut être atteinte dans des études qualitatives à partir d'une dizaine de participants (16). Enfin Hurlimann et ses collègues ont souligné les défis de recrutement auxquels les chercheurs font face dans des études impliquant des professionnels de la santé (17).

Tous les participants poursuivaient une carrière universitaire d'enseignement et de recherche notamment en qualité d'assistant (n = 2), maitre-assistant (n = 8), maitre de conférences (n = 6) et professeur titulaire (n = 3), dont 17 cliniciens en Centre Hospitalier Universitaire et 2 chercheurs non cliniciens. Selon les critères du partenariat de recherche (7), 11 chercheurs ont collaboré à des partenariats formalisés, dont 4 sud-sud et 7 nord-sud. Huit ont collaboré à des partenariats avec une structure plus souple, ressemblant davantage au regard de la littérature à des collaborations sud-sud. Nous avons tenu à respecter la propre définition des répondants à l'égard du partenariat; ces entrevues ont donc été incluses dans les résultats pour rendre compte de la souplesse du partenariat en pratique.

Les données ont été collectées lors d'entrevues semi-dirigées, la grille d'entrevue ayant été élaborée suite aux résultats d'une étude exploratoire au Bénin (18). Les thèmes retenus visaient à rendre compte du point de vue des chercheurs sur le contexte de la recherche, les valeurs morales et sociales dans la conduite des partenariats et les réponses apportées aux contraintes de terrain. Les entrevues ont été enregistrées, retranscrites et codées à l'aide du logiciel NVivo. L'approche inductive a été retenue pour identifier les principaux thèmes émergeant des données.

L'étude a été approuvée par le Comité d'éthique de la recherche en santé de l'Université de Montréal et par le Directeur médical et scientifique du Centre Hospitalier Universitaire d'affiliation des participants. Pour préserver l'anonymat, l'institution et le lieu de collecte ne seront pas dévoilés.

Résultats

Deux thèmes principaux ressortent de l'analyse de la perspective des chercheurs sur les facteurs et les mécanismes de l'asymétrie de pouvoir dans leurs partenariats de recherche : les défis du financement et la complexité des relations interpersonnelles.

Les défis du financement des partenariats

La faiblesse des ressources financières est une caractéristique de la recherche en santé dans

plusieurs pays en développement (13, 18) et qui, conséquemment a des répercussions sur les possibilités de développer des partenariats.

Les données montrent des défis en lien avec la nature et les modalités du financement des partenariats. Pour les souligner, nous distinguerons les fonds d'origine locale et internationale employés dans la recherche.

1/Le financement local

Le financement « local » réfère ici aux ressources endogènes. La première ressource provient des chercheurs eux-mêmes, la seconde relève du gouvernement ivoirien et la troisième relève des ONG locales. Pour plusieurs répondants, les fonds personnels constituent la seule source de financement disponible et ils renvoient à une portion du salaire :

> *« Si tu veux faire une étude, et que tu dois faire des examens, c'est à tes propres frais […] Donc c'est toi qui doit payer de ta propre poche »* [Entrevue#13].

Pour ces chercheurs, l'utilisation du salaire est due à l'absence de ressources publiques allouées à la recherche en santé :

> *« Pour trouver une structure en Côte d'Ivoire qui finance c'est difficile. C'est vrai, on nous dit de rédiger un projet de recherche, tu le rédiges, mais à qui le soumettre ? Il n'y a pas beaucoup de financiers ici, ce qui fait que ces projets restent sur les tables ou dans les tiroirs et deviennent caduques »* [Entrevue #2].

Ces témoignages suggèrent que la responsabilité du financement repose sur les chercheurs. Mais cette pratique présente des risques susceptibles de fragiliser leur situation financière personnelle :

> *« En tant qu'individu, en tant qu'équipe qui avez pensé à un projet, c'est à vous de voir vos canaux de financement, c'est à vous de faire votre plaidoyer , c'est à vous de trouver un particulier pour vous financer. Si vous n'avez pas eu la possibilité de faire ça, c'est sur fonds propres. D'aucuns vont plus loin prendre des crédits bancaires pour réaliser leurs projets, voilà la vie du chercheur »* [Entrevue #17].

Cette pratique peut avoir des conséquences sur le renforcement des compétences des chercheurs ou le transfert de connaissances :

> *« Ça aurait été intéressant pour moi de participer à la réalisation des techniques qui se faisaient [à l'étranger], parce qu'en tant qu'enseignant-chercheur, je suis appelé à transmettre. Mais aujourd'hui je ne peux pas appliquer cette technique, or il me faut me l'approprier pour pouvoir transmettre aux plus jeunes qui viennent. Pour moi c'est un problème auquel il faut penser parce qu'on ne va pas rester toujours dans les techniques un peu dépassées parce que nous sommes en Afrique »* [Entrevue #10].

Pour d'autres chercheurs, l'autofinancement a un impact sur les priorités de recherche et les oblige à initier des projets ayant un impact limité sur l'amélioration des pratiques :

> *« On est obligé de nous axer sur les petites questions de recherche […] C'est comme si cette recherche n'a pas d'impact sur l'activité hospitalière elle-même, c'est un caractère trop local donc c'est un peu difficile à diffuser. On est obligé de limiter un peu les aspects de la recherche pour ne pas que ça entame nos possibilités financières »* [Entrevue #5].

D'autres témoignages rappellent que l'autofinancement limite la vulgarisation des découvertes scientifiques, cette situation constitue un frein à la reconnaissance du mérite des chercheurs et compromet leur visibilité internationale.

> *« On ne se fait pas connaître parce que nos travaux ne sont pas diffusés à large échelle et deuxièmement, il y a certains sujets sur lesquels on peut apporter des éclairages pour toute la communauté scientifique, mais malheureusement le manque de diffusion de nos données fait qu'on ne peut pas apporter ces contributions […] Et puis pour nos institutions aussi ça pose un problème parce que quand de l'extérieur on veut jeter un regard sur la productivité de nos institutions, étant donné que les canaux de diffusion ne sont pas efficaces, évidemment, on sous-estime l'activité de recherche dans nos institutions et ça nous fragilise »* [Entrevue #9].

Les chercheurs évoquent aussi des « *primes de recherche* » pour le financement de leurs travaux. Règlementairement, ces primes sont des mesures d'appui soulignant l'excellence des contributions scientifiques :

> « *la prime de recherche est allouée aux fonctionnaires, enseignants et chercheurs justifiant de travaux de recherche jugés pertinents par les autorités académiques* » (19).

On peut souligner un paradoxe à cet égard : selon les chercheurs, le gouvernement ne contribue pas au financement des recherches mais octroie des primes aux plus méritants.

Au-delà de reconnaître le mérite scientifique, cette prime de recherche semble éloignée de cette finalité, des témoignages révèlant qu'elle ne sanctionne pas nécessairement la réalisation d'une recherche.

> « *L'objectif, on l'appelle prime, c'est pour en fait encourager parce qu'elle ne sanctionne pas une recherche, ce n'est pas parce que tu as fait une recherche qu'on te la donne, ce n'est pas non plus pour que tu partes faire une recherche. Tu peux prendre la prime pour aller chez toi pour dormir* » [Entrevue #18].

Ainsi, tous les chercheurs reçoivent la « *prime de recherche* », les montants annuels étant fixés en fonction des titres et grades (19). Certains jugent légitime le critère hiérarchique puisque leurs collègues ayant les plus hauts grades ont un rôle de moteur dans le développement de la recherche. D'autres portent un regard critique et recommandent des règles d'attribution strictes :

> « *Il y a une prime de recherche qui est versée peu importe ce que vous produisez comme résultats. Je pense que c'est une aberration ; cette prime il faut la rendre consistante, l'assujettir à la production d'un rapport* » [Entrevue #9].

Durant les entrevues, certains chercheurs ont fait état du budget alloué par le gouvernement aux laboratoires de recherche de l'université. Toutefois, aucun ne le mentionne comme une source de financement et ils semblent avoir une connaissance approximative de ces conditions.

Enfin les fonds alloués à la recherche par les ONG nationales constituent la troisième source de financement local. Les chercheurs en faisant cas estiment cette ressource basée sur la cooptation au sein du réseau académique :

> « *L'Université a été cooptée pour conduire cette étude. L'Université a contacté l'UFR de Sciences Médicales, et ils ont cherché le responsable du département de santé publique, c'est ainsi que j'ai été coopté* » [Entrevue #3].

Ce système de cooptation suggère que le financement des ONG locales relève d'un processus discrétionnaire. On remarque que l'accès à ce financement ne s'inscrit pas toujours dans un processus ouvert et accessible à tous.

2/Le financement international

Selon les chercheurs, le financement international provient d'organismes occidentaux de financement de la recherche en santé, d'agences de coopération, d'ONG internationales ou d'organismes spécialisés des Nations Unies. Ces ressources occupent une place marginale; seulement quatre chercheurs les évoquent dans leurs partenariats :

> « *On a constaté que ces partenariats étaient établis par des occidentaux qui avaient déjà mené des études ici avec certains chercheurs. Ils ont gardé de très bonnes relations, ils ont trouvé de bons résultats donc ils ont continué leur partenariat* » [Entrevue #8].

Quelques répondants ont rapporté l'existence d'un fonds de recherche pour l'amélioration de la santé dans le cadre de la coopération entre la Côte d'Ivoire et la Suisse (20). Cependant aucun participant n'a bénéficié de ces subventions dans ses travaux.

La complexité des relations interpersonnelles dans les partenariats de recherche

Malgré les défis de financement rapportés dans la section précédente, plusieurs participants ont collaboré à des partenariats nord-sud ou sud-sud. Dans cette section, nous présenterons leur point de

vue sur les bénéfices de ces partenariats, les tensions qui émergent entre les chercheurs dans leur mise en œuvre ainsi que l'influence des rapports hiérarchiques particulièrement dans les partenariats sud-sud.

1/Des bénéfices de la recherche en partenariat

Selon certains participants, la recherche en partenariat est une expérience positive puisqu'elle offre des opportunités pour le développement des compétences de recherche. Ainsi souligne ce chercheur :

> *« Je pense qu'elle était nécessaire puisque nous-mêmes en tant que nouveaux chercheurs on n'avait pas vraiment d'expérience puisqu'on n'a pas bénéficié de formation spéciale en termes de recherche […] Donc je pense que c'était bénéfique et nécessaire »* [Entrevue#5]

Ces partenariats favorisent aussi le transfert d'expertise, offrent des opportunités de financement et aident à l'initiation à la recherche :

> *« Ce partenariat a favorisé l'émergence d'une spécialité en Côte d'Ivoire et des personnes ont eu l'opportunité de se former pour venir développer leur spécialité »*. [Entrevue #15]

> *« Dans ce genre de projet on inclut des étudiants que ce soit Master ou doctorat, ça dépend du niveau. Ça profite donc à la recherche pour nous, puisque ça permet de former des gens à faire de la recherche c'est un premier aspect. Mais l'autre aspect, c'est le financement […] c'est une opportunité d'avoir des occasions de travailler sur le terrain puisqu'on n'a pas de moyen »*. [Entrevue#16]

D'autres témoignages évoquent des tensions en lien avec l'autonomie et l'indépendance des chercheurs notamment dans les partenariats financés par des fonds internationaux.

