Promotion of physical activity, healthy eating and family health in municipalities with health gym

CDD. 20.ed. 613.7
796.027

http://dx.doi.org/10.1590/1807-55092016000400925

Alex Antonio FLORINDO*
Priscila Missaki NAKAMURA**
José Cazuza de FARIAS JÚNIOR***
Fernando Vinholes SIQUEIRA****
Rodrigo Siqueira REIS*****
Danielle Keylla Alencar CRUZ******
Pedro Curi HALLAL****

*Escola de Artes, Ciências e Humanidades, Universidade de São Paulo, São Paulo, SP, Brasil.
**Instituto Federal Sul de Minas Gerais, Muzambinho, MG, Brasil.
***Departamento de Educação Física, Universidade Federal da Paraíba, João Pessoa, PB, Brasil.
****Escola Superior de Educação Física, Universidade Federal de Pelotas, Pelotas, RS, Brasil.
*****Prevention Research Center, Brown School, Washington University in St. Louis, St. Louis, MO, United States of America.
******Secretaria de Atenção à Saúde, Ministério da Saúde, Brasília, DF, Brasil.

Abstract

The present study aimed at: 1) describing the prevalence of actions to promote physical activity and healthy eating and describing the characteristics of family health strategies in Brazilian municipalities funded to implement the "Health Gym Program"; and 2) verifying the prevalence of these actions according to the presence of Family Health Support Centers (FHSC) and the presence of physical education professionals and nutritionists in the health family teams. We conducted telephone interviews with public health managers in 2012 in all cities funded to implement the "Health Gym Program". We described the frequencies (%) of the family health teams' characteristics and of the physical activity and healthy eating actions, and we calculated the prevalence in municipalities with and without FHSC, and in municipalities with and without physical education professionals and nutritionists in the teams. We used the chi-square test to evaluate the associations. Out of a total of 5,570 municipalities in Brazil in 2012, 2,074 (37.2%) were funded to implement the program, and amongst them, 44.1% (n = 914 public health managers) participated in the survey. Most of the municipalities did not have FHSC teams (61.5%), though reported developing physical activity (84.1%) or healthy eating actions (83.9%). The education sector was referred to as a public partner in most actions. The prevalence of physical activity (91.5%, $p < 0.001$) and healthy eating (88.2%, $p = 0.006$) actions was higher in cities with FHSC than in their counterparts. The prevalence of primary care actions was higher in municipalities that had physical education professionals and nutritionists in teams. Having FHSC with physical education professionals and nutritionists is an important factor for promoting physical activity and healthy eating.

Key Words: Health promotion; Health teams support centers; Physical Education; Nutrition.

Introduction

The epidemiological profile and health problems of the Brazilian population have changed over the last century in Brazil[1-2]. Longitudinal studies have shown a decrease in infant mortality, as well as improvements in educational levels, increasing areas covered by basic sanitation, housing improvements and increases in vaccination reach[3]. These changes contributed to the increase in life expectancy. However, there was concomitantly an increase in excess body weight and in morbidity and mortality due to chronic non-communicable diseases[2]. Currently in Brazil, over 50% of adults are overweight, 14.8% are smokers and 79.8% do not consume at least five or more servings of fruits, vegetables or greens[4]. Heart diseases, chronic respiratory diseases, diabetes, cancers and renal diseases are the main causes of death in Brazil today[5]. In addition, surveys among samples of adult population in Brazilian capitals have indicated that 60% of adults do not engage in any kind of leisure physical activity and about 85% of people do not practice at least 150 minutes of physical activity in this domain[6-7].

A recent study emphasized the severity of these problems in the world, showing that excess body weight, smoking, lack of physical activity and low consumption of fruits and vegetables are among the main risk factors for diseases[8]. Therefore, the current health problems are very complex, they include among their main causes risk factors that are related to lifestyle and that can be modified, requiring in this way ample actions that address the issue and prioritize the factors that are determinant for good health. The organic health law in Brazil places food, housing, education, leisure, transportation, income, labor, environment, primary health services and basic sanitation and physical activity as determinants in the health-disease process[9-10], considering that health promotion aims to act directly to improve these determinants through a combination of educational, behavioral, social and environmental support, with popular participation and social control[11-12]. In this sense, the National Health Promotion Policy presents principles and guidelines for the improvement of health determinants and to address the problems that affect Public Health in Brazil, and places the Unified Health System (SUS) as an important driver in this process[13].

The Family Health Strategy is one of SUS' main primary health care policies. It was implemented in 1994, initially with teams composed of doctors, nurses, nursing auxiliaries and community health agents, which have contributed to improve the primary health care, mainly by shifting the focus from individual care, based on the biomedical and curative model, to a collective health approach aimed at primary prevention of diseases and health promotion[14-15]. The Family Health Support Centers (FHSC - NASF) emerged in 2008[16] as part of the Family Health Strategy and aimed at improving integral care, interdisciplinarity and intersectoriality related to health promotion and disease prevention within the SUS scope, through the matricial support and support to the actions in the territory where health teams work, including other professional categories in this care level, i.e. nutritionists and physical education professional.

