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QUALIDADE DAS PRÁTICAS ALIMENTARES NA INFÂNCIA EM UMA POPULAÇÃO DE BAIXA CONDIÇÃO SOCIOECONÔMICA

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RESUMO

Objetivo: O objetivo desta tese foi avaliar a eficácia de uma atualização de profissionais de saúde da atenção primaria sobre práticas de alimentação infantil de uma população de baixa renda. Métodos: Este estudo faz parte de um ensaio clínico randomizado realizado na cidade de Porto Alegre, RS. Os postos de saúde foram randomizados em grupos de intervenção (n = 9) e controle (n = 11). Nos locais de intervenção, os profissionais de saúde receberam atualização sobre os "Dez Passos para uma Alimentação Saudável para Crianças Brasileiras do Nascimento aos Dois Anos de Idade". As práticas de alimentação infantil foram avaliadas aos 6 meses (n = 617) e depois aos 12 meses (n = 516) de idade da criança, utilizando um recordatório alimentar de 24 horas. A qualidade da dieta foi avaliada pelo Índice de Alimentação Infantil (ICFI), cuja pontuação varia de 0 a 12 pontos. O consumo de alimentos não recomendados também foi avaliado. Resultados: Aos 6 meses, o escore ICFI médio foi maior no grupo intervenção (7,0 ± 2,3 vs. 6,3 ± 2,2; p ≤ 0,001). A prevalência de crianças que atenderam à recomendação foi maior no grupo de intervenção para frequência alimentar (37,2% vs. 27%; risco relativo (RR) = 1,37; IC95% = 1,09-1,74) e consumo de carne (36,6% vs. 22,3 %; RR = 1,63; IC95% = 1,26-2,11). Aos 12 meses, no grupo intervenção, impacto positivo foi observado para as crianças que tiveram acompanhamento mais frequente nas unidades de saúde. Alimentos não recomendados como açúcar adicionado, gelatina, biscoitos recheados foram introduzidos precocemente no grupo de controle. Conclusão: A atualização oferecida aos profissionais da atenção primária à saúde foi eficaz na melhoria das práticas de alimentação infantil durante o primeiro ano de vida.

Palavras-chave: alimentação complementar; estudos de intervenção; atenção primária à saúde; qualidade da dieta.

ABSTRACT AND KEYWORDS

Objective: The aim of this thesis was to assess the effectiveness of a health worker training on infant feeding practices in a low income population. Methods: This study is part of a cluster-randomized trial that was conducted in Porto Alegre, RS. Health care clinics were randomized into intervention groups (n = 9) and control (n = 11). At the intervention sites, the health care workers were trained on the “Ten Steps for Healthy Feeding for Brazilian Children from Birth to Two Years of Age”. Infant feeding practices were assessed at 6 months (n=617) and later at 12 months (n=516) of the child´s age using a multiple-pass 24-hour dietary recall. Diet quality was assessed using the Infant and Child Feeding Index (ICFI), whose score ranges from 0 to 12 points. The consumption of non-recommended foods was also evaluated. Results: At 6 months, the mean ICFI score was higher in the intervention group (7.0 ± 2.3 vs. 6.3 ± 2.2; p≤0.001). The prevalence of of infants who met the recommendation was higher in the intervention group for food frequency (37.2% vs. 27%; relative risk (RR) = 1.37; 95%CI= 1.09-1.74) and meat consumption (36.6% vs. 22.3%; RR= 1.63; 95%CI= 1.26-2.11). At 12 months, intervention group, a positive impact was observed for children who had more frequent follow-up at health clinics. Non-recommended foods such as added sugar, jelly, filled cookies were introduced earlier in the control group. Conclusion: A training provided to primary health care professionals was effective in improving infant feeding practices during the first year of life.

Key-words: complementary feeding; intervention studies; primary health care; diet quality.

SUMÁRIO

APRESENTAÇÃO

Este trabalho consiste na Tese de Doutorado intitulada “QUALIDADE DAS PRÁTICAS ALIMENTARES NA INFÂNCIA EM UMA POPULAÇÃO DE BAIXA CONDIÇÃO SOCIOECONÔMICA”, a ser apresentada ao Programa de Pós-Graduação em Ciências da Saúde da Universidade Federal de Ciências da Saúde de Porto Alegre, em maio de 2018. Esta tese foi desenvolvida a partir de um projeto maior intitulado “Implementação dos Dez Passos Para Alimentação Saudável para Crianças Menores de Dois Anos em Unidades de Saúde”, avaliado e aprovado pelo Comitê de Ética em Pesquisa da Universidade Federal de Ciências da Saúde de Porto Alegre conforme parecer consubstanciado nº 471-07, no qual foi iniciado no ano de 2008 na cidade de Porto Alegre, Rio Grande do Sul.