2/Des limites à l'exercice de l'autonomie et à l'indépendance des chercheurs

Durant les entrevues des répondants ont fait état de préoccupations d'autonomie ou d'indépendance dans la conduite des recherches.

> *« Je crois que le financement et surtout la manière de diffuser nos résultats peuvent constituer aussi beaucoup d'obstacles […] Est-ce que le chercheur, au vu des contraintes financières ou matérielles pour pouvoir réaliser sa recherche, est-ce qu'il garde toujours son indépendance ? Est-ce que certains résultats que vous voudriez bien publier mais qui n'arrangerait pas le partenaire qui a donné son financement et qui sait que ce résultat, s'il est publié peut lui porter préjudice, est-ce qu'il va accepter de vous accompagner dans la publication ? »* [Entrevue#12].

Ce témoignage suggère que l'origine du financement peut influencer l'autonomie des chercheurs, en particulier dans la valorisation des résultats. En l'absence de financement local on note une dépendance des chercheurs aux financements internationaux et ils expriment parfois un sentiment de frustration lié aux contraintes imposées par les bailleurs de fonds internationaux :

> *« Il y a quand même des bailleurs qui sont très dynamiques ils ont un canevas, ils ont des thématiques. Donc tu es toujours obligé de te plier pour pouvoir rentrer dans les priorités de ces organismes alors que toi-même en tant que chercheur tu réfléchis, tu as tes priorités. Mais tu te rends compte que tu ne peux même plus suivre ton propre fil tu es obligé à chaque fois de t'impliquer dans les schémas des autres tous les jours. C'est frustrant parce que tu ne le fais pas, tu n'auras pas de financement et là ça ramène à la liberté du chercheur ; tu n'es pas libre de réfléchir, tu es obligé de réfléchir comme ils veulent »* [Entrevue #18].

Pour d'autres chercheurs, la contribution des institutions locales ne garantit pas toujours des relations équilibrées dans les partenariats :

> *« Le plus souvent les institutions africaines, qu'est-ce qu'elles apportent ? [elles] amènent des personnes. Puisque quand la main-d'œuvre est apportée, les travaux c'est celui qui finance qui en bénéficie, qui tire le maximum de prestige. Certes, on doit avoir des partenaires d'autres horizons mais il va falloir que nous les africains nous puissions nous-mêmes financer nos recherches pour accélérer davantage notre développement.*

Puisque la science je peux dire c'est l'indépendance également.» [Entrevue # 8].

Ces tensions en lien avec l'autonomie et l'indépendance ne sont pas spécifiques aux partenariats internationaux et concernent aussi les relations entre les chercheurs et les décideurs publics. Ainsi s'interroge ce répondant :

« Est-ce que l'environnement politique même se prête à cette recherche? Parce que vous pouvez commencer et puis quelqu'un t'interpelle et te dit : mon ami, ce que tu es en train de faire-là, plus tard ça va apporter certaines choses ou bien ça va à l'encontre de nos intérêts? Ainsi de suite et vous êtes obligé d'arrêter en chemin. Ce que j'ai constaté c'est que quand tu es chercheur tu veux être public et tu n'as pas envie qu'il y ait des pressions extérieures sur ce que tu veux faire ». [Entrevue#4]

Ces témoignages semblent indiquer le support limité des institutions locales dans ces partenariats et d'autre part la méconnaissance des exigences des organismes subventionnaires internationaux par les chercheurs.

3/Les relations hiérarchiques dans les partenariats sud-sud

Dans notre étude, les relations hiérarchiques révèlent d'importantes différences entre les chercheurs dans les partenariats sud-sud. En effet, le supérieur hiérarchique détient des privilèges lui permettant de jouer un rôle déterminant dans la recherche et le parcours professionnel du chercheur. Selon nos répondants, l'accès à la carrière universitaire en recherche intervient au terme de la formation d'internat de médecine et après cooptation par un chef de service. Par la suite, le supérieur hiérarchique reste impliqué dans l'élaboration, l'évaluation et la mise en œuvre des travaux des chercheurs. Ainsi s'exprime ce répondant :

« Mon chef de service pilote tous les travaux et toute activité de recherche doit être avisée par lui. Il donne son avis, s'il voit la pertinence du travail, si ça peut apporter les résultats attendus, s'il juge pertinent on lance la recherche » [Entrevue#15].

Cependant, durant les entrevues, certains chercheurs ont exprimé la volonté de promouvoir une révision indépendante des recherches.

« Il faudrait qu'il y ait dans nos structures un comité de réflexion sur les questions de recherche, c'est-à-dire chaque question de recherche doit être soumise à un comité composé de certaines personnes qui ont une expérience des domaines à titre médical, pas forcément dans la discipline concernée mais qui a une expérience. Le travail de ce comité doit nous aider à affiner et à enlever certains biais [Entrevue #5].

L'avancement de carrière des chercheurs constitue un autre moment où s'exerce le pouvoir du supérieur hiérarchique. En Côte d'Ivoire l'évolution de la carrière des chercheurs intervient dans le cadre d'un concours organisé par la Conférence Africaine et Malgache pour l'Enseignement Supérieur (21). Toutefois, le supérieur hiérarchique demeure un maillon essentiel dans la préparation du dossier de candidature des chercheurs :

« Le chercheur n'est pas seul dans sa démarche de préparation pour le CAMES. Si le patron dit que tu n'es pas prêt tu es mieux de renoncer. Un rapport de tous les supérieurs hiérarchiques accompagne la candidature de l'enseignant-chercheur pour le passage de grade au CAMES. Il faut l'accord du chef de département et du doyen pour autoriser la candidature » [Entrevue #19].

Dans ce contexte le rôle du supérieur hiérarchique représente pour certains chercheurs une opportunité de développement des recherches en raison de son ancienneté et de son expérience. D'autres répondants portent au contraire un regard critique, le pouvoir du supérieur hiérarchique pouvant renforcer la vulnérabilité des chercheurs sous son autorité :

« Votre senior qui est apte à vous évaluer au grade de Maître-Assistant vous dit de travailler et de produire et vous devez faire ça en harmonie avec le patron. Souvent [le supérieur] dit si vous vous lancez dans ce domaine, ça sera compliqué pour vous. Malgré qu'on vous ait dit que ça sera difficile et que vous avez contourné ces difficultés et du coup, vous passez en tête de tout. Vous en tant que jeune chercheur, vous êtes gêné d'avoir contrarié

le maître. Et quand le maître prend de la hauteur d'esprit ça va mais quand il pense que vous l'avez contrarié quelque part, vous êtes inquiet, est-ce que ma carrière va ou ne va pas bouger ? Il y a tous ces aspects qui font de vous quelqu'un de vulnérable » [Entrevue #17].

L'importance de la hiérarchie peut aussi s'expliquer par des limites dans l'encadrement des recherches comme en témoigne ce chercheur :

« Je pense que c'est vraiment informel […]c'est ce que je dis qui est souvent pris comme vérité. On n'a pas un cadre bien établi, classique de formation. On n'a pas un comité qui va se charger de réfléchir sur les questions de recherche que nous posons, à la limite, c'est mon expérience qui s'impose à la lumière de la littérature bien évidemment. Et cela peut être souvent problématique puisque souvent les disciplines sont vastes et dans certaines disciplines telle que la mienne, il y a des sous-disciplines auxquelles certains collaborateurs peuvent s'intéresser avec finesse. Je n'ai pas forcément cette expertise-là même si j'ai des idées. Mais souvent ça coince un peu, c'est un peu conflictuel parce qu'il s'y est intéressé avec beaucoup plus d'engagement donc souvent on essaie de trouver des compromis » [Entrevue #5].

Les résultats rapportés ici montrent l'intérêt des participants pour les partenariats mais les rapports hiérarchiques semblent imposer des contraintes à l'autonomie des chercheurs ainsi qu'au développement d'initiatives personnelles.

Discussion

Nos résultats montrent que l'allocation des ressources et la complexité des relations interpersonnelles sont des défis qui s'imposent aux chercheurs, que la recherche soit partenariale ou pas. Nous nous proposons de discuter quelques-uns des enjeux qui s'y rapportent : (1) financement des recherches et vulnérabilité ; (2) l'expérience de l'asymétrie de pouvoir ; (3) l'équité dans l'allocation des ressources.

Financement des recherches et vulnérabilité

En Côte d'Ivoire, comme dans d'autres pays africains, l'autofinancement semble refléter un manque de cohérence dans les politiques de financement des recherches (22–24). Ceci montre l'intérêt de considérer le financement des partenariats dans les risques de vulnérabilité des chercheurs. La vulnérabilité réfère ici à une condition inhérente à la nature humaine, évoquant la fragilité ou le manque (25). Elle peut être aussi « *situationnelle* » en lien avec la situation économique, personnelle ou politique des individus (26). Aussi doit-on l'analyser en fonction du contexte social et des conditions particulières (27, 28).

Nos résultats indiquent que l'autofinancement des recherches produit des effets pervers en entrainant des chercheurs dans un processus de vulnérabilité car la recherche vient en concurrence avec la satisfaction des besoins personnels. Qui plus est, cette pratique pourrait les contraindre à investir personnellement dans le renforcement de compétences de recherche ou dans des recherches à faible échelle. Une autre conséquence potentielle pourrait être l'absence de reconnaissance et de valorisation des résultats des recherches. Des participants ont déploré le manque de visibilité de leurs travaux en raison de l'utilisation de technologies obsolètes. Leurs témoignages rappellent que les conditions concrètes des recherches limitent les bénéfices des partenariats. Tout comme la protection des participants en éthique de la recherche démontre un intérêt pour les conditions de vie des participants (29), cette étude invite à considérer la protection des chercheurs dans le partenariat au regard des défis de financement et des risques de vulnérabilité. Faire face aux risques de vulnérabilité implique la satisfaction des besoins des chercheurs, ce qui sous-tend une réponse juste et adaptée à chacun. Cette réponse doit aussi prendre en considération l'évaluation du contexte économique, politique et social afin de remédier aux causes structurelles de la vulnérabilité, l'exposition aux risques variant selon les personnes et les ressources pour y faire face (30). L'absence de financement public, le manque de transparence dans la gestion des ressources ainsi que la dépendance aux ressources extérieures suggèrent un contexte limitant les initiatives et l'innovation locale.