In 2011, the Ministry of Health launched the Health Gym Program, which aims to contribute to the promotion of health, to the production of care and to healthy lifestyles from the implantation of hubs with infrastructure and skilled professionals[17-18]. Also in 2011, the National Plan for Combating Chronic Non-Communicable Diseases established health promotion as one of its guidelines, including promotion of physical activity, promotion of healthy eating, active aging, prevention and control of smoking and of excessive alcohol consumption[19].

However, there are still few descriptive quantitative studies on actions to promote physical activity and healthy eating in Brazilian municipalities, mainly analyzing the participation of FHSC in these actions. Given that this type of diagnosis is essential for monitoring the health policies implementation, the objectives of the present study were: 1) to describe the prevalence of actions to promote physical activity and healthy eating, and the characteristics of family health strategy in Brazilian municipalities that were funded for the development of the Health Gym Program; and 2) to verify the prevalence of these actions according to the presence of FHSC and of physical education professionals and nutritionists in the teams.

Method

This study is part of a multicentre research entitled "Health Gym: evaluation of programs to promote physical activity in Brazil". The study was conducted between December 2011 and November 2014. The data presented in this article refer to a cross-sectional survey carried out with the main health managers (Secretaries, Undersecretaries, Directors, Superintendents, and Coordinators) in municipalities with resources from the Ministry of Health for the development of the Health Gym Program in 2011 and 2012. As of July 2012, there were 2,074 municipalities with resources for the implementation of the Health Gym program throughout the country (37.2% of a total of 5,570 Brazilian municipalities). The interviews with the managers were carried out by a company specialized in data collection, using the computer-assisted telephone interview system. This procedure is used by the health surveillance system of the Brazil's Ministry of Health (VIGITEL)[4].

The questionnaire used during the interviews with the managers was elaborated by the project's group of researchers, based on the National Policy for Health Promotion documents[13] and the ordinance that created the Health Gym Program[17]. The final version of the interview instrument was composed of 68 questions divided into seven blocks:

1) General information on the interviewed manager; 2) Structure of the municipality's primary care and family health network; 3) Municipality's health promotion actions; 4) Manager's knowledge about the Health Gym Program; 5) Information about the implementation of the Health Gym Program in the municipality; 6) Expected results for the Health Gym Program; 7) Questions about new submissions to request funds for the Health Gym Program. This paper worked with the information obtained in blocks one, two and three.

The registry of the telephone numbers of the municipalities contemplated was made available by the Health Surveillance Secretariat of the Ministry of Health for the company responsible for data collection. Initially, the company made the first telephone contact with the Municipal Health Secretariats and tried to schedule the interview with the respective Secretary or with the main health manager of the municipality (Directors, Coordinators, Managers, or Health Superintendents). In the absence or unavailability of one of these, the interview was conducted with another professional responsible for the Health Academy Program. On average, five attempts were made to find or conduct the interview with the managers in the municipalities.

The number of habitants per municipality was obtained from the Demographic Census of 2010[20].

Statistical data analysis comprised the distribution by frequency (absolute and relative) of information related to the characteristics of the Family Health Strategy and of the FHSC in the municipalities, of the actions to promote physical activity and healthy eating in general implemented in primary care.

The prevalence of actions to promote physical activity and to promote healthy eating, generally performed and implemented in primary care, and the association of these prevalences according to the presence or absence of FHSC in the municipalities were evaluated.

The prevalence of physical activity promotion actions implemented in primary care and association with the presence of physical education professionals in the FHSC teams and the prevalence of actions to promote healthy eating and the association with the presence of nutrition professionals in the FHSC teams were calculated.

All associations were calculated by the chi-square test adopting $p < 0.05$ as significant value. All statistical analyzes were performed in SPSS software version 15.0.

The research was approved by the Research Ethics Committee of the Federal University of Pelotas (protocol n. 151.238).

Results

Out of a total of 2,074 municipalities that received funds from 2011 to 2012 for the development of the Health Gym Program, 44.1% (n = 914 managers) participated in the interviews. Regarding the losses, in 34.5% of the cases there were problems with contacting the municipalities, because the telephone lines remained busy or no one answered the calls; in 18.1% of the cases the telephone records were wrong or calls were mute and in 2.4% it was not possible to officially schedule the interview by landline phone with the municipalities' health officers. In less than 1% of the cases there was refusal to participate or it was not possible to conduct the interview even after an appointment was made.

It was verified that the majority of the interviewees were Health Secretaries or Directors / Coordinators / Managers / Health Superintendents (85.3%), aged up to 39 years old (55.4%), female (68.1%), with university degree (77.3%), training time of up to 10 years (60.7%) and that have been on the management job for up to four years (76.5%).

With regard to the municipalities, 82% had up to 49 thousand inhabitants, 33.4% were from the Southeast, 25.9% from the South, 24.1% from the Northeast, 10.5% from the Midwest and 6.1% from the North.

Regarding the Family Health Strategy characteristics (TABLE 1), half of the municipalities had up to three teams. Most municipalities had family health strategy reach of above 80%, but 61.5% of them did not have FHSC team. Nutritionists were the third most present category in the teams and physical education professionals were the fifth most present category. Most of the centers had infrastructure with computer, a telephone for all types of calls, and high-speed internet, but only half of the FHSC had bibliographic material with health records.

TABLE 1 - Description of the composition and structure of the Family Health Strategy teams and of the Family Health Support Centers in the municipalities that received funds for the development of the Health Gym Program in 2011 and 2012.