Os primeiros anos de vida da criança são caracterizados por crescimento acelerado e enormes aquisições no processo de desenvolvimento. Há evidências que os alimentos que a criança recebe nos primeiros dois anos de vida, influenciam as suas preferências alimentares e podem se prolongar até a vida adulta, influenciando condições de saúde em curto e longo prazo. Dessa forma, intervenções para promoção da alimentação saudável no início da vida são necessárias e podem influenciar as condições de saúde durante toda a vida. Nesse sentido, pretende-se investigar o impacto de uma atualização para profissionais de saúde sobre a qualidade das práticas alimentares de crianças no primeiro ano de vida. O artigo desenvolvido foi " *The impact of a health worker training on infant feeding practices: a cluster-randomized trial* ". O projeto foi desenvolvido por equipe interdisciplinar, sob coordenação da Prof. Dr. Márcia Regina Vitolo.

1 INTRODUÇÃO

A literatura recente tem destacado a importância da nutrição sobre os primeiros mil dias da criança (DEWEY & VITTA, 2013; AGOSTINI et al, 2017; PIETROBELLI et al, 2017). De acordo com o conceito, o período entre o primeiro dia de gestação e os dois anos de vida é crucial para o desenvolvimento e crescimento posterior do indivíduo (AGOSTINI et al, 2017). Entretanto, segundo White et al, 2015, embora tenham sido feitos progressos consideráveis nas últimas décadas em relação ao desenvolvimento e implementação de políticas e programas destinados a proteger, promover e apoiar a amamentação, os esforços para melhorar a alimentação complementar ficaram para trás. Em 2002 e 2008 o *Feeding Infants and Toddlers Studies,* responsável por apresentar padrões de alimentação de crianças americanas, apontou que 1 em cada 3 crianças entre 6- 9 meses e 1 em cada 5 crianças entre as idades de 9 e 12 meses não consumiram nenhuma fruta ou legumes no dia (SIEGA-RIZ et al, 2010; ZIEGLER et al, 2006). As consequências de hábitos alimentares inadequados estão associadas a doenças cardiovasculares (VOS ET AL, 2015), excesso de peso (DE ONIS, 2010) e cáries (FELDENS et al, 2010).

Os índices e indicadores de alimentação podem ser instrumentos preciosos para mensurar a qualidade da dieta na população infantil (SMITHERS et al, 2011). Diversos estudos associaram a qualidade da alimentação e estado nutricional, e destacam que uma baixa qualidade da dieta indica comprometimento no ganho ponderal de peso (LOHIAN & A UDIPI, et al, 2014;QU et al, 201; ZHANG et al, 2009). Estudo realizado no sul do Brasil, com crianças na idade pré-escolar e escolar, demonstra que a qualidade da dieta estabelecida nos primeiros anos de vida pode se manter durante a infância (RAUBER et al, 2015).

Esses resultados reforçam a importância de uma dieta saudável durante a infância, a fim de garantir o pleno crescimento, desenvolvimento (WHO, 2003), prevenção de obesidade e doenças crônicas (GARDNER et al., 2009; STARC & STREL, 2011). Logo, investigar as práticas de alimentação infantil para identificar lacunas entre a ingestão real e recomendações, os determinantes da qualidade da dieta é fundamental a fim de desenvolver intervenções específicas focadas na infância.

2 Revisão de Literatura

2.1. Índice de alimentação infantil

Os índices dietéticos avaliam a qualidade da dieta, geralmente são baseados nas diretrizes dietéticas infantis atuais, contribuem para a compreensão dos comportamentos alimentares inadequados e riscos de desfechos negativos ainda no primeiro ano de vida da criança (GOLLEY ET AL, 2013). Os indivíduos não consomem apenas nutrientes, alimentos ou grupos de alimentos, mas sim combinações de alimentos (KANT ET AL, 2004) que formam as refeições. Portanto, é relevante compreender os alimentos e / ou nutrientes que podem ser susceptíveis de influenciar a saúde (NEWBY & TUCKER, 2004).

Os dois índices de alimentação saudável para crianças menores de dois anos que utilizam critérios baseados em diretrizes dietéticas oficiais foram propostos por Ruel e cols., 2002 e por Golley e cols., 2012. Dados de aleitamento materno e práticas da alimentação complementar em termos: tempo de introdução de alimentos, uso de mamadeira, introdução e tipo de alimentos oferecidos foram considerados para pontuar a alimentação da criança. As diretrizes utilizadas pelo índice proposto por Ruel e Menon (2002), são baseadas em recomendações alimentares oficiais para crianças. O índice apresenta as práticas ideais de recomendação que foram definidas para três diferentes grupos etários: crianças de 6-9 meses, considerando aleitamento materno e introdução gradual de alimentos complementares, 9-12 meses, ressaltando o mesmo item da fase anterior e acrescendo o aumento na quantidade e frequência da alimentação complementar, e 12-36 meses, englobando o período de transição da amamentação e a possível e gradual mudança da dieta do lactente para a dieta da família, bem como o foco na qualidade.

