REFACS
Revista Família, Ciclos de Vida e Saúde no Contexto Social

Community Physical Activity Program: time requirements and delivery

Programa de Atividade Física Comunitária: tempo necessário e execução

Programa de Actividad Física Comunitaria: tiempo necesario y ejecución

Received: 10/06/2013
Approved: 21/02/2014

Samantha Marie Harden[1]
Fabio Araújo Almeida[2]
Wendy You[3]
Paul Andrew Estabrooks[4]

The implementation dimension of RE-AIM evaluates the fidelity to treatment protocol and its related costs. In this study, an evidence-based, community-wide physical activity and fruit/vegetable consumption program was implemented by health educators within the Cooperative Extension System. The purpose of this study was to determine 1) the extent to which health educators adhere to underlying program principles and 2) the time required to plan, recruit, and deliver the intervention. Sixteen agents (100.0%) who delivered the program completed a survey that included items on both time requirements and treatment protocol. When analyzed, it was found that health educators adhered to the three underlying principles of the program; as seen by delivering to groups (100.0%), collecting group goal attainment (80.1%, SD± .08%), and providing feedback (72.5%, SD± .16%) over the 8 week study. However, as the program reached the end (weeks 6-8), there was a significant ($p < .05$) decline in providing feedback to teams. The health educators spent the most time on collecting team miles (12.4 SD±18.8 hours), entering participant information (9.47 SD±19.8 hours), communicating with participants (9.32 SD±13.7 hours), and developing local materials for newsletters (5.7 SD±3.79 hours). The program components that health educators spent the least amount of time on were preparing captains packets (.909 SD± 2.7 hours), leading activities (2.54 SD±7.17 hours), and following up with captains (3.09 SD±2.81 hours). This study indicates that the time requirements for Fit Extension fit well within the expectations of health educators. Future research is needed to compare implementation fidelity and structures that may promote program sustainability.
Descriptors: Exercise; Community-institutional relations; Health promotion; Health educators; Program evaluation.

A dimensão ***I***mplementação do RE-AIM avalia a fidelidade ao protocolo de tratamento e seus custos relacionados. Neste estudo, um programa comunitário de atividade física e consumo de frutas e vegetais baseado em evidências foi implementado por educadores em saúde no âmbito do Sistema de Extensão Cooperativa. O objetivo deste estudo foi determinar: 1) a

[1] Biologist. Doctor in Human Nutrition, Foods and Exercise. School of Kinesiology. University of British Columbia, Canada.
[2] Social Work. Specialist in Community Practice. Masters in Social Work in Community Practice and International Development. Doctor in Social Work. Department of Human Nutrition, Foods, & Exercise. University Virginia Tech, USA.
[3] Bachelors of Arts. Specialist of International Commerce. Doctor in Agricultural Economics. Department of Agricultural and Applied Economics. University Virginia Tech, USA.
[4] Physical Educator. Masters in Kinesiology. Doctor in Kinesiology. Professor of Master and Doctorate in the Department of Human Nutrition, Foods, & Exercise, Virginia Tech, USA. estabrkp@vt.edu.

medida em que os educadores em saúde aderiram aos princípios subjacentes e 2) o tempo necessário para planejar, recrutar e executar a intervenção. Dezesseis educadores em saúde (100,0%) que aplicaram o programa completaram um questionário que incluiu itens sobre os requisitos de tempo e protocolo de tratamento. Verificou-se que os educadores em saúde aderiam aos três princípios subjacentes do programa, como observado através da criação de grupos (100,0%), coleta do alcance de metas dos grupos (80,1%, SD±0,08%), e fornecimento de *feedback* (72,5%, SD±0,16%) ao longo de 8 semanas do estudo. No entanto, quando o programa se aproximou do final (semanas 6-8), houve uma redução significativa ($p<0,05$) no fornecimento de *feedback* para as equipes. Os educadores em saúde passaram mais tempo na coleta de quilômetros percorridos por cada equipe (12,4 SD±18,8 horas), na coleta de informações dos participantes (9,47 SD±19,8 horas), se comunicando com os participantes (9,32 SD±13,7 horas) e no desenvolvimento de materiais locais para boletins informativos (5,7 SD±3,79 horas). Os componentes do programa que os educadores em saúde passaram a menor quantidade de tempo foram na preparação dos pacotes para os lideres de cada equipe (0,909 SD±2,7 horas), na condução de atividades (2,54 SD±7,17 horas) e no acompanhamento dos lideres (3,09 SD±2,81 horas). Este estudo indica que o tempo necessário para o programa *Fit Extension* se adequou às expectativas dos educadores em saúde. Pesquisas futuras são necessárias para comparar a fidelidade da implementação e estruturas que possam promover a sustentabilidade do programa.
Descritores: Exercício. Relações Comunidade-Instituição. Promoção da saúde. Educadores em saúde. Avaliação de Programas e Projetos de Saúde.