*Only for municipalities with FHSC;
**Only for municipalities with FHSC: the answers to each one of those items ranged from 0 to 100%.

Variable	%
Number of family health teams in municipalities	
One team	13.9
Two to three teams	32.4
Four to seven teams	27.0
Eight or more teams	26.7
Percentage of family health reach in municipalities	
≤ 49 %	11.3
From 50 to 80 %	20.4
≥ 81 %	68.3
Presence of Family Health Support Centers (FHSC - NASF) in municipalities	
Municipalities with FHSC	38.5
Municipalities without FHSC	61.5
Amount of FHSC in municipalities*	
Only one center	77.8
Two or more centers	22.2
Types of FHSC in municipalities*	
FHSC type 1	68.4
FHSC type 2	31.6
Professional classes that are part of FHSC teams **	
Psychologists	77.8
Physiotherapists	74.6
Nutritionists	65.2
Social workers	55.8
Physical Education professionals	49.9
Speech therapists	33.9
Pharmacists	29.1
Occupational therapists	14.2
Veterinarians	1.0
Information on work resources for FHSC teams in municipalities**	
Running and accessible computer	98.9
Telephone available for all types of calls	96.6
Updated list of Ministry of Health ordinances	81.5
High speed internet	77.5
Bibliographical material on health promotion	74.6
Expert staff for writing and preparing projects	63.8
Bibliographic material on physical activity programs	52.4
Library updated with the current documents on health	47.6

TABLE 2 describes specific characteristics of promoting physical activity and healthy eating. The professional classes that were the most cited regarding the participation of actions to promote physical activity and healthy eating in primary care were, respectively, physical education professionals and nutritionists. The public instance mostly quoted as a partner for these actions was the Secretary of Education, there was popular participation in most of the actions and most municipalities had no partnerships outside the public sectors.

TABLE 2 - Description of the structure of actions to promote physical activity and healthy eating in the municipalities that received resources for the development of the Health Gym Program in 2011 and 2012.

Variable	%
Professional class that was the most cited in actions to promote physical activity in primary health care *	
Physical Education professionals	64.7
Professional class that was the most cited in actions to promote healthy eating in primary health care *	
Nutritionists	69.9
Municipalities with health sector partnerships with other secretariats in actions to promote physical activity	65.5
Municipalities with health sector partnerships with other secretariats in actions to promote healthy eating	82.6
Public secretariat that was the most cited as a partner in actions to promote physical activity	
Education	79.4
Public secretariat that was the most cited as a partner in actions to promote healthy eating	
Education	77.3
Municipalities with partnerships with other sectors for the development of physical activity promotion	36.1
Municipalities with partnerships with other sectors for the development of healthy eating promotion	34.6
Main partner except the public sector in actions to promote physical activity	
Non-governmental organizations	55.0
Main partner except the public sector in actions to promote healthy eating	
Non-governmental organizations	55.8
Municipalities with the people's participation in actions to promote physical activity	89.8
Municipalities with the people's participation in actions to promote healthy eating	86.9

It was observed that 84.1% of these municipalities carried out actions to promote physical activity and 85.4% of them carried out actions to promote healthy eating. Regarding the implementation of these actions in primary health care, 89.3% of the municipalities had implemented actions to promote physical activity and 83.9% had implemented actions to promote healthy eating.

The prevalence of actions to promote physical activity and actions to promote healthy eating were more prevalent and associated with the presence of FHSC in the municipalities (FIGURE 1).

*Association by the chi-square test;
p < 0.05.