L'expérience de l'asymétrie de pouvoir

Les participants à notre étude ont tous reconnu des bénéfices importants de la recherche en partenariat. Cependant leurs témoignages suggèrent

l'existence de rapports de pouvoirs asymétriques dans les équipes de recherche, or ces rapports imposent des restrictions à la capacité d'auto-détermination et à la liberté des individus (31). Nos résultats révèlent des privilèges liés à la position hiérarchique de certains chercheurs du Sud à l'égard de leurs collègues également du Sud ou la faible valorisation des contributions des chercheurs du Sud par leurs partenaires du Nord. Cette dernière dimension de l'asymétrie de pouvoir largement discutée dans la littérature scientifique (32–34) ne sera pas abordée ici. La majorité des chercheurs étant des cliniciens, les relations asymétriques émergent ici dans un contexte de recherche clinique universitaire. Les rapports de pouvoir peuvent se manifester dès le début de la carrière universitaire en recherche. Au terme de leur formation d'internat, les candidats au poste d'assistant-chef de clinique ouvrant droit à la carrière universitaire doivent être cooptés par un chef de service. L'initiation à la recherche est faite par le chef de service et pour la plupart des chercheurs, la carrière se déroule sous la supervision de celui-ci. Cette pratique appelle plusieurs observations. En effet elle semble évoquer la mise en concurrence des candidats à la profession d'enseignant-chercheur. Or, le pouvoir du chef de service reste important avec la cooptation des nouveaux chercheurs selon sa discrétion. On pourrait donc reconnaître des privilèges lui permettant de sélectionner les aspirants au métier de chercheurs. Ces privilèges s'exercent tout au long de leur carrière, ce que semblent confirmer des participants lorsqu'ils rappellent que le supérieur hiérarchique définit les orientations de la recherche et s'implique dans la révision des projets. L'accès à certaines opportunités de financement de recherche témoigne aussi de cette position privilégiée. Alors que la limitation des ressources affecte tous les chercheurs, on peut s'étonner que les chercheurs seniors bénéficient prioritairement de ces opportunités. Ceci montre des relations hiérarchiques susceptibles d'exacerber des inégalités structurelles préexistantes. Cette étude semble donc confirmer l'existence d'un contexte de domination dans lequel la distribution du pouvoir et l'accès aux avantages défavorisent systématiquement certains chercheurs (35). Somme toute, il apparaît que l'environnement de recherche présente des caractéristiques structurelles qui sont potentiellement injustes et rend certains chercheurs vulnérables.

Équité dans l'accès aux ressources pour la recherche

Pour plusieurs auteurs, la distribution des biens dans un système donné est équitable lorsqu'elle réunit deux conditions : l'égalité d'accès aux ressources et une réponse adéquate aux besoins (36). Un contexte de recherche équitable devrait donc assurer un accès égal aux ressources pour tous les chercheurs sans égard au statut hiérarchique. Dans notre étude, la hiérarchie et l'ancienneté sont privilégiées pour l'accès à certains financements comme le budget des laboratoires ou la prime de recherche. Or, les modalités d'utilisation du budget des laboratoires ne sont pas connues des chercheurs, suggérant un manque de transparence des règles. Contrairement au budget des laboratoires, les modalités encadrant la prime de recherche sont publiques. Cependant en l'absence de mécanismes d'évaluation, certains chercheurs ont souligné la possibilité d'en bénéficier sans faire de recherche et leurs témoignages rappellent que le mérite et les contraintes de chaque recherche ne constituent pas des critères d'attribution. Ceci suggère que les ressources publiques sont affectées à la recherche sans la garantie de bénéfices pour la communauté. Cette pratique présente donc des limites importantes en matière d'équité aussi bien pour les chercheurs que pour la communauté dans son ensemble.

Limites de l'étude

Notre échantillon étant constitué en majorité de cliniciens en centre hospitalier universitaire, les résultats ne peuvent être généralisés à d'autres contextes. Le nombre élevé de refus de participation parmi les professeurs titulaires constitue une autre limite. Nous formulons l'hypothèse que cette catégorie est peu exposée à l'asymétrie de pouvoir d'où le manque d'intérêt pour l'étude. Ceci pourrait être exploré en profondeur dans d'autres études.

Conclusion

En questionnant les facteurs et les mécanismes de l'asymétrie de pouvoir dans les partenariats de recherche en Côte d'Ivoire, cette étude montre que l'équité dans l'allocation des ressources sont des éléments essentiels pour la formation et le bon

fonctionnement de ces partenariats. Dans un contexte marqué par des inégalités structurelles, la pression sur l'accès aux ressources contribue à détériorer les conditions dans lesquelles les partenariats sont mis en œuvre. Pour les chercheurs, cela pourrait se traduire par une perte de légitimité vis à vis de la communauté scientifique ou une perte de confiance du public dans la recherche. Par ailleurs, l'environnement institutionnel des partenariats évoque des liens de subordination qui font peser des risques sur l'autonomie des jeunes chercheurs ainsi que l'intégrité de leurs recherches.

Notre étude montre à cet égard la nécessité de mener une évaluation approfondie du contexte dans lequel les partenariats sont mis en œuvre au regard notamment des dimensions de reddition des comptes, d'imputabilité et d'intégrité des recherches. Répondre à ces défis passe par la fin de l'autofinancement des recherches. Des initiatives limitant la dépendance aux ressources extérieures, notamment l'instauration d'un fonds public local garantissant un accès juste et équitable aux ressources devraient être encouragées. Enfin les critères d'attribution des primes de recherche pourraient être révisés pour privilégier l'excellence scientifique.

Conflit d'intérêt

Aucun.

Financement

Association Universitaire de la Francophonie.

Références

1. OMS. Déclaration de Mexico. Sommet ministériel sur la recherche en santé. Mexico: OMS; 2004.
2. Global Forum for Health Research. The 10/90 Report on Health Research 2001–2002. Geneva, Switzerland: Global Forum for Health Research; 2002, p.224.
3. OMS. Déclaration d'Alger. Conférence ministérielle sur la recherche en santé dans la région africaine. Alger; 2008.
4. Bradley M. On the agenda: North–South research partnerships and agenda-setting processes. Dev Pract. 2008; 18: 673–685.
5. Smith E, Hunt M, Master Z. Authorship ethics in global health research partnerships between researchers from low or middle income countries and high income countries. BMC Med Ethics. 2014; 15: 42.
6. Vidal L. (ed.). Introduction cadres et quotidiens du partenariat. In: Vidal L Expériences du partenariat au sud: le regard des sciences sociales. Marseille: IRD; 2014, p.352.
7. Canadian Coalition for Global Health Research. Principles for Global Health Research 2015. [cited 2016 Dec 20]. Available from: http://www.ccghr.ca/resources/principles-global-health-research/.
8. Simon C, Mosavel M, van Stade D. Ethical challenges in the design and conduct of locally relevant international health research. Soc Sci Med. 2007; 64: 1960–1969.
9. Marjanovic S, Hanlin R, Diepeveen S, Chataway J. Research capacity building in Africa: Networks, institutions and local ownership. J Int Dev. 2013; 25: 936–946.
10. Sarah BM, Marian J, Ephata EK. In the name of global health: Trends in academic institutions. J Public Health Policy. 2008; 29: 383.
11. Maselli DL, Lys JA, Schmid J. Improving Impacts of Research Partnerships. Swiss Commission for Research Partnerships with Developing Countries, KFPE. Berne, Suisse: Geographica Bernensia; 2004, p.86.
12. Young IM. Justice and the Politics of Difference. Princeton, NJ: Princeton University Press; 2011, p.289.
13. OMS. Déclaration d'Abuja. High Level Ministerial Meeting on Health Research in Africa. Abuja; 2006.
14. Baker SE, Edwards R. How many qualitative interviews is enough [Internet]. Southampton: NCRM; 2012 [cited 2017 Nov 25]. Available from: http://eprints.ncrm.ac.uk/2273/4/how_many_interviews.pdf.
15. O'Reilly M, Parker N. Unsatisfactory saturation: A critical exploration of the notion of saturated sample sizes in qualitative research. Qual Res. 2013; 13: 190–197.
16. Hagaman AK, Wutich A. How many interviews are enough to identify metathemes in multisited and cross-cultural research? Another perspective on Guest, Bunce, and Johnson's (2006) Landmark Study. Field Methods. 2017; 29: 23–41.
17. Hurlimann T, Groisman I, Godard B. The elusive ideal of inclusiveness: Lessons from a worldwide survey of neurologists on the ethical issues raised by whole-genome sequencing. BMC Med Ethics. 2017; 18: 28.
18. Gogognon PA, Hunt M, Ridde V. Les enjeux éthiques d'une recherche-action sur une sélection communautaire des indigents au Burkina Faso. Ethique Sante. 2012; 9: 148–155.
19. Décret portant l'institution des mesures d'appui à la recherche scientifique en Côte d'Ivoire, Decret No. 2016-174 (March 23, 2016).
20. Commission Suisse pour la recherche scientifique. Programme d'appui stratégique à la recherche scientifique en Côte d'Ivoire. [cited 2017 Feb 13]. Available from: http://www.csrs.ch/pasres/presentation.php
21. Conseil Africain et Malgache pour l'Enseignement Supérieur. Plan stratégique de développement 2015-2019. [cited 2017 Jan 17]. Available from: http://www.lecames.org/.
22. Centre de Recherche pour le Développement International. Le financement endogène de la

recherche en Afrique de l'ouest et du centre. 2010 [cited 2016 Nov 16]. Available from: http://idl-bnc.idrc.ca/dspace/handle/10625/48327.
23. UNESCO. The current status of science around the world, Unesco science report 2010. [cited 2016 Nov 16]. Available from: http://unesdoc.unesco.org/images/0018/001899/189958e.pdf.
24. Kouassi MT, M. Les défis de la recherche scientifique en Côte d'Ivoire. 2016 [cited 2017 Jan 25]. Available from: http://www.scidev.net/afrique-sub-saharienne/r-d/article-de-fond/defis-recherche-scientifique-cote-d-ivoire.html.
25. Mackenzie C, Rogers W, Dodds S. Vulnerability: New Essays in Ethics and Feminist Philosophy. New York: Oxford University Press; 2014.
26. Rogers W, Mackenzie C, Dodds S. Why bioethics needs a concept of vulnerability. Int J Fem Approach Bioeth. 2012; 5: 11–38.
27. Luna F. Elucidating the concept of vulnerability: Layers not labels. Int J Fem Approach Bioeth. 2009; 2: 121–139.
28. Macklin R. A global ethics approach to vulnerability. Int J Fem Approach Bioeth. 2012; 5: 64–81.
29. Marin A, Bouffard C. Bioethics faced with sociocultural diversity, the impact of the meaning given to an unfinished concept. J Int Bioeth Ethic Sci. 2015; 26: 19.
30. Fineman MA. The vulnerable subject: Anchoring equality in the human condition. Yale J Law Fem. 2008; 20: 1–23.
31. Allen A. Feminist perspectives on power. In: Zalta EN (ed.). The Standard Encyclopedia of Philosophy. Fall 2016 ed. Stanford: Metaphysics Research Lab, Stanford University; 2016.
32. Olivier C, Hunt MR, Ridde V. NGO–researcher partnerships in global health research: Benefits, challenges, and approaches that promote success. Dev Pract. 2016; 26: 444–455.
33. Godoy-Ruiz P, Cole DC, Lenters L, McKenzie K. Developing collaborative approaches to international research: Perspectives of new global health researchers. Glob Public Health. 2015; 11: 1–23.
34. Boutilier Z, Daibes I, Di Ruggiero E. Global health research case studies: Lessons from partnerships addressing health inequities. BMC Int Health Hum Rights. 2011; 11: S2.
35. Kymlicka W. Contemporary Political Philosophy: An Introduction 2nd ed. Toronto: Oxford University Press; 2002.
36. Lamont JFC. Distributive justice. In: Zalta EN (ed.). The Stanford Encyclopedia of Philosophy. Winter 2017 ed. Stanford: Metaphysics Research Lab, Stanford University; 2017.