La dimensión ***I***mplementación del RE-AIM evalúa la fidelidad al protocolo de tratamiento y sus costos relacionados. En este estudio, un programa comunitario de actividad física y consumo de frutas y vegetales basado en evidencias fue implementado por educadores en salud en el ámbito del Sistema de Extensión Cooperativa. El objetivo de éste estudio fue determinar: 1) la medida en que los educadores en salud adhirieron a los principios subyacentes y 2) el tiempo necesario para planear, reclutar y ejecutar la intervención. Dieciséis educadores en salud (100%) que aplicaron el programa, completaron un cuestionario que incluyó ítems sobre los requisitos del tiempo y protocolo de tratamiento. Se verificó que los educadores en salud se adherían a los tres principios subyacentes del programa, como observado a través de la creación de grupos (100%), colecta del alcance de metas de los grupos (80,1% SD±0,08%), y suministro de *feedback* (72,5%, SD±0,16%) a lo largo de 8 semanas de estudio. Sin embargo, cuando el programa se aproximó al final (semanas 6-8), hubo una reducción significativa ($p<0,05$) en el suministro de *feedback* para los equipos. Los educadores en salud pasaron mas tiempo en la colecta de kilómetros recorridos por cada equipo (12,4 SD±18,8 horas) en la colecta de informaciones de los participantes (9,47 SD±19,8 horas),comunicándose con los participantes (9,32 SD±13,7 horas) y en el desenvolvimiento de materiales locales para boletines informativos (5,7 SD±3,79 horas). Los componentes del programa que los educadores en salud pasaron en menor cantidad de tiempo fue en la preparación de los paquetes para los líderes de cada equipo (0,909 SD±2,7 horas), en la conducción de actividades (2,54 SD±7,17 horas) y en el acompañamiento de los líderes (3,09 SD+ 2,81±oras). Este estudio indica que el tiempo para el programa *Fit Extension* se adecuó a las expectativas de los educadores en salud. Serán necesarias investigaciones futuras para comparar la fidelidad de la implementación y estructuras que puedan promover la sustentabilidad del programa.
Descriptores: Ejercicio; Relaciones Comunidad-Institución; Promoción de la salud; Educadores en salud; Evaluación de Programas y Proyectos de Salud.

INTRODUCTION

Implementation can be defined as the degree to which an intervention is delivered as intended and its related costs[1]. Both of these areas are important in the translation of research into practice settings. Interventions that are delivered with low fidelity to protocol are thought to be less likely to achieve a similar effect as was found in research settings[2]. However, it is clear that adaptation occurs when practice professionals use research-based programs[3]. Also, interventions that have high costs are less likely to be translated from research into practice. Unfortunately, despite the importance of fidelity and cost, there is little information on this dimension of RE-AIM in the extant literature[4]. This paper presents the implementation assessment of a community-based physical activity and fruit/vegetable promotion program, Fit Extension, which was evaluated using the RE-AIM framework.

In 2008, Virginia Cooperative Extension (VCE) identified the need to address the low prevalence of physical activity and fruit/vegetable consumption and engaged in a systems-based approach to develop Fit Extension[5,6]. The process used to develop the program included engagement of organizational decision makers, regional administrators, and representative health educators who would ultimately deliver the program. In addition, researchers with expertise in nutrition, physical activity, program design and evaluation were included as part of the development team. The systems-based approach was used to ensure that Fit Extension was designed based upon sound scientific evidence and with the intention to align with the VCE structure, resources, and mission. The resultant program was founded in group-dynamics theory[7] and encouraged community members to join as teams who would figuratively walk the distance of Virginia over an 8-week period.