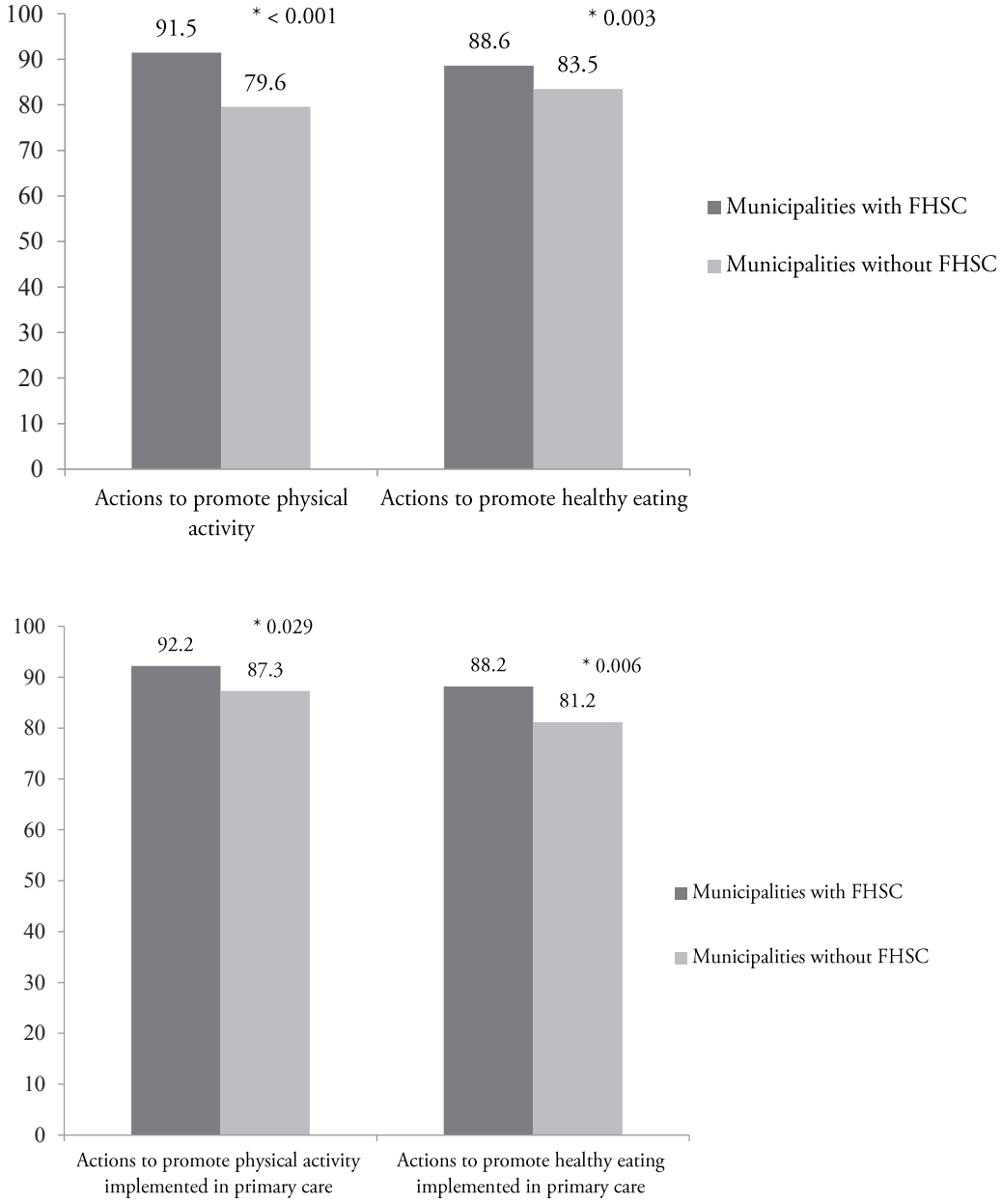

FIGURE 1 - Prevalence (%) of general actions and actions implemented in primary health care to promote physical activity and healthy eating and associations with the presence or absence of Family Health Support Centers (FHSC) in the municipalities.

Physical activity promotion actions implemented in primary care were more prevalent in municipalities where FHSC had physical education professionals, as well as actions to promote healthy eating implemented in primary care were more prevalent in municipalities where FHSC had nutrition professionals (FIGURE 2).