Résumés

Le sommeil, l'activité physique, le tour de taille et le régime alimentaire comme facteurs influençant la santé chez les femmes en âge de procréer dans le nord du Groenland

Z. A. Watson, M. P. Miles, C. B. Shanks et E. Rink

Contexte : Cette étude a examiné les facteurs communautaires et individuels qui influencent la santé des femmes en âge d'avoir des enfants dans un village du nord du Groenland. Ceci est important car la population du Groenland est en déclin, le taux d'avortements y est élevé et parce que l'on y prévoit des changements environnementaux dus au dérèglement climatique.
Méthodes : Cette étude a recueilli des données à l'aide de méthodes mixtes pour examiner le régime alimentaire, l'activité physique, le sommeil et le tour de taille chez des femmes en âge de procréer à Kullorsuaq, au Groenland. À l'aide de bracelets de surveillance de l'activité, on a mesuré le nombre de pas et les heures de sommeil par jour de treize femmes en âge de procréer. Des mesures du tour de taille ont été effectuées, et des entretiens en profondeur portant sur l'alimentation et l'activité physique au quotidien ont été menés auprès de quinze participantes ; les observations ethnographiques des participantes ont été consignées à l'aide de notes prises sur le terrain.
Résultats : Les mesures du tour de taille étaient supérieures aux seuils recommandés par l'Organisation mondiale de la Santé. L'activité physique mesurée au moyen du nombre de pas par jour s'inscrivait dans la fourchette « active » d'après les seuils établis par Tudor et Locke. L'activité physique revêt un aspect social et est importante pour les relations communautaires. Les heures de sommeil étaient dans les limites normales d'après les directives américaines, cependant, la qualité de ce sommeil, sa variabilité d'une saison à l'autre, et les attentes culturelles quant à ce que signifie un bon sommeil doivent être davantage explorées. Les régimes alimentaires de ces femmes incluaient un mélange de viandes produites localement et d'aliments importés emballés. Les participantes à l'étude ressentaient moins de satiété et rapportaient avoir faim plus rapidement lorsqu'elles consommaient des aliments emballés. Cette recherche s'est déroulée au printemps 2016 et les participantes ont rapporté que leur sommeil, leur activité physique et leur régime alimentaire fluctuaient de manière saisonnière.
Conclusion : Les résultats rapportés suggèrent qu'il faut approfondir l'étude du sommeil, du régime alimentaire et de l'activité physique en l'associant à la mesure des hormones de la reproduction, afin de déterminer les liens existant entre les facteurs liés au style de vie et les résultats en termes de santé reproductive. (Global Health Promotion, 2020; 27(1): 6–14)

Analyse d'un modèle d'éducation pour la santé en milieu scolaire afin de prévenir l'opistorchiase et le cholangiocarcinome chez les élèves de l'enseignement primaire dans la région Nord-Est de la Thaïlande

L. Laithavewat, C. Grundy-Warr, N. Khuntikeo, R. H. Andrews, T. N. Petney, P. Yongvanit, P. Banchonhattakit et P. Sithithaworn

L'infection par la douve du foie Opisthorchis viverrini est le principal facteur étiologique induisant le cholangiocarcinome dans la région du Mékong, en Asie du Sud-Est. La région Nord-Est de la Thaïlande présente l'incidence la plus élevée de ce cancer dans le monde, avec environ 20.000 décès chaque année. L'infection par la douve du foie est causée par la consommation de poisson cru ou insuffisamment cuit, une tradition de cette région qui pourrait être contrée par des programmes d'éducation au niveau scolaire. Nous développons ici un modèle d'éducation pour la santé en milieu scolaire basé sur la théorie de la motivation à la protection (TMP), en incluant la conception du module, le matériel pédagogique, les activités pour les élèves et le développement des capacités parmi les enseignants. Ce programme d'éducation a été appliqué et testé auprès d'élèves de l'enseignement primaire (9 à 13 ans) de la province de Khon Kaen, dans la région Nord-Est

Global Health Promotion 1757-9759; Vol 27(1): 102–106; 908430 DOI: 10.1177/1757975920908430 journals.sagepub.com/home/ghp

de la Thaïlande. Dans le cadre d'un essai randomisé contrôlé, quatre écoles ont servi de groupes d'intervention (n = 118 élèves) et quatre autres ont servi de groupes de contrôle (n = 113 élèves). En nous basant sur les concepts de la TMP, nous avons trouvé que, comparativement aux élèves des écoles de contrôle, ceux du groupe d'intervention avaient des connaissances significativement plus importantes et percevaient les paramètres de gravité, de vulnérabilité, d'efficacité de la réponse et d'auto-efficacité concernant les risques de la consommation de poisson cru et de développement du cholangiocarcinome ($p < 0,05$). Tous les concepts de la TMP mesurés étaient corrélés entre eux de manière significative. Parallèlement à cela, certaines connaissances fondamentales issues de programmes d'éducation communautaires étaient présentes dans les écoles de contrôle. Le résultat de cette étude initiale suggère que la TMP peut être utilisée pour prédire les attitudes protectrices de même que les changements comportementaux lors de l'évaluation des conséquences des programmes d'intervention pour la santé en milieu scolaire. (Global Health Promotion, 2020; 27(1): 15–23)

La mesure comparative et objective du développement des capacités en promotion de la santé – du cadre conceptuel à la mise en œuvre

V. Saaristo, P. Hakamäki, H. Koskinen, K. Wiss et T. Ståhl

Le but de cette étude était d'analyser et de tester un cadre de référence théorique général pour le développement des capacités en promotion de la santé à l'aide de données empiriques sur les soins de santé primaires. Ce cadre comportait sept dimensions : l'engagement, la gestion, la surveillance et l'évaluation des besoins, les ressources, les pratiques courantes, la participation et d'autres fonctions centrales.

Les données ont été recueillies en 2014 auprès de l'ensemble des centres de santé en Finlande, parmi lesquels 156 (99 %) ont soumis leurs données. Les données ont été notées d'après la qualité des activités sur une échelle allant de 0 à 100, dans laquelle 100 désignait la qualité désirable. Les indicateurs individuels ont été divisés en sous-dimensions, qui ont été à leur tour divisées pour former les dimensions du cadre de référence théorique. Les variables ont été regroupées à l'aide des dimensions et des sous-dimensions comme cloisonnement initial. La cohérence interne des dimensions et des sous-dimensions a été testée avec le coefficient alpha de Cronbach à la fois avant et après l'analyse de regroupement.

Les résultats ont montré que, même si la cohérence interne des dimensions était élevée dans la classification initiale, il était possible d'obtenir des dimensions encore plus cohérentes. La cohérence interne de la classification initiale variait de 0,62 pour la participation à 0,93 pour les pratiques courantes. Dans l'analyse de regroupement, 45 des 203 indicateurs ont été assignés à une dimension différente du cloisonnement initial. L'amélioration la plus importante en termes de cohérence interne a été obtenue dans la sous-dimension de la communication de masse systématique en relocalisant deux indicateurs.

Cette étude suggère qu'il est possible d'évaluer de manière cohérente le développement des capacités en promotion de la santé des organisations, avec des indicateurs comparables et objectifs. Ces analyses montrent également que le nombre des indicateurs peut être réduit. Il serait intéressant de voir comment le cadre de référence fonctionne dans d'autres structures gouvernementales ou contextes politiques. (Global Health Promotion, 2020; 27(1): 24–32)

Recourir à la santé mobile pour surveiller la mise en œuvre de pratiques exemplaires à l'appui d'une saine alimentation et de l'activité physique dans les programmes parascolaires

K. Brazendale, M. W. Beets, R. G. Weaver, B. Turner-McGrievy, A. B. Brazendale, J. L. Chandler, J. B. Moore, J. L. Huberty, J. Lemley et R. C. Brownson

Contexte : L'épidémie mondiale d'obésité infantile est toujours d'actualité et de nombreux lieux de vie des enfants (par ex. l'école, les endroits où se déroulent les programmes d'activités parascolaires) présentent un

potentiel important pour avoir un impact positif sur les comportements de santé des enfants. Ces contextes nécessitent des méthodes innovantes et rapides de collecte d'informations sur les comportements de santé dans un but d'évaluation et de manière à déployer un soutien de manière stratégique.
Objectif : 1) Démontrer la faisabilité de la santé mobile (« mHealth ») pour surveiller la mise en œuvre des normes en matière d'alimentation saine et d'activité physique (HEPA, healthy eating and physical activity) et 2) illustrer l'utilité de la santé mobile pour identifier les domaines qui nécessitent un soutien, au sein du contexte parascolaire.
Méthodes : Les chefs d'établissement ($N = 175$) de programmes d'activités parascolaires (ASP, afterschool programs) ont été invités à compléter une liste d'observation en ligne via l'application mobile HEPAm (pour « Healthy Eating and Physical Activity Mobile ») une fois par semaine durant les heures de service pendant lesquelles se déroulent les programmes d'activités parascolaires. Des rappels hebdomadaires générés automatiquement ont été envoyés sur les appareils mobiles des chefs d'établissement durant les semestres de printemps et d'automne 2015 et 2016, et durant le semestre de printemps 2017. Les données obtenues grâce à l'application HEPAm ont été séparées en variables HEPA, et exprimées en pourcentage des listes de contrôle où un élément était présent. Un pourcentage plus élevé pour un élément donné pourrait indiquer qu'un programme parascolaire est plus conforme aux normes HEPA actuelles.
Résultats : Au total, 141 chefs d'établissement proposant des programmes d'activités parascolaires ont complété 13.960 listes de contrôle de l'application HEPAm. Le nombre moyen de listes de contrôle complétées par programme d'activités parascolaires était de 43 (fourchette de 1 à 220) pour l'alimentation saine, et de 50 (fourchette de 1 à 230) pour l'activité physique. En matière d'alimentation saine, le défi le plus fréquemment rencontré par les programmes d'activités parascolaires était « l'éducation des enfants par le personnel à une alimentation saine », tandis que pour les listes de contrôle sur l'activité physique, c'était qu'« une activité physique réservée aux filles soit fournie par l'ASP ».
Conclusion : L'application HEPAm a été largement utilisée et a fourni des informations précieuses susceptibles d'être utilisées pour déployer de manière stratégique un soutien aux programmes d'activités parascolaires en matière d'alimentation saine et d'activité physique. Cette étude rassure quant à l'adoption des stratégies de santé mobile comme moyen permettant aux praticiens de la santé publique de surveiller la conformité d'une initiative ou d'une intervention. (Global Health Promotion, 2020; 27(1): 33–40)

Établir une coalition locale pour aborder les déterminants sociaux de l'hypertension à Quibdó (Colombie) : une description et réflexion sur le processus

D. I. Lucumí, A. J. Schulz, J. E. Torres-Gil, L. Gonzales et K. Ramírez

En Colombie, on estime qu'un quart de la population adulte est touchée par l'hypertension. Cependant, on a accordé relativement peu d'attention aux approches participatives qui tiennent compte des déterminants sociaux de l'hypertension au niveau local en Colombie.
Les premières étapes d'une coalition pour lutter contre l'hypertension à Quibdó (Colombie) incluaient une analyse des parties prenantes et l'engagement d'organisations locales. On a ensuite défini les objectifs mutuels, établi conjointement des règles pour la prise de décision, et précisé une vision commune.
A partir d'une compréhension unifiée des facteurs qui influencent le risque d'hypertension, douze organisations ont rejoint la coalition locale. Elles ont développé un plan d'action pour prévenir l'hypertension et éliminer les disparités sociales dans sa distribution.
Les enseignements qui ont été tirés de ce processus suggèrent que dans les zones urbaines marginalisées des pays à faibles et moyens revenus, il conviendrait d'accorder une attention particulière, lors des premières étapes de la mise en œuvre d'une coalition, aux difficultés et aux opportunités spécifiques au contexte, à la composition et à la structure de la coalition, au recadrage de la santé, et au renforcement des capacités. (Global Health Promotion, 2020; 27(1): 41–50)