Physical activity miles were represented by 15 minutes of moderate physical activity (i.e., 30 minutes of cycling would be 2 miles) or actual miles at a 4.2 mph or greater pace. In addition to tracking their physical activity, participants were asked to track their fruit and vegetable intake, with an overall goal of consuming 5 cups of fruits and vegetables per day. Teams of 6 were selected to align the team goal with recommended guidelines of approximately 150 minutes of moderate physical activity for each team member per week. Over the course of the program, evidence-based newsletters were to be sent weekly, with a final page of local, tailored feedback on the program. Intervention components included group goal setting and, on a weekly basis, participants reported physical activity and received newsletters with tailored normative and team-based feedback as well as theory-based messages to promote physical activity and fruit/vegetable consumption. Health educators were also provided with materials and information necessary to engage community stakeholders in planning and participant recruitment activities that were not directly related to the delivery of the program per se.

The aim of this study was to identify the degree to which health educators used the team-based approach, provided weekly newsletters, and personalized normative and team feedback. A second purpose of the study was to determine the time needed to deliver Fit Extension. This purpose was further divided into time spent on direct delivery of the program and time spent on planning and recruitment.

METHOD

Design: Fit Extension was designed by, and for delivery through VCE, which is an organizational structure that is associated with Virginia Tech, a land-grant university (these universities that are found across the United States and each has a Cooperative Extension system)[8]. VCE has a history of delivering nutrition education programs and provides a diffusion system of health educators that have the potential to reach a large proportion of the population across the state[6]. As part of a larger trial, this study represents tracking the delivery of Fit Extension by 16 VCE health educators, each

within a different area of the state. Each health educator was contacted weekly for 4 months prior to the program start date (April 2010) and for each of the 8 weeks of the program delivery. This paper reports only on data associated with the actual delivery of the program. The current study was approved by the Virginia Tech Institutional Review Board.

Sample: eighteen health educators were trained on Fit Extension and 16 delivered the program. All of those who delivered the program completed the implementation assessment and were females (average age=42.1±12.1 years). Educators served 3 and a half (SD±1.45) counties, on average, each and had been with the VCE for 7.85 years (SD±9.69 years). Participants reported spending about half of their working hours (48.4%±28.5 %) on nutrition and health promotion.

Measurement: when Fit Extension was introduced to the health educators each was provided with a tracking sheet to monitor the activities and time associated with training, planning, and delivering the program. Each week health educators were contacted by email or telephone to complete a simple survey. They were asked if they promoted Fit Extension as a team-based program at the beginning of the program and then each week they were asked the number of teams that they collected physical activity reports from, if they sent out tailored follow-up messages, and if they sent out the weekly newsletter. They also reported activities and time associated with preparing program packets for participating teams, entering participant information, collecting weekly team reports of physical activity, developing local materials for newsletters, communicating with participants, leading activities for the program, and following up with team captains.

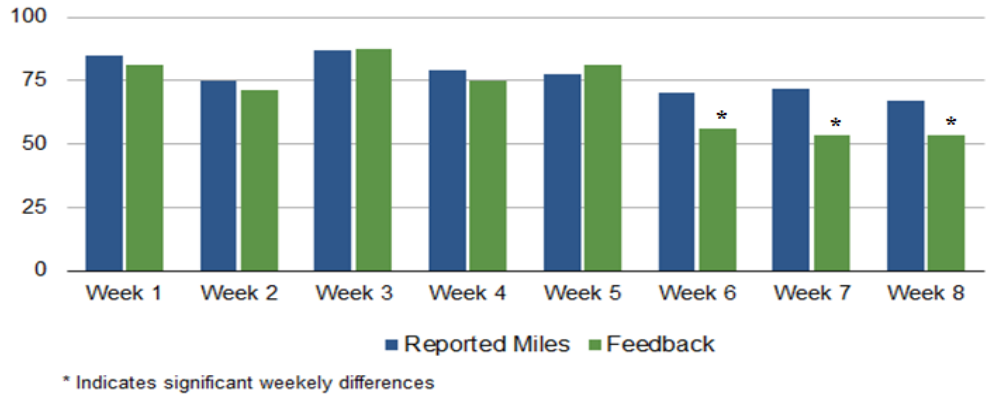
Data Analysis: simple descriptive statistics were used to summarize the data. Percent scores were calculated to determine the proportion of health educators that completed delivery tasks. Means were calculated for the time spent on different aspects of program delivery.