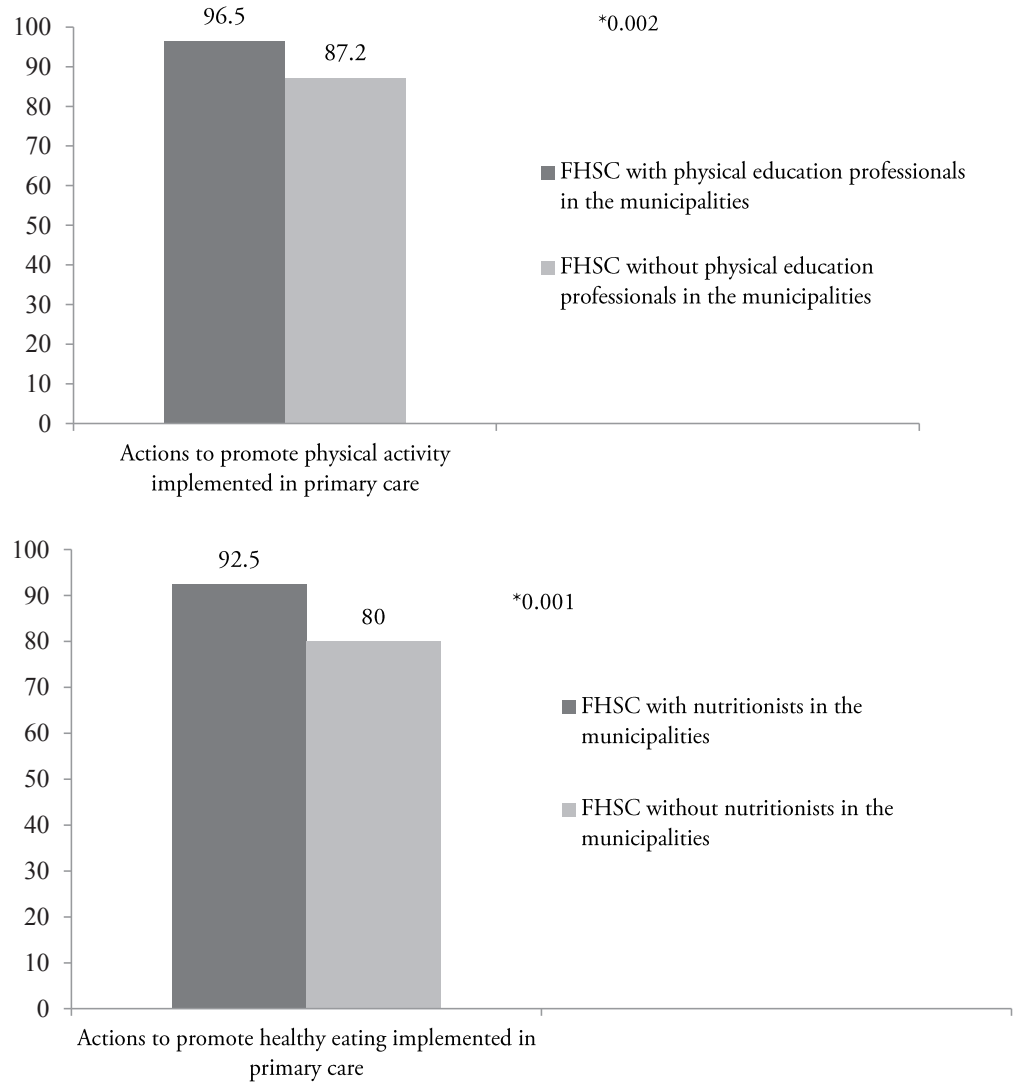

FIGURE 2 - Prevalence of actions to promote physical activity and healthy eating implemented in primary care and associations with presence of physical education and nutrition professionals in the Family Health Support Centers (FHSC) teams in the municipalities.

Discussion

The main results of this study showed that the prevalence of actions to promote physical activity and healthy eating was higher in the municipalities that had FHSC and that had professionals of physical education (for physical activity actions) and nutrition (for healthy eating actions) in the FHSC teams.

This study showed that 61% of the municipalities contemplated with resources for the development of the Health Gym Program in the years 2011 and 2012 did not have FHSC. The fact that the ordinance 2,684 dated November 8, 2013 from the Ministry of Health[18] states that the Health Gym Program hubs should be linked to primary health care referral establishments and, if they have FHSC, there should be this linkage to these centers, reinforces the need to implement FHSC in these municipalities.

Most of the municipalities investigated in this study already carried out actions to promote physical activity and to promote healthy eating. The prevalence of these actions was high and this result indicates that the municipalities analyzed in the present study are on the right path to fulfill some objectives established in the National Plan of Strategic Actions for Coping with Chronic Non-communicable Diseases of the

Ministry of Health, since the promotion of physical activity and healthy eating is part of the health promotion axis of this plan[19]. It is interesting to note that interventions to promote healthy eating and physical activity are extremely important to prevent several risk factors that are among the main causes of morbidity and mortality in the world[8, 21].

Information about prevalence and type of actions to promote physical activity and healthy eating performed by Brazilian municipalities are still scarce. In the literature review for the present study, we found only two studies conducted in Brazil that have comparative data[22-23]. Amorim et al.[22] surveyed 1,354 municipalities that received resources from the Ministry of Health between 2005 and 2009 for the development of actions of the health promotion network. Of a total of 1,000 municipalities that participated in the survey, 74.8% were performing actions to promote physical activity, values lower than those found in the present study. Ramos et al.[23] investigated the health promotion actions that were performed in primary health units throughout Brazil. The main actions were promotion of healthy environments (77.7%), promotion of healthy eating (72%), smoking control (54.4%), control of alcohol abuse (41.6%) and lastly the promotion of physical activity (39.8%).

However, it is important to note that Ramos et al.[23] interviewed the units' managers and coordinators, who are more closely related to the work performed compared to the municipalities' secretaries and managers, who have a broader and more general notion. Despite the possibility of an overestimated report of actions to promote healthy eating and physical activity by the managers interviewed in the present study, it is believed that the municipalities that were part of this sample stand out in health promotion actions in relation to other Brazilian municipalities, mainly because they already have a history of approval for Health Gym program actions.

The professional classes that were the most quoted when referring to the participation in actions to promote physical activity were the physical education professionals and, in the actions to promote healthy eating, were nutritionists. These professionals have been pointed out as being extremely relevant for health promotion in the SUS. A survey done with a sample of professionals working in primary health units in Brazil in 2011 showed that doctors and nurses considered physical education professionals as the main professionals responsible for promoting physical activity within the teams[24]. A recent systematic review study emphasized the increase in the participation of physical education professionals in the actions carried out in the scope of primary health care in Brazil[25]. Regarding the promotion of healthy eating, Jaime et al.[26] pointed out that eating and nutrition actions were strengthened with the inclusion of nutritionists in FHSC teams.

Most of the municipalities had a partnership with public secretariats for the development of actions to promote physical activity and healthy eating, indicating that, as advocated by the documents of the National Policy for Health Promotion and the Plan of Strategic Action for Coping with Chronic Non-communicable Diseases, intersector interventions are extremely important for health promotion and for the prevention of chronic non communicable diseases[13, 19]. The public sector mostly cited as a partner was education. The study by Amorim et al.[22] showed that communication, information and education actions were the most prevalent in municipalities that received resources from the Ministry of Health to develop physical activity programs by 2009, which meets the results obtained in the present study, showing the importance of this sector in health promotion actions in Brazil. Jaime et al.[26] showed that the education sector has been one of the intersector partners in eating and nutrition actions in Brazil[25].