L'impact comparatif de la publicité recourant aux appels à la peur et à l'hypocrisie induite sur l'incitation au sevrage tabagique : appliquer la théorie du construit de soi aux attitudes des consommateurs

J-W. Yoo et Y-J. Jin

Cette étude a examiné l'effet de l'hypocrisie induite comme nouvelle approche de la publicité antitabac sur les attitudes des fumeurs par rapport à ces publicités ainsi que leurs attitudes et intentions en matière de sevrage tabagique. Elle a également analysé de manière comparative les effets de cette stratégie par rapport à ceux des appels à la peur qui ont traditionnellement été utilisés dans les campagnes antitabac. Les résultats ont montré des effets hautement positifs de l'hypocrisie induite sur les attitudes et les intentions des fumeurs par rapport au sevrage. La comparaison des effets sur le sevrage des publicités recourant à des appels à la peur et à l'hypocrisie induite a montré des effets plus forts des premières sur les intentions de sevrage, bien qu'à un degré qui n'était pas statistiquement significatif. Lorsque les fumeurs ont été catégorisés selon la théorie de l'auto-construction, on a trouvé que les attitudes et les intentions par rapport au sevrage étaient plus fortes parmi ceux qui faisaient partie du groupe du « soi interdépendant » que parmi ceux du groupe du « soi indépendant ». Les implications théoriques et pratiques pour la publicité antitabac sont également discutées. (Global Health Promotion, 2020; 27(1): 51–58)

Évaluation de l'état de préparation d'une collectivité pour la diffusion de programmes d'activité physique fondés sur des données probantes et destinés aux personnes âgées à Changsha, en Chine : un argument en faveur de Enhance®Fitness

M. Liu, X. Zhang, J. Xiao, F. Ge, S. Tang et B. Belza

En Chine, l'activité physique (AP) a décliné au cours des deux dernières décennies du fait de l'urbanisation. Les programmes fondés sur des données probantes constituent de bonnes approches pour promouvoir l'AP, mais en Chine, ils sont limités. L'adoption de programmes existants pourrait être une alternative valable. Au préalable, il est nécessaire d'évaluer le degré de préparation. Cette étude visait à évaluer le niveau de préparation des collectivités à la diffusion de programmes d'AP fondés sur des données probantes à destination des personnes âgées à Changsha, en Chine.

Des entretiens en personne ont été menés auprès de 33 participants dans cinq districts de Changsha afin d'évaluer le degré de préparation de la communauté selon cinq dimensions : la connaissance des efforts réalisés dans la collectivité, le climat communautaire, la connaissance de la problématique par la communauté, le leadership et les ressources. Les données ont été transcrites et comparées à une échelle de cotation pré-établie, de manière à fournir un score de degré de préparation allant de 1 (aucune sensibilisation) à 9 (haut niveau d'appropriation communautaire).

Les participants incluaient 14 membres du personnel communautaire, 13 adultes âgés, 4 responsables communautaires et 3 professionnels de santé. Les trois principaux obstacles à la diffusion de programmes d'AP étaient le manque d'endroits appropriés, de financement et d'instructeurs. Les trois principales ressources étaient la disponibilité de locaux, de chaises et de haut-parleurs. Le leadership communautaire est la dimension du degré de préparation qui a obtenu le score le plus élevé (3,3 sur 9), suivi du climat communautaire (3,2), de la connaissance des efforts réalisés par la communauté (3,1), et des ressources (2,8) ; la connaissance de la problématique a obtenu le score le plus faible (2,7). Le score global du degré de préparation communautaire de Changsha était de 3,0 sur 9.

L'état de préparation pour les communautés de Changsha, en Chine, ne va pas au-delà d'une « vague sensibilisation ». En développant des stratégies pour améliorer le degré de préparation de la communauté,

on pourrait accroître la diffusion de programmes d'AP fondés sur des données probantes à Changsha, en Chine. (Global Health Promotion, 2020; 27(1): 59–67)

Universités favorables à la santé. Le développement et la mise en œuvre d'un programme holistique d'intervention en promotion de la santé spécialement conçu pour le personnel travaillant dans le secteur de l'enseignement supérieur : l'étude ARK

S. T. Innstrand et M. Christensen

Étayé par le concept des Universités favorables à la santé, cet article présente une approche d'intervention holistique, appelée ARK, destinée à améliorer la santé et le bien-être des membres du personnel universitaire. L'étude ARK (un acronyme norvégien pour désigner une étude sur l'environnement et le climat de travail) a été menée auprès de 18 universités et instituts universitaires en Norvège. Cette enquête réalisée auprès de plus de 15.000 participants a permis de recueillir des informations sur la perception que les employés ont de leur environnement psychosocial de travail, leur bien-être, et leur santé.
Elle a en outre fourni des informations et des expériences précieuses concernant les processus de développement organisationnel sur la manière de mettre en œuvre avec succès un programme d'intervention promoteur de santé. Le but du présent article est de présenter le projet ARK et de fournir des suggestions sur la manière de conduire un programme d'intervention promoteur de santé dans un milieu universitaire en fonction de l'expérience et des connaissances recueillies grâce à l'étude ARK. Cette compréhension peut éclairer et inspirer la planification de futures initiatives universitaires promotrices de santé afin de répondre aux besoins particuliers des employés de ce secteur. (Global Health Promotion, 2020; 27(1): 68–76)

L'efficacité d'un programme d'éducation pour la santé mentale en milieu scolaire dans une zone urbaine défavorisée du Pérou

H. Y. Kim, E. W. Nam, K. N. Jin et A. Y. So

Cette étude visait à évaluer l'efficacité d'un programme d'éducation pour la santé mentale en milieu scolaire destiné à prévenir les tentatives de suicide chez les adolescents dans une zone urbaine défavorisée au Pérou, dans le cadre d'un projet officiel d'aide au développement de l'Agence coréenne pour la coopération internationale. Le modèle PRECEDE-PROCEED a servi à documenter cette étude d'efficacité. Les participants à cette intervention étaient des élèves d'établissements publics d'enseignement secondaire, de la première à la cinquième année. L'enquête avant/après l'intervention a été menée à l'aide d'une méthode d'échantillonnage aléatoire stratifié. Un échantillon constitué de 768 et 738 élèves pour le groupe expérimental et le groupe de contrôle a été analysé de manière comparative, en utilisant le test du chi-carré et la régression logistique. Cette étude a trouvé que le programme avait un effet positif sur les comportements à risque liés à la santé mentale des adolescents et les tentatives de suicide dans le groupe expérimental comparativement au groupe de contrôle. Ainsi, l'intervention a peut-être permis de prévenir l'augmentation des comportements à risque liés à la santé mentale et des tentatives de suicide. En outre, lorsque l'affection parentale était incluse dans l'intervention, celle-ci avait un effet significatif sur les tentatives de suicide. Par conséquent, la prise en compte de l'affection parentale dans l'intervention peut se révéler efficace pour prévenir les tentatives de suicide. Afin de favoriser l'efficacité des interventions qui visent à prévenir le suicide chez les adolescents, la participation et l'attention des parents, de même que des adolescents, doivent être encouragées. De plus, pour maintenir l'efficacité de l'intervention et étendre sa couverture à d'autres écoles environnantes, une stratégie de durabilité du projet est nécessaire, en particulier en ce qui concerne le renforcement des capacités dans les écoles et les communautés. (Global Health Promotion, 2020; 27(1): 77–86)

Editorial

Una estrategia consensuada de promoción de la salud en las Américas

Hugo Mercer

Las agencias internacionales, en especial las que pertenecen al sistema de Naciones Unidas se expresan a través de documentos, informes, declaraciones, que pueden haber sido elaborados por un equipo técnico interno a una o varias agencias, contando incluso con la participación de expertos externos especialmente convocados. Todo ese proceso comprende un elaborado ritual de construcción de consensos evitando obstáculos que lo hagan inaceptable, en todo o en parte, a un número significativo de países signatarios. Por eso, las declaraciones que llegan a ser hitos en el campo de la salud son testimonios de esa gesta de construcción diplomática. El proceso en sí de construcción de una declaración puede convertirse en un interesante objeto de estudio acerca de cómo se van abriendo paso conceptos que, hasta hace pocas décadas encontraban fuerte resistencia. Determinantes sociales de la salud, empoderamiento social, inequidades en salud, o convocar a "pasar del énfasis en el comportamiento individual a una gama amplia de intervenciones sociales y ambientales" entre otros, eran conceptos e intervenciones extrañas al *mainstream* teórico de los organismos sanitarios.

La muy reciente aprobación de la Estrategia y Plan de Acción sobre la Promoción de la Salud en el contexto de los Objetivos de Desarrollo Sostenible (1), en la 164° Sesión del Comité Ejecutivo de la Organización Panamericana de la Salud (OPS)/ Organización Mundial de la Salud (OMS), realizada en Washington DC del 24 al 28 de junio de 2019, expresa una serie de cambios importantes en el mapa conceptual de las políticas de salud en los países de las Américas. De manera decidida sitúa la promoción de la salud en un espacio central de las políticas de salud. Destaca que el propósito de la Estrategia es

> renovar la promoción de la salud por medio de acciones sociales, políticas y técnicas que aborden los determinantes de la salud en las cuales las personas nacen, crecen, viven, trabajan y envejecen, con el fin de mejorar la salud y reducir las inequidades en la salud en el marco de la Agenda 2030 para el desarrollo sostenible (1).

La Estrategia sustenta su formulación en antecedentes que dan cuenta del avance de la promoción de la salud como una de las funciones esenciales de la Salud Pública. Esos antecedentes recorren desde 1978 al presente lo consensuado en Alma-Ata en 1978 (2), en Ottawa en 1986 (3) y los más recientes acuerdos de la Estrategia para el acceso universal a la salud y la cobertura universal de salud (4), La Declaración de la OMS sobre promoción de la salud, acordada en Shanghái (5), hasta la Declaración de Astana de 2018 sobre Atención primaria de la salud (6).

El contexto social para la Estrategia de promoción de la salud

La Estrategia reconoce que en las Américas se vive una situación de "fuertes desigualdades" con prevalencia de: "crecimiento urbano caótico", "desarrollo industrial no regulado", "contaminación ambiental" y "aumento de la violencia"; en tanto que otros obstáculos son el "desplazamiento de personas", "la falta de compromiso y de acciones intersectoriales a largo plazo", "la limitada participación y empoderamiento de la comunidad", y una "insuficiente evidencia documentada de la eficacia de la promoción de la salud que obstaculiza una acción sostenible que trascienda los períodos políticos". La caracterización de la situación social llega hasta donde el techo de aceptación del consenso posible lo permite. Otros aspectos de la actual situación de los países de la Región tales como: reciente represión policial ante masivas protestas

1. Universidad Nacional de San Martín, Buenos Aires, Argentina.
2. Miembro del Comité Editorial de *Global Health Promotion*.