RESULTS

Program Delivery Fidelity

All health educators (n=16) used the team-based delivery structure for the program. Over the 8 weeks, the health educators gathered weekly mileage reports from captains 80.1% of the time, on average (SD± .08%). The percentage of teams that reported their mileage did not vary significantly by week ($p > .05$). Additionally, health educators provided tailored feedback to the teams 72.5% (SD± .16%) of the time. The proportion of feedback provided by health educators varied significantly ($p < .05$) for the final weeks of the program (weeks 6-8); with week-3 (87.5%) being the highest and weeks-7/8 being the lowest (53.3%) (Figure 1).

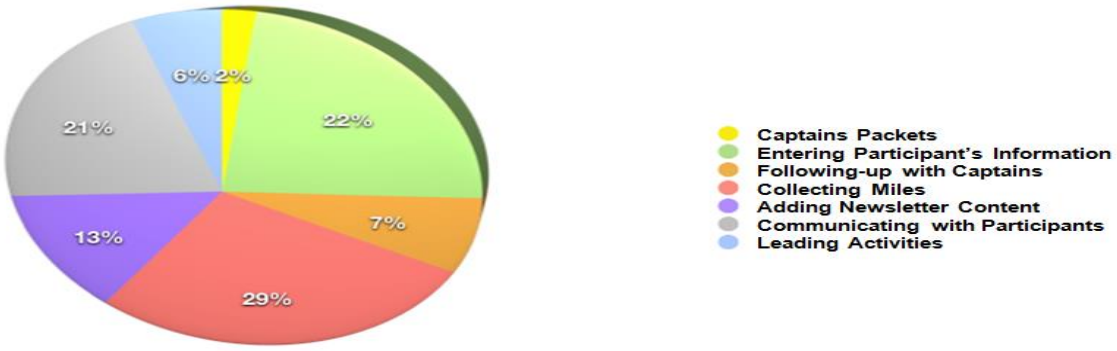
Figure 1. Weekly Percentages of Mileage Reporting and Providing Feedback. Virginia, USA. 2010.



Time Requirements for Program Components

The survey instrument captured all components of program delivery. Health educators spent 10.75 hours per week (SD± 16.27 hours) on components related to delivery; the range was quit large as the minimum hours spent on program delivery was 11 and the most was a health educator who reported spending 241 total hours on the program. As seen in Figure 2 below, health educators spent the most time on collecting team miles (12.4 SD±18.8 hours), entering participant information (9.47 SD± 19.8 hours), communicating with participants (9.32 SD±13.7 hours), and developing local materials for newsletters (5.7 SD±3.79 hours). The program components that health educators spent the least amount of time on were preparing captains packets (.909 SD±2.7 hours), leading activities (2.54 SD±7.17 hours), and following up with captains (3.09 SD±2.81 hours. Figure 2 illustrates the average amount of hours spent on each program component.

Figure 2. Proportion of Total Hours Spent on Program Component. Virginia, USA. 2010.



DISCUSSION

On average, the implementation was fairly high, but did decrease across the course of the 8-week program. As seen in Figure 1, captains were still providing health educators with team miles, but the proportion of agents who were still providing feedback had decreased. This finding aligns with other research that demonstrates that even at the level of the delivery agent, adherence to protocol should be monitored[9]. It also suggests that structures that prompt sustained implementation (incentives to health educators) may be necessary to achieve ongoing fidelity[10].

While it is difficult to find other data on time of delivery in the literature on community-based physical activity and fruit/vegetable interventions, we conclude that the time commitment required for Fit Extension, across all program delivery components, was relatively low. The average time spent on these activities was less than one 8-hour day per week which seems reasonable in this context since health educators reported that they spent about 20 hours/week delivering nutrition and health promotion strategies. Therefore, a VCE health educator could deliver Fit Extension and still have approximately 12 hours per week to complete other health promotion activities and remain within the range of time they typically spend on these activities.