In this sense, the Food Guide for the Brazilian Population itself states that food and nutritional education strategies, when directed towards the support of individuals, families and communities, contribute to the strengthening of the individuals' right to healthy eating[27]. This partnership with the education sector is believed to be very important, since it contributes to strengthening and facilitating the people's autonomy in the process of health promotion. However, it cannot be limited to lectures or guidelines, as shown by Rodrigues et al.[25] in the systematic review study about the actions of physical education professionals in primary care. These educational actions must assume health promotion conceptions, and be based not only on transmitting information, but also seeking processes of strengthening and addressing the barriers to the adoption of healthy lifestyles[28-30].

Most of the municipalities investigated in the present study had no partnership with other sectors of society except the public sectors. The promotion of healthy behaviors in the population context is quite complex and should not be restricted to the public sectors alone. Support from other sectors of society, such as the private sector (companies and universities), or even the S system (SESC and SESI, for example)[a] are

important and these partnerships should be stimulated by the Ministry of Health in these municipalities. Among the municipalities that had partnerships outside the public sectors, most of them received support from non-governmental organizations. According to Ramos et al.[23], the presence of non-governmental organizations was extremely important for health policies in the field of AIDS, women's health and mental health[31]. The results of the present study show that non-governmental organizations are also important for actions to promote healthy eating and physical activity in the municipalities.

The popular participation in actions to promote physical activity and healthy eating was highly reported by the managers. This type of result is in line with the recommendations of the National Policy for Health Promotion[13], which suggests the implementation of interdisciplinary and social control actions, as well as the Advocacy established by the Plan to Combat Chronic Non-communicable Diseases[19], showing that actions of this type permeate the traditional healthcare sector related to care. However, qualitative studies are necessary to further investigate how the popular participation happens in these actions in the municipalities.

One of the most important results of the present study was showing that the prevalence of actions to promote physical activity and healthy eating was higher in municipalities with the presence of FHSC and with greater reach by the Family Health Strategy. Corroborating with the data found, a recent study that investigated the characteristics of actions to promote physical activity in a representative sample of primary health units throughout Brazil, showed that the prevalence of physical activity interventions was higher in units located in municipalities with FHSC[32]. The Ministry of Health has been increasing the number of FHSC teams in Brazil. For example, the National Health Establishments website[33] shows that the number of FHSC teams increased from 457 teams in 2008 to 1973 teams in 2012. This investment contributes to complementing the work of primary care in the territories and to improving health promotion, strengthening interdisciplinary and intersector actions.

There was a higher prevalence of actions to promote healthy eating and to promote physical activity implemented in primary care in the municipalities where, respectively, the FHSC had the presence of nutritionists and physical education professionals in the teams. A descriptive study of the programs that were part of the health promotion network in Brazil showed that physical education professionals were the ones mainly responsible for coordinating activities in municipalities[22]. Most of the interventions to promote physical activity performed in primary health units in Brazil are already coordinated by physical education professionals[32]. Health managers and professionals working in primary health care also recognize physical education professionals as very important in actions to promote physical activity in SUS[24, 34]. Regarding healthy eating, it was observed that food and nutritional surveillance was advanced in the SUS[35]. The insertion of nutritionists into primary care level was important for the actions aimed at a diagnosis of the food and nutritional security situation in the territories and, more recently, for the actions to promote healthy eating, with multiprofessional and interdisciplinary reach in the FHSC[26, 36-37].

Nutritionists and physical education professionals are important qualifying agents for the promotion of physical activity and healthy eating within SUS, since they have the potential to work with these actions in an interdisciplinary and intersector perspective[28, 30]. However, it should be noted that the number of nutritionists and physical education professionals is still low compared to the demand for interdisciplinary actions to promote physical activity and healthy eating in the population context[37-38].

The main limitation of this study was the low response rate in the survey with the municipalities' managers. The study was conducted in the second half of 2012 and close to the elections, which probably caused the unavailability for interview and difficulty locating managers. However, some characteristics of the sample of municipalities where the managers were not interviewed were similar to the municipalities that were examined in the present study, since the majority had up to 49 thousand inhabitants (81.9%) and had no FHSC (74%).

One of the main results of this study was to show that FHSC can contribute to actions to promote physical activity and healthy eating in municipalities that are already more involved in health promotion actions, such as those investigated in the present study, and that physical education professionals and nutritionists in the FHSC teams are also important for these actions in the municipalities. However, qualitative studies are necessary to deepen the clarification of some evidences obtained in the present study, such as, for example: the characteristics of the FHSC and the professionals that the teams are composed of in some of these municipalities; how does popular participation happens in the actions or how does the education sector or non-governmental

organizations participate in the actions. In addition, further research in these municipalities is required to monitor the implementation of the Health Gym Program and to verify the effectiveness of this program's actions in the population's physical activity and healthy eating levels.

The expansion of FHSC teams with professionals with the potential to guarantee good quality actions to promote physical activity and healthy eating, such as physical education professionals and nutritionists, is a way to improve health promotion interventions in the SUS.

Notes

The author Rodrigo Reis is part of Post-Graduation Physical Education program at Federal University of Parana.

Translator note

a. The Sistema S (S system) is made of organizations and institutions all related to the productive sector, such as industries, commerce, agriculture, transport and cooperatives, with the objective to improve and promote the well-being of its employees in health and leisure, as well as to provide a good professional education. The institutions of the S System are not public, but receive subsidies from the government. They were established based on the article 149 of the Brazilian Constitution.