Correspondencia a: Hugo Mercer, Unidad Interdisciplinaria de Salud/ICRM, UNSAM Campus Miguelete, 25 de Mayo y Francia. C.P. 1650. San Martín, Provincia de Buenos Aires, 1650, Argentina. Correo: hugo.mercer@gmail.com

Global Health Promotion 1757-9759; Vol 27(1): 107–109; 909019 DOI: 10.1177/1757975920909019 journals.sagepub.com/home/ghp

sociales (7); migraciones de población en una escala que no tiene muchos precedentes en el continente (8); crecimiento del desempleo y cierre de pequeñas y medianas empresas (9); incremento de la población en situación de pobreza e indigencia junto con el desmantelamiento de políticas de inclusión social (10), y debilitamiento de la vigencia del Estado de Derecho y de la democracia, no son explicitados.

El reciente informe de La Comisión Económica para América Latina y el Caribe (CEPAL) sobre el Panorama Social de América Latina señala que

> pese a los importantes avances logrados entre comienzos de la década pasada y mediados de la presente, desde 2015 se han registrado retrocesos, que se expresan particularmente en el aumento de la pobreza extrema cuando se considera el promedio regional (10).

La experiencia de los años en los que se logró reducir la pobreza y asegurar la inclusión social para más de 66 millones de personas, indica que solo con políticas públicas de protección social, crecimiento del empleo y medidas redistributivas en materia de ingresos, se alcanzan resultados de mejora en las condiciones de vida y salud de quienes padecen desde hace varias generaciones la marginación.

La CEPAL señala que

> en la región, se produjo entre 2002 y 2014 un importante proceso de reducción de la pobreza y la pobreza extrema, así como de diversos indicadores de la desigualdad social. Este proceso estuvo asociado no solo a un contexto económico más favorable, sino también a un contexto político en que la erradicación de la pobreza y la disminución de la desigualdad social, así como el objetivo de ampliar la inclusión social y de extender la protección social, ganaron un espacio inédito en la agenda pública de muchos países de América Latina y, en cierta medida, del conjunto de la región. Se amplió la agenda de derechos, se fortaleció la acción del Estado y la institucionalidad social, se expandió la inversión en lo social y se implementaron políticas de carácter redistributivo en el ámbito social y del mercado de trabajo (10).

Posicionar la ciudadanía en el centro de las políticas públicas pertenece a una concepción política y un horizonte de sociedad que privilegia la inclusión social, la democracia y la equidad social. Esos valores están estrechamente ligados a la promoción de la salud; se requiere de sociedades democráticas y con justicia social para que la promoción de la salud alcance su pleno despliegue.

Lograr hacer realidad la Estrategia de promoción de la salud en los países de las Américas

La Estrategia que propone OPS/OMS es una construcción conceptual, política y técnica coherente. Hay clara articulación entre su propósito de mejorar la salud de la población con las cuatro líneas estratégicas que su puesta en marcha privilegia, que son:

1. "Fortalecer los entornos saludables clave" (entre otros: escuelas, universidades, viviendas, lugares de trabajo, mercados y otros espacios comunes en territorios y comunidades urbanos y rurales).
2. "Facilitar la participación y el empoderamiento de la comunidad y el compromiso de la sociedad civil", (contando con que los gobiernos se comprometan a crear o facilitar oportunidades que aseguren la participación de la comunidad en la toma de decisiones que afectan la vida de sus miembros, aprovechando sus recursos y capacidades).
3. "Fortalecer la gobernanza y el trabajo intersectorial para mejorar la salud y el bienestar y abordar los determinantes de la salud". La Estrategia reconoce que

> la gobernanza es un elemento pertinente para las cuatro líneas estratégicas. Implica, entre otras cosas, que los gobiernos tienen la responsabilidad fundamental a nivel local, nacional y mundial de formular políticas de salud y justicia social por medio de procesos democráticos que beneficien a toda la sociedad y, al mismo tiempo, de abordar los efectos perjudiciales de la producción y el consumo insostenibles y las prácticas empresariales negativas (1).

Este es un punto de mayor compromiso de la Estrategia ya que está reclamando a los Estados que se posicionen en defensa de los intereses colectivos de la ciudadanía, frente a eventuales intereses particulares de actores privados. Esta será sin duda, una línea estratégica donde se

definirán la viabilidad y plena implementación de la promoción de la salud como política pública.
4. "Fortalecer los sistemas y servicios de salud incorporando un enfoque de promoción de la salud". En esta línea estratégica, las acciones propuestas abarcan el desempeño de todo el sistema de salud, desde la formación de sus trabajadores hasta la modalidad de atención de cada uno de los servicios que lo componen.

Las líneas estratégicas se desglosan en acciones y, lo que es muy importante, identifican indicadores a ser monitoreados y evaluados en cada uno de los niveles de operación, desde lo local, nacional, hasta el del conjunto de la región. Con esa construcción, los países cuentan ya con un instrumento válido para pasar de un discurso sobre las ventajas de la promoción de la salud a su efectiva puesta en marcha y alcanzar los beneficios que va a reportar en términos de calidad de vida y justicia social.

Esta estrategia plantea un desafío adicional para las instituciones académicas, en cuanto a su responsabilidad educativa, de construcción de conocimiento crítico y de movilización social cual es la de indagar y trabajar sobre aquellos obstáculos que los acuerdos internacionales no pueden mencionar explícitamente y que constituyen trabas que segregan y marginan a vastos contingentes sociales. Este desafío puede ser interpretado como un Plan de Acción para las Universidades, los centros de investigación, y también revistas como GHP comprometidas con valores de protección de los Derechos Humanos, la justicia y la igualdad social.

Referencias

1. Organización Panamericana de la Salud (OPS)/ Organización Mundial de la Salud (OMS). Estrategia y Plan de Acción sobre la Promoción de la Salud en el contexto de los ODS 2019-2030. 57º Consejo Directivo de la OPS/71ª Sesión del Comité Regional de La OMS para las Américas. Documento CD57/10. [Internet]. Washington, DC: PAHO/WHO; 2019 [citado el 21 de noviembre de 2019]. Disponible en https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=49688-cd57-10-s-promocion-salud&category_slug=cd57-es&Itemid=270&lang=es
2. Organización Mundial de la Salud (OMS). Declaración de Alma-Ata. Conferencia Internacional sobre sobre Atención Primaria de Salud, Alma-Ata, URSS. OMS; 1978.
3. Organización Mundial de la Salud (OMS). Carta de Ottawa para la Promoción de la Salud. Ontario: OMS; 1986.
4. Organización Panamericana de la Salud (OPS). Estrategia para el acceso universal a la salud y la cobertura universal de salud. 53º Consejo Directivo de la OPS; 66ª sesión del Comité Regional de la OMS para las Américas. Documento CD53/5, Rev. 2 [Internet]. Washington, DC: OPS/OMS; 2014 [citado el 21 de noviembre de 2019]. Disponible en: https://www.paho.org/hq/dmdocuments/2014/CD53-5-s.pdf.
5. Organización Mundial de la Salud (OMS). Declaración de Shanghái sobre la promoción de la salud en la Agenda 2030 para el Desarrollo Sostenible. 9° Conferencia Mundial de Promoción de la Salud [Internet]. Shanghái: OMS; 2016 [citado el 21 de noviembre de 2019]. Disponible en https://www.who.int/healthpromotion/conferences/9gchp/Shanghai-declaration-final-draft-es.pdf.pdf?ua=1
6. Organización Mundial de la Salud (OMS). Declaración de Astaná. Conferencia Mundial sobre Atención Primaria de Salud [Internet]. Astaná: OMS; 2018 [citado el 21 de noviembre de 2019]. Disponible en: https://www.who.int/docs/default-source/primary-health/declaration/gcphcdeclaration-sp.pdf.
7. ANSA LATINA [Internet]. Hay 3360 víctimas de trauma ocular. Santiago de Chile; 2020 [citado el 3 de febrero de 2020] Disponible en: http://www.ansalatina.com/americalatina/noticia/chile/2020/01/03/360-victimas-con-trauma-ocular-desde-18-o_2752b955-eec3-4706-bb5d-3413c85ef66b.html
8. Organización Internacional para las Migraciones (OIM). Refugiados y migrantes de Venezuela superan los cuatro millones [Internet]. OIM ACNUR; 2019 [citado el 3 de febrero de 2020]. Disponible en: https://www.iom.int/es/news/refugiados-y-migrantes-de-venezuela-superan-los-cuatro-millones-la-oim-y-el-acnur
9. Instituto Nacional de Estadística y Censos (INDEC). Mercado de Trabajo. Tasas e Indicadores socioeconómicos (EPH) [Internet]. Buenos Aires: INDEC; 2019 [citado el 3 de febrero de 2020]. Disponible en https://www.indec.gob.ar/uploads/informesdeprensa/mercado_trabajo_eph_2trim19ED75D3E4D2.pdf
10. Comisión Económica para América Latina y el Caribe (CEPAL). Panorama Social de América Latina 2019 [Internet]. Santiago: CEPAL; 2019 [citado el 3 de febrero de 2020]. Disponible en: https://repositorio.cepal.org/bitstream/handle/11362/44969/5/S1901133_es.pdf

Resúmenes

Dormir bien, controlar la grasa abdominal, hacer ejercicio físico y dieta: factores que influyen en la buena salud de las mujeres en edad reproductiva, en el norte de Groenlandia

Z. A. Watson, M. P. Miles, C. B. Shanks y E. Rink

Contexto: este estudio explora los factores individuales y comunitarios que influyen en la salud de las mujeres en edad reproductiva del norte de Groenlandia. Su importancia radica en que la isla presenta un descenso en la población, altas tazas de aborto y previsiones de alteraciones ambientales debidas al cambio climático.
Métodos: el estudio recopiló los datos de diferentes métodos para analizar la dieta, la actividad física, el sueño y la grasa abdominal de las mujeres en edad reproductiva en Kullorsuaq, Groenlandia. La rutina diaria y las horas de sueño de trece mujeres fueron medidas utilizando brazaletes de monitoreo. Las mediciones de la circunferencia abdominal, así como entrevistas detalladas sobre la alimentación diaria y la actividad física se realizaron con quince participantes, y las observaciones etnográficas fueron registradas mediante notas de campo.
Resultados: las medidas de la circunferencia abdominal estuvieron por encima de los parámetros recomendados que establece la Organización Mundial de la Salud. La actividad física calculada según la rutina diaria se consideró como 'activa', de acuerdo con los rangos de Tudor y Locke. Esta actividad física es social, y es vista como importante para las relaciones comunitarias. Las horas de sueño estuvieron dentro de los estimativos normales estipulados por las normas estadounidenses. Sin embargo, la calidad de este sueño, su variación de acuerdo con las estaciones y las expectativas culturales de lo que significa dormir de manera saludable, son factores que deben ser explorados más adelante. La dieta de las mujeres incluyó una mezcla de alimentos cosechados localmente y comida importada empacada. Las participantes en el estudio experimentaron menos saciedad y manifestaron tener hambre más rápido cuando consumían alimentos empacados. Esta investigación se llevó a cabo en la primavera del 2016, y las mujeres expresaron que su sueño, su actividad física y su dieta cambian de acuerdo con la estación.
Conclusión: los resultados sugieren realizar una investigación más extensa del sueño, la dieta y la actividad física, combinados con la medición de las hormonas reproductivas para determinar los nexos entre los factores asociados al estilo de vida y la salud reproductiva. (Global Health Promotion, 2020; 27(1): 6–14)