Although we did find a fairly high level of implementation fidelity, we also noticed that as time went on health educators were less likely to adhere to all program components. While we do not know whether this decrease in fidelity towards the end of the program was related to the program requirements itself (e.g. program delivery burn-out) or possibly competing job demands of the health educators, it is

possible that the decline in the amount of feedback provided by health educators to program participants could have impacted participant engagement and success in the program. Future research should investigate these questions.

Furthermore, these questions also have important implications for the evaluation of community-based programs, particularly those that are delivered over the course of several sessions. First, the effectiveness of said programs could be impacted by the degree of implementation fidelity. A possible question to be investigated is whether the effectiveness of the program was impacted by the level of implementation fidelity; as in, we need to explore the relationship between the degree to which program components were received and its effect on the participants' level of success. Second, implementation fidelity could impact future program adoption by providing an accurate assessment of the time and resources required for the delivery of programs. Third, future participant maintenance of health behaviors could also be impacted by the degree to which they "received" the full program or only parts of the program. Finally, implementation fidelity could impact the sustainability and ongoing delivery of future programs.

CONCLUSION

The overall goal of this paper was to provide an example of the implementation assessment of a community-based health promotion program. It documented that the degree to which program components were delivered as intended varied in that all health educators used the basic group-dynamics structure, but not all consistently worked with teams to collect weekly reports or provided weekly feedback.

Although the scope of this study was limited to the reporting of time and intervention delivery activities, overall, these findings suggest the importance to incorporate different dimensions of the RE-AIM framework as part of the planning and evaluation process. The potential relationships between implementation fidelity and other RE-AIM dimensions serve to highlight the importance of addressing a multitude of factors in the planning and evaluation of health behavior programs in order to increase their public health impact and long term sustainability.

However, most of these external validity factors (i.e. reach, implementation, adoption and maintenance) continue to go under-reported. Future research should continue to report on each of these dimensions and further examine the impact and relationship between these factors.

REFERENCES

1. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: The RE-AIM framework. Am J Public Health. 1999; 89:1322-7.

2. Cohen DJ et al. Fidelity Versus Flexibility Translating Evidence- Based Research into Practice. Am J Prev Med. 2008; 35(5S).

3. Estabrooks PA et al. Move More: Translating Efficacious Physical Activity Intervention Principles into Effective Clinical Practice. International Journal of Sport and Exercise Psychology. 2011; 9:4-18.

4. Glasgow RE et al. Evaluating the impact of health promotion programs: using the RE-AIM framework to form summary measures for decision making involving complex issues. Health Educ Res. 2006; 21(5):688-94.

5. Estabrooks PA, Glasgow RE. Translating effective clinic-based physical activity interventions into practice. Am J Prev Med. 2006; 31(4 Suppl):S45-56.

6. Estabrooks PA et al. Determining the impact of Walk Kansas: applying a team-building approach to community physical activity promotion. Ann Behav Med. 2006; 36(1):1-12.

7. Carron Albert V, Spink KS. Team Building in an Exercise Setting. Sport Psychology. 2003; 7:8-18.

8. United States Department of Agriculture. National Institute of Food and Agriculture, 2013. Available at: http://www.csrees.usda.gov/Extension/ Access: 31/01/2014.

9. Bellig AJ et al. Enhancing treatment fidelity in health behavior change studies: best practices and recommendations from the NIH Behavior Change Consortium. Health Pscyhol. 2004; 23(5):443-51.
10. Casey MM et al. Sustaining health promotion programs within sport and recreation organizations. J Sci Med Sport. 2009; 12:113-8.
11. Glasgow RE, Linnan LA. Evaluation of theory-based interventions. In: Glanz K, Rimer BK, Viswanath K, eds. Health Behavior and Health Education: Theory, Research, and Practice. 4th ed. San Francisco, CA: Jossey-Bass, 487-508, 2008.
12. Allen KC et al. Understanding the internal and external validity of health literacy interventions: A systematic literature review using the RE-AIM framework. J Health Commun. 2011; 16(Suppl3):55-72.

CONTRIBUTIONS

Samantha Marie Harden, Fábio Araújo Almeida, Wendy You and Paul Andrews Estabrooks have equal participation in the design, supervision of field activities, data analysis and redaction of the article

ACKNOWLEDGEMENTS

Thanks to the National Institute on the Aging, EE.UU. for the financing of the study (Grants 025 667 020 118 AG AG 012 113 AG 07907)