Resumo

Promoção da atividade física e da alimentação saudável e a saúde da família em municípios com academia da saúde

Os objetivos do presente estudo foram: 1) Descrever as prevalências de ações de promoção da atividade física e da alimentação saudável e as características da estratégia de saúde da família em municípios brasileiros que receberam recursos para o desenvolvimento do programa Academia da Saúde; e 2) Verificar as prevalências dessas ações segundo a presença de Núcleos de Apoio à Saúde da Família (NASF) e de profissionais de educação física e nutricionistas nas equipes. Foi realizada entrevista telefônica em 2012 com gestores de saúde de municípios de todo o Brasil que receberam recursos para o desenvolvimento do Academia da Saúde. Foram descritas as frequências (%) das características da saúde da família e das ações de atividade física e de alimentação saudável e calculadas as prevalências em municípios com e sem NASF e com e sem profissionais de educação física e nutricionistas nas equipes. O teste do qui-quadrado foi usado para avaliar as associações. Do total de 5.570 municípios brasileiros em 2012, 2.074 (37,2%) receberam recursos, e destes, 44,1% (n = 914 gestores) responderam as entrevistas. A maioria dos municípios não tinha NASF (61,5%), mas estava desenvolvendo ações de atividade física (84,1%) e de alimentação saudável (83,9%). O parceiro público mais citado foi o setor educação. A prevalência de ações de atividade física (91,5%, $p < 0,001$) e de alimentação saudável (88,2%, $p = 0,006$) foi maior nos municípios que tinham NASF em comparação com os que não tinham. A prevalência de ações na atenção básica foi maior nos municípios com profissionais de educação física e com nutricionistas nas equipes. Os NASF contendo profissionais de educação física e nutricionistas são importantes para a promoção da atividade física e da alimentação saudável nos municípios.

Palavras-chave: Promoção da saúde; Núcleos de Apoio à Saúde da Família; Educação Física; Nutrição.

References

1. Buchalla CM, Waldman EA, Laurenti R. A mortalidade por doenças infecciosas no início e no final do século XX no Município de São Paulo. Rev Bras Epidemiol. 2003;6:335-44.
2. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Secretaria de Atenção à Saúde. Diretrizes e recomendações para o cuidado integral de doenças crônicas não-transmissíveis. Brasília: Secretaria de Vigilância em Saúde/Secretaria de Atenção à Saúde; 2008. (Série Pactos pela Saúde 2006).
3. Santos IS, Barros AJ, Matijasevich A, Domingues MR, Barros FC, Victora CG. Cohort profile: the 2004 Pelotas (Brazil) birth cohort study. Int J Epidemiol. 2011;40:1461-8.
4. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. VIGITEL: Brasil - 2011 - Vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília: Secretaria de Vigilância em Saúde; 2012.
5. Schmidt MI, Duncan BB, Azevedo e Silva G, et al. Chronic non-communicable diseases in Brazil: burden and current challenges. Lancet. 2011;377:1949-61.
6. Florindo AA, Hallal PC, Moura EC, Malta DC. Practice of physical activities and associated factors in adults, Brazil, 2006. Rev Saúde Públ. 2009;43 Suppl 2:65-73.
7. Hallal PC, Knuth AG, Reis RS, et al. Time trends of physical activity in Brazil (2006-2009). Rev Bras Epidemiol. 2011;14 Suppl 1:53-60.
8. Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380:2224-60.
9. Brasil. Lei n. 12.864 de 24 de setembro de 2013. Altera o caput do art. 3º da Lei n. 8.080, de 19 de setembro de 1990, incluindo a atividade física como fator determinante e condicionante da saúde, e dá outras providências. Diário Oficial da União, Brasília (25 set. 2013);Sec.1:5.
10. Brasil. Lei n. 8.080, de 19 de setembro de 1990. Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências. Diário Oficial da União, Brasília (20 set. 1990);Sec.1:18055.
11. Candeias NM. The concepts of health education and promotion: individual and organizational changes. Rev Saúde Públ. 1997;31:209-13.
12. World Health Organization. A discussion document on the concept and principles of health promotion. Health Promot. 1986;1:73-6.
13. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde, Secretaria de Atenção à Saúde. Política Nacional de Promoção da Saúde. Brasília: Secretaria de Vigilância em Saúde/Secretaria de Atenção à Saúde; 2006.
14. Brasil. Ministério da Saúde. Programa Saúde da Família: ampliando a cobertura para consolidar a mudança do modelo de Atenção Básica. Rev Bras Saúde Matern Infant. 2003;3:113-25.
15. Paim J, Travassos C, Almeida C, Bahia L, Macinko J. The Brazilian health system: history, advances, and challenges. Lancet. 2011;377:1778-97.
16. Brasil. Ministério da Saúde. Portaria n. 154, de 24 de Janeiro de 2008. Cria os Núcleos de Apoio à Saúde da Família - NASF. Diário Oficial da União, Brasília (4 mar. 2008);Sec.1:38-42.
17. Brasil. Ministério da Saúde. Portaria n. 719 de 7 de abril de 2011. Institui o Programa Academia da Saúde no âmbito do Sistema Único de Saúde. Diário Oficial da União, Brasília (8 abr. 2011);Sec.1:52.
18. Brasil. Ministério da Saúde. Portaria n. 2.681, de 7 de novembro de 2013. Redefine o Programa Academia da Saúde no âmbito do Sistema Único de Saúde (SUS). Diário Oficial da União, Brasília (8 nov. 2013);Sec.1:37-8.
19. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Análise de Situação de Saúde. Plano de ações estratégicas para o enfrentamento das doenças crônicas não transmissíveis (DCNT) no Brasil 2011-2022. Brasília: Secretaria de Vigilância em Saúde/Departamento de Análise de Situação de Saúde; 2011.
20. Instituto Brasileiro de Geografia e Estatística. Informações sobre os municípios brasileiros. Brasília: IBGE; 2013. [cited 2013 Nov. 30]. Available from: http://www.ibge.gov.br/cidadesat/index.php.
21. Lee IM, Shiroma EJ, Lobelo F, et al. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. Lancet. 2012;380:219-29.
22. Amorim TC, Knuth AG, Cruz DKA, Malta DC, Reis RS, Hallal PC. Descrição dos programas municipais de promoção da atividade física financiados pelo Ministério da Saúde. Rev Bras Ativ Fis Saúde. 2013;18:63-74.
23. Ramos LR, Malta DC, Gomes GAO, et al. Prevalence of health promotion programs in primary health care units in Brazil. Rev Saúde Públ. 2014;48:837-44.