Análisis de un modelo de educación en salud escolar para prevenir la opistorquiasis y el colangiocarcinoma en niños de escuela primaria en el noreste de Tailandia

L. Laithavewat, C. Grundy-Warr, N. Khuntikeo, R. H. Andrews, T. N. Petney, P. Yongvanit, P. Banchonhattakit y P. Sithithaworn

La infección causada por el trematodo del hígado *Opisthorchis viverrini* es la mayor responsable del colangiocarcinoma en la región del Mekong, en el sureste de Asia. En el noreste de Tailandia se encuentra la más alta incidencia de este cáncer en el mundo, que ocasiona cerca de 20.000 muertes al año. Una infección por el parásito se ocasiona al digerir pescado crudo o semi cocido, una tradición en esta zona que puede ser contrarrestada con programas de educación a nivel escolar. Aquí desarrollamos un modelo de educación en salud escolar, basado en la Teoría de Motivación a la Protección (TMP), con un módulo de diseño, materiales de apoyo, actividades para los estudiantes y capacitación para los profesores. Este programa de educación fue aplicado y probado en la escuela primaria con alumnos entre 9 y 13 años de la provincia de Khon Kaen, en el noreste de Tailandia. A partir de un ensayo controlado aleatorio, cuatro escuelas sirvieron como grupos de intervención (n = 118 alumnos) y otras cuatro como grupos de control (n = 113 alumnos). Con base en la TMP,

Global Health Promotion 1757-9759; Vol 27(1): 110–115; 908431 DOI: 10.1177/1757975920908431 journals.sagepub.com/home/ghp

encontramos que los estudiantes del grupo de intervención tenían un mayor conocimiento y percibían los parámetros de gravedad, vulnerabilidad, eficacia de respuesta y autoeficacia relacionados con el peligro de ingerir pescado crudo y de desarrollar colangiocarcinoma, que los estudiantes de las escuelas control ($p < 0.05$). Todas las medidas de los parámetros TMP estuvieron significativamente interrelacionadas una con la otra ($p < 0.001$). Al mismo tiempo, las escuelas de control presentaron algún conocimiento previo, proveniente de programas de educación comunitarios. El resultado de este estudio inicial sugiere que la TMP se puede utilizar para pronosticar una actitud protectora, así como cambios en el comportamiento al evaluar las consecuencias de los programas de intervención en la salud escolar. (Global Health Promotion, 2020; 27(1): 15–23)

Medición comparativa y objetiva del desarrollo de capacidades en promoción de la salud, desde un marco de referencia conceptual hasta su operacionalización

V. Saaristo, P. Hakamäki, H. Koskinen, K. Wiss y T. Ståhl

El propósito de este estudio fue el de analizar y probar un marco de referencia sobre el desarrollo de capacidades en la promoción de la salud con datos empíricos sobre el cuidado primario de la salud. El marco de referencia consta de siete dimensiones: compromiso, gestión, monitoreo y evaluación de necesidades, recursos, prácticas comunes, participación y otras funciones esenciales.
Los datos fueron recolectados en el 2014 en todos los centros de salud de Finlandia, de los cuales 156 (99%) nos presentaron sus cifras. Dichos datos fueron clasificados de acuerdo con la calidad de las actividades en una escala de 0 a 100, donde 100 representa una calidad deseable. Los indicadores individuales fueron agrupados en subdimensiones, las cuales a su vez fueron relacionadas con las del marco de referencia teórico. Las variables fueron reunidas usando las dimensiones y las subdimensiones como divisiones iniciales. La consistencia interna de las dimensiones y las subdimensiones fue probada con el Alfa de Cronbach estandarizado, antes y después del análisis del agrupamiento.
Los resultados mostraron que mientras la consistencia interna de las dimensiones fue alta en la clasificación inicial, es posible obtener dimensiones aún más consistentes. Esta consistencia interna de la clasificación inicial tuvo una variación de 0,62 en participación a 0,93 en prácticas comunes. En el análisis del agrupamiento, 45 de los 203 indicadores fueron asignados a una dimensión diferente de la partición inicial. La mayor ganancia en la consistencia interna se logró en la subdimensión de las comunicaciones de masa sistemáticas, mediante la relocalización de dos indicadores.
Este estudio indica que es posible evaluar de manera coherente el desarrollo de capacidades en la promoción de la salud de las organizaciones utilizando indicadores comparables y objetivos. Los análisis muestran además que se puede reducir el número de indicadores. Sería interesante mostrar cómo opera el marco de referencia en otras estructuras gubernamentales o en contextos políticos. (Global Health Promotion, 2020; 27(1): 24–32)

Las aplicaciones de Salud Móvil monitorean la implementación de mejores prácticas para apoyar la alimentación saludable y la actividad física en los programas extraescolares

K. Brazendale, M. W. Beets, R. G. Weaver, B. Turner-McGrievy, A. B. Brazendale, J. L. Chandler, J. B. Moore, J. L. Huberty, J. Lemley y R. C. Brownson

Contexto: la obesidad infantil continúa siendo una epidemia global y los espacios que congregan a los niños (como la escuela o los programas extracurriculares) tienen un gran potencial para ejercer un impacto positivo

en los comportamientos saludables de los menores. Allí se hace necesario aplicar métodos innovadores y urgentes para recolectar la información relacionada con el comportamiento en salud, de manera que se pueda hacer una evaluación y desarrollar estrategias de apoyo.
Objetivo: 1) Demostrar la viabilidad de la Salud Móvil para monitorear la implementación de estándares de alimentación saludable y actividad física beneficiosa para la salud (HEPA, por sus iniciales en inglés) y 2) Ilustrar la utilidad de la Salud Móvil para identificar las áreas donde se necesita más apoyo dentro de los espacios extraescolares.
Métodos: convocar a los líderes ($N = 175$) de los programas extraescolares para invitarlos a completar un listado de verificación en la aplicación móvil HEPAm (alimentación saludable y actividad física beneficiosa para la salud, en inglés), una vez por semana durante el tiempo de operación de los programas extracurriculares. Estos líderes recibían en sus aparatos móviles textos de recordatorio autogenerados cada semana, durante los semestres escolares correspondientes a la primavera y al otoño del 2015 y del 2016, así como a la primavera del 2017. Los datos provenientes de la HEPAm fueron separados en variables de alimentación saludable y actividad física beneficiosa para la salud, y fueron expresados como un porcentaje en la lista de verificación. Un porcentaje más alto obtenido por un dato podría indicar un más alto cumplimiento de los estándares HEPA en el programa extraescolar.
Resultados: 141 líderes de los programas extraescolares completaron un total de 13.960 listas de verificación en la aplicación HEPAm. El número promedio de formularios diligenciados por programa extracurricular fue de 43 (rango: 1–220) para alimentación saludable y de 50 (rango: 1–230) para actividad física. En cuanto a la alimentación sana, el desafío más común en los programas extraescolares fue 'El personal educa a los niños sobre la alimentación saludable', y con respecto a la actividad física, fue el de 'Los programas extraescolares solo ofrecen actividad física para las niñas'.
Conclusión: la aplicación móvil HEPAm fue ampliamente utilizada y arrojó información valiosa que puede ser implementada para desarrollar una estrategia de apoyo en los proyectos de alimentación saludable y actividad física que adelanten los programas extraescolares. Este estudio aporta confianza en la adopción de estrategias de Salud Móvil como un medio para que los profesionales de la salud pública monitoreen el cumplimiento de una iniciativa o de una intervención. (Global Health Promotion, 2020; 27(1): 33–40)

Conformar una coalición local para abordar los determinantes sociales de la hipertensión en Quibdó (Colombia): descripción y reflexión sobre el proceso

D. I. Lucumí, A. J. Schulz, J. E. Torres-Gil, L. Gonzales y K. Ramírez

Se estima que un cuarto de la población adulta de Colombia sufre de hipertensión. Sin embargo, no se les ha prestado mucha atención a los proyectos participativos que abordan los determinantes de la hipertensión a nivel local en el país.
Los primeros pasos de una coalición para abordar la hipertensión en Quibdó (Colombia) incluyeron un análisis de los participantes que tenían intereses específicos y un compromiso de las organizaciones locales. Acto seguido, se definieron los objetivos comunes, se acordaron los reglamentos para la toma de decisiones y se planteó una visión compartida.
Doce organizaciones se unieron a la coalición local, basadas en una comprensión unificada de los factores que influyen en el riesgo de hipertensión. Desarrollaron, así, un plan de acción para prevenir la hipertensión y para eliminar las desigualdades en su distribución.
Este proceso arrojó lecciones que sugieren que en las áreas urbanas marginalizadas de países con bajos ingresos, durante las primeras etapas de creación de la coalición, se debe prestar particular atención a los desafíos y oportunidades específicos del contexto, a la estructura e integración de la coalición, a fortalecer las capacidades y a replantear la salud. (Global Health Promotion, 2020; 27(1): 41–50)

Impacto comparativo de la utilización del miedo y la hipocresía inducida en la publicidad que incentiva a dejar de fumar: aplicación de una teoría autoconstructiva a las actitudes de los consumidores

J-W. Yoo y Y-J. Jin

Este estudio examinó el efecto de la hipocresía inducida, una nueva estrategia de la publicidad antitabaco dirigida a cambiar las actitudes de los fumadores a través de advertencias, en los comportamientos e intenciones de los consumidores frente al hecho de dejar de fumar. El estudio además analizó comparativamente los efectos de esta táctica contra aquellos que despiertan el miedo y que han sido usados tradicionalmente en las campañas antitabaco. Los resultados mostraron unos efectos altamente positivos de la hipocresía inducida en las actitudes de los fumadores y sus intenciones de dejar de fumar. Al comparar la publicidad que apela al miedo con la que utiliza la hipocresía inducida, se demostró que la primera tiene efectos más fuertes en las intenciones de dejar el cigarrillo, aunque no en niveles estadísticamente significativos. Cuando los fumadores fueron categorizados de acuerdo con una teoría autoconstructiva, las actitudes e intenciones de dejar de fumar fueron más fuertes entre quienes se clasificaron dentro del grupo 'interdependientes' que entre los que pertenecían al grupo de 'independientes'. Asimismo, se discutieron las implicaciones teórica y práctica de la publicidad antitabaco. (Global Health Promotion, 2020; 27(1): 51–58)

Evaluación de disposición de la comunidad para la difusión de programas de actividad física basados en la evidencia, en adultos mayores de Changsha, China: un caso de Enhance®Fitness

M. Liu, X. Zhang, J. Xiao, F. Ge, S. Tang y B. Belza

La actividad física ha disminuido en China en las pasadas dos décadas debido, en gran parte, a la urbanización. Los programas basados en la evidencia pueden ayudar a promover la actividad física, pero son limitados en ese país. Adoptar los programas existentes resulta entonces una opción viable. Como primera medida, es necesario hacer una evaluación de la comunidad para saber si está realmente preparada. Este estudio se planteó para determinar los niveles de disposición de la comunidad para la difusión de programas de actividad física basados en la evidencia, en adultos mayores de Changsha, China.

Se realizaron entrevistas personales a 33 participantes de cinco distritos de Changsha, con el fin de evaluar la preparación de la comunidad en cinco dimensiones: conocimiento comunitario de los esfuerzos, clima comunitario, conocimiento general del tema, liderazgo y recursos. Los datos fueron transcritos, revisados y comparados con una escala de calificación del desempeño, para proporcionar un puntaje de disposición que va desde 1 (no concientizada) hasta 9 (alto nivel de pertenencia a la comunidad).

Entre los participantes había 14 miembros del personal de la comunidad, 13 adultos mayores, 4 líderes comunitarios y 3 profesionales de la salud. Los tres obstáculos predominantes para los programas de actividad física fueron la falta de espacios apropiados, la falta de financiamiento y la escasez de instructores. Los tres recursos que obtuvieron el puntaje más alto fueron la disponibilidad de espacios interiores, de sillas y de altoparlantes. El liderazgo de la comunidad fue la dimensión mejor calificada en cuanto a la preparación (3,3 sobre 9), seguido por el clima comunitario (3,2), el conocimiento comunitario de los esfuerzos (3,1) y los recursos (2,8). El conocimiento general del tema obtuvo el puntaje más bajo (2,7). El resultado general de la etapa de preparación de la comunidad de Changsha fue de 3,0 sobre 9.

La etapa de preparación de las comunidades en esta región de China está en el nivel de "vagamente concientizada". Por lo tanto, desarrollar estrategias que lleven a aumentar los niveles de preparación puede

ayudar a incrementar allí la difusión de programas de actividad física basados en la evidencia. (Global Health Promotion, 2020; 27(1): 59–67)

Universidades Saludables. Desarrollo e implementación de un programa de intervención en promoción de la salud integral, adoptado para el personal que trabaja en la educación superior: estudio ARK

S. T. Innstrand y M. Christensen

Respaldado por el concepto de Universidades Saludables, este documento presenta una intervención holística, etiquetada como ARK, que busca mejorar la salud y el bienestar del personal académico. El ARK (un acrónimo noruego para estudio de clima y ambiente laboral) se realizó en 18 universidades e institutos de educación superior en Noruega. El sondeo recolectó información sobre la percepción que los empleados tienen del ambiente laboral psicosocial, el bienestar y la salud, entre más de 15.000 participantes. El análisis arrojó información valiosa y experiencias sobre los procesos de desarrollo organizacional y cómo implementar de manera exitosa un programa de intervención en la promoción de la salud. El propósito de este documento es presentar el proyecto ARK y plantear sugerencias sobre cómo conducir un programa de intervención en promoción de la salud en una universidad, basado en la experiencia y el conocimiento recolectados con el ARK. Este puede informar e inspirar la planeación de futuras iniciativas para la promoción de la salud, encaminadas a solventar las diferentes necesidades de los empleados universitarios. (Global Health Promotion, 2020; 27(1): 68–76)

Eficacia de un programa de educación en salud mental en las escuelas, en un área urbana de bajos recursos en Perú

H. Y. Kim, E. W. Nam, K. N. Jin y A. Y. So

Este estudio buscaba evaluar la eficacia de un programa de educación en salud mental en las escuelas para prevenir los intentos de suicidio en los adolescentes de un área urbana de escasos recursos en Perú, como parte de un proyecto de la Asistencia Oficial para el Desarrollo de la Agencia de Cooperación Internacional de Corea. El estudio de eficacia se basó en el modelo PRECEDE-PROCEDE. En esta intervención, los participantes fueron alumnos de primero a quinto grado de secundaria en escuelas públicas. El sondeo se realizó con un método de muestreo aleatorio estratificado. Se analizó comparativamente una muestra de 768 y 738 estudiantes en grupos experimental y de control, mediante pruebas chi-cuadrado y regresión logística. Este estudio demostró que el programa tuvo un efecto positivo en los adolescentes del grupo experimental, en cuanto a sus comportamientos de salud mental e intentos de suicidio, comparados con los del grupo de control. Así, la intervención pudo haber ayudado a prevenir el incremento de comportamientos de riesgo relacionados con la salud mental y los intentos de suicidio. Además, el afecto parental, cuando se incluyó en la intervención, tuvo un efecto significativo en los resultados relacionados con los intentos de suicidio. Por tanto, es fundamental involucrar la presencia afectiva de los padres. Con el fin de mejorar la eficacia de las intervenciones que buscan prevenir el suicidio entre los jóvenes, se debe estimular la participación de los padres, y de los propios adolescentes, en estos programas. Y para mantener dichas intervenciones y expandir su cobertura a otras escuelas del vecindario, se necesita implementar una estrategia que asegure la sostenibilidad del proyecto, particularmente con miras a fomentar el desarrollo de capacidades sobre este tema en las escuelas y comunidades. (Global Health Promotion, 2020; 27(1): 77–86)

Asimetría de poder en las alianzas de investigación en salud mundial: estudio cualitativo con investigadores en Costa de Marfil

P. Gogognon y B. Godard

Contexto: la asimetría de poder en las alianzas de investigación en salud mundial constituye un desafío de justicia y equidad para las instituciones de investigación, los investigadores y las comunidades en particular, en los países en desarrollo. Para los investigadores, la distribución desigual de poder puede constituir un obstáculo para una investigación eficiente y equitativa, con el riesgo de quedar expuestos a una situación de vulnerabilidad.
Objetivos: aunque dichos desafíos son ampliamente discutidos en la literatura, el fenómeno se queda todavía como un estudio teórico, con pocos datos empíricos disponibles, particularmente en los países en desarrollo. Por tanto, este estudio tiene como objetivo identificar los factores y los mecanismos de la asimetría de poder en la investigación en salud mundial dentro de la perspectiva de los investigadores en un país del sur.
Metodología: se llevó a cabo un estudio cualitativo entre 19 investigadores del dominio de la salud, en Costa de Marfil. Todos los participantes cursaban una carrera universitaria de enseñanza e investigación, de los cuales había 17 médicos de un Centro Hospitalario Universitario y los otros 2 no eran médicos. Se realizaron entrevistas semidirigidas para evaluar su percepción sobre los factores que influyen en la asimetría de poder y los mecanismos por los cuales ellos operan.
Resultados: dos temas principales surgen del análisis de datos: los desafíos del financiamiento y la complejidad de las relaciones interpersonales dentro de las alianzas.
Discusión: este estudio muestra que la presión sobre el acceso a los recursos contribuye a deteriorar las condiciones en las cuales se implementan las alianzas. Por otro lado, el ambiente institucional de la investigación muestra vínculos de subordinación que plantean riesgos para la autonomía de los jóvenes investigadores y la integridad de sus trabajos. En este sentido, recomendamos un análisis profundo del ambiente en el cual se ponen en marcha dichas alianzas, esencialmente en los aspectos de la rendición de cuentas, la imputabilidad y la integridad profesional. (Global Health Promotion, 2020; 27(1): 92–101)

Reviewer list 2019
Liste des réviseurs(es) 2019
Lista de revisores/as 2019

The *Global Health Promotion* editorial team would like to thank all reviewers who agreed to review manuscripts in 2019, therefore contributing to the high quality of the journal.

L'équipe éditoriale de *Global Health Promotion* souhaiterait remercier tous les réviseurs et réviseures qui ont accepté de relire des manuscrits en 2019, contribuant ainsi à la haute qualité de la revue.

El equipo editorial de *Global Health Promotion* desea agradecer a quienes aceptaron revisar manuscritos en 2019, contribuyendo con ello a la alta calidad de la revista.

Enrique Abeya Girardon
Karim Abu-Omar
Thierry Adoukonou
Olaoluwa Agbaje
José Agulló-Cantos
Ashley Aimone
Francois Alinon
François Alla
Genevieve Alorbi
Zelia Anastacio
Lesley Andrade
Laura Andrissi
Aysun Ardıç
Penehafo Angula
Luz Arenas Monreal
Olivier Aromatario
Hiram Arroyo-Acevedo
Gladys Asiedu
Garry Aslanyan
Raphael B. Awuah
Susana Barradas
Angèle Bilodeau
Alexandra Blair
Noemi Bordoni
Peter Busse
Ayse Caloglu Cal
Soraya Calvo
Mario Campuzano
María Inés Castro
Michael Chaiton
Ling Chew
Shu-Ti Chiou
Rafael Cofino
Paolo Contu
J. Hope Corbin
Lila Cornejo
Ruth Cross
Erica Di Ruggiero
Anne Dougherty
Muriel Dubreuil
Richard Edwards
Karina Espindola
Takashi Eto
Jan Faber
Nancy Flores
Florence Francis
Kemesha Gabbidon
Javier Gallego Dieguez
Estela Garrido
Lara Gautier
Valentin Gavidia
Alba Gaviria-Méndez
Laurent Gerbaud
Maria Cristina Giraldo
Alison Granger-Brown
Pierre Haddad
Anne-Marie Hamelin
Frances Hardin-Fanning
Muhammad Hatib
Hyun-Hee Heo
Alejandra Hernandez
Helena Honkaniemi
Michelle Hogue
Alyson Holland
Thomas Hormenu
David Houeto
Hassan Joulaei
Pamela Kaufman
Joel Kaushansky
Jonatann Konfino
Gyöngyi Kökönyei
Glenn Laverack
Angela Y.M. Leung
Diane Levin-Zamir
Minhui Liu
Carmen Logie
Patrick Makoutode
Erma Manoncourt
Blanca Mantilla
Jeff Masuda
Kathleen McInvale Trejo
David McQueen
Claudia Meier Magistretti
Hugo Mercer
Raul Mercer
Karen Milton
Minh Minh
Gabriela Murillo
Zamira Namén Urrutia
Patricia O'Campo
Larry Olsen
Pamela Orpinas
Luis Ortiz-Hernandez
Fatoumata Ouattara
Janine Owens
Margot Parkes
Janice Paula
Ann Pederson
Esteban Picazzo
Joanna Poczta
Blake Poland
Hélène Poliquin
Sumathi Prabhu
Sara Elena Pérez Gil
Mónica Rojas
Christine Richards
Valéry Ridde
Jan Ritchie
Rolando Rivera
Monserrat Salas
Daniel Salomon
Maria Scaglia
Rachel Scherr
Martine Shareck
Ewart Skinner
Kelly Skinner
Itzel Adriana Sosa Sánchez

Global Health Promotion 1757-9759; Vol 27(1): 116–117; 896527 DOI: 10.1177/1757975919896527 journals.sagepub.com/home/ghp

Lourdes Soto de Laurido
Aurelia Souares
Andrew Springer
Louise St-Pierre
Annika Steinmann
Fei Sun
Catherine Swann
Magdalena Sánchez J.
Kevser Tari Selçuk
Roman Tandlich
Hadi Tehrani
Adrienne C. Testa
Kit Ching To
Michaela Told
Pilar Torre
Anita Tresona
Bernardo Turnbull
Teresa Vilaca
Dean Whitehead
Elaine Wong Sing
Maurice Yaogo
Aaron Yarmoshuk
Kenneth Yongabi Anchang
German Zuluaga
Melanie Zurba