24. Florindo AA, Mielke GI, Gomes GAO, et al. Physical activity counseling in primary health care in Brazil: a national study on prevalence and associated factors. BMC Public Health. 2013;13:794.
25. Rodrigues JD, Ferreira DKS, Silva PA, Caminha IO, Farias Júnior JC. Inserção e atuação do profissional de educação física na atenção básica à saúde: revisão sistemática. Rev Bras Ativ Fis Saúde. 2013;18:5-15.
26. Jaime PC, Silva ACF, Lima AMC, Bortolini GA. Ações de alimentação e nutrição na atenção básica: a experiência de organização no Governo Brasileiro. Rev Nutr. 2011;24:809-24.
27. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Guia alimentar para a população brasileira. Brasília: Secretaria de Atenção à Saúde/Departamento de Atenção Básica; 2014.
28. Boog MCF. Atuação do nutricionista em saúde pública na promoção da alimentação saudável. Rev Ciênc Saúde. 2008;1:33-42.
29. Moretti AC, Westphal MF, Bogus CM. Práticas corporais/atividade física e políticas públicas de promoção da saúde. Saúde Soc. 2009;18:346-54.
30. Scabar TGP AF, Pelicioni MCF. Atuação do profissional de educação física no Sistema Único de Saúde: uma análise a partir da Política Nacional de Promoção da Saúde e das Diretrizes do Núcleo de Apoio à Saúde da Família - NASF. J Health Sci Inst 2012;30:411-8.
31. Ramos S. O papel das ONGs na construção de políticas de saúde: a Aids, a saúde da mulher e a saúde mental. Ciênc Saúde Colet. 2004;9:1067-78.
32. Gomes GAO, Kokubun E, Mielke GI, et al. Characteristics of physical activity referral programs in primary health care in Brazil. Cad Saúde Públ. 2014;30:2155-68.
33. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Cadastro Nacional de Estabelecimentos de Saúde. Consultas: equipes. Brasília: Ministério da Saúde/Secretaria de Atenção à Saúde; 2013. [cited 2013 Nov. 30]. Available from: http://cnes.datasus.gov.br/Mod_Ind_Equipes.asp.
34. Andrello E, Loch MR, Calciolari Júnior A, Reichert FF. Atividade física e saúde pública sob o olhar de secretários municipais de saúde. Rev Bras Ativ Fis Saúde. 2012;17:206-11.
35. Coutinho JG, Cardoso AJC, Tora N, et al. A organização da vigilância alimentar e nutricional no Sistema Único de Saúde: histórico e desafios atuais. Rev Bras Epidemiol. 2009;12:688-99.
36. Canella DS, Silva ACS, Jaime PC. Produção científica sobre nutrição no âmbito da atenção primária à saúde no Brasil: uma revisão de literatura. Cienc Saude Colet. 2013;18:297-308.
37. Mancuso AMC, Tonacio LV, Silva ER, Vieira VL. A atuação do nutricionista na atenção básica à saúde em um grande centro urbano. Cienc Saude Colet. 2012;17:3289-300.
38. Santos SFS, Benedetti TRB. Cenário de implantação do núcleo de apoio à saúde da família e a inserção do profissional de educação física. Rev Bras Ativ Fis Saúde. 2012;17:188-94.

Acknowledgements

We thank the National Council for Scientific and Technological Development for the funding granted for the development of this research, and the Wellcome Trust for funding granted to the researcher Pedro Curi Hallal.

ADDRESS
Alex Antonio Florindo
Escola de Artes, Ciências e Humanidades
Universidade de São Paulo
R. Arlindo Béttio, 1000
03828-000 - São Paulo - SP - BRASIL
e-mail: aflorind@usp.br

Submitted: 03/10/2014
1a. Review: 05/28/2015
2a. Review: 09/14/2015
3a. Review: 10/19/2015
Accepted: 10/20/2015