O uso de mamadeiras foi considerado uma prática inadequada em todas as idades. Desta forma, as seguintes variáveis foram utilizadas na criação do índice: Aleitamento materno (sim ou não), Uso de mamadeira nas últimas 24 horas (sim ou não), Diversidade da dieta (se a criança recebeu ou não os grupos selecionados no dia anterior), Frequência alimentar (quantos dias a criança recebeu os grupos alimentares selecionados nos últimos sete dias), Frequência de refeições (quantas refeições a criança recebeu no dia anterior).O sistema de pontuação atribui uma nota de “0” para uma prática potencialmente prejudicial e

a pontuação positiva de "1" para adesão. Práticas consideradas relevantes em uma determinada idade, tais como estar recebendo leite materno entre 6 e 12 meses de idade, receberam pontuação de "2" (RUEL E MENON, 2002).

2.2 Formação das Práticas alimentares na infância

As práticas alimentares são influenciadas por uma complexa interação entre fatores genéticos, familiares e ambientais (BIRCH, 1998; SKINNER et al., 2002). O período do nascimento até os dois anos de idade é um período de rápido desenvolvimento, incluindo o comportamento alimentar. Evidências sugerem que as preferências e comportamentos alimentares surgem e são moldados de acordo com os alimentos oferecidos e os contextos de alimentação durante este período (MENELLA, RIETER & DANIELS, 2016).

Alguns estudos sugerem que uma ampla variedade de sabores ingerido (por exemplo, frutas, vegetais, álcool e especiarias) inalados (por exemplo, tabaco) pela mãe são transmitidos para seu líquido amniótico e /leite materno (MENNELLA, 2007; MENNELLA et al, 1995). Além disso evidencias sugerem a preferência inata por sabor doce e a rejeição por azedo e amargo (BIRCH & DEYSHER, 1986; BIRCH & FISHER, 1995; BIRCH, 1998). Segundo um ensaio clinico randomizado com mulheres grávidas, verificou-se que as mães que consumiram suco de cenoura na gestação e na lactação, seus bebês responderam mais favoravelmente ao sabor do legume no período da introdução alimentar em comparação com o grupo controle (MENELLA et al, 2001). É possível também, que as experiências com o sabor de fórmulas infantis persistem durante a infância. Segundo BEAUCHAMP AND MENNELLA, 2009 em um estudo com crianças de quatro e cinco anos alimentadas com hidrolisado protéico durante a infância, observaram posteriormente a preferência maior por alimentos e bebidas que contenham sabores semelhantes aos das fórmulas, mesmo depois de vários anos após a última exposição.

As experiências precoces com uma variedade de sabores devem maximizar a chance de que, à medida que as crianças crescem, elas desfrutem de uma dieta mais saudável, porque gostam do sabor. Assim, as experiências sensoriais precoces podem moldar e modificar as preferências alimentares (MENELA & TRABULSI, 2012; NICKLAUS, 2013). Sabe-se da plasticidade funcional,

principal característica do cérebro na infância, destaca a capacidade para mudar o comportamento com base na experiência. Em outras palavras, nossa biologia não é necessariamente o nosso destino (MENELA & TRABULSI, 2012). Portanto, apenas observar a comida não parece ser suficiente para aumentar a aceitação do alimento, as crianças têm que provar a comida para aprender a gostar (FORESTELL & MENNELLA, 2007; BIRCH et al, 1987). Reforçam a hipótese de repetidas exposições (cerca de 8–9 dias) aumentaria significativamente o consumo de determinado alimentos, tais como frutas (SULLIVAN & BIRCH, 1987).

Apesar das preferências alimentares se moldarem ainda nos primeiros anos de vida, outros fatores ambientais ligados ao comportamento alimentar, como atitudes maternas, crenças e preferências, podem ter efeito mais direto sobre ingestão alimentar infantil (SCAGLIONI et al., 2008; VENTURA & BIRCH, 2008). Ainda no primeiro ano de vida, a preocupação com as expressões faciais dos bebês pode interferir na construção de práticas alimentares saudáveis. Apresentar as crianças repetidamente uma variedade de frutas e legumes, dentro e entre as refeições, pode ajudá-los a aceitar mais as frutas e vegetais, que podem ser mais difíceis de aceitar nos anos posteriores (MENELLA et al, 2012).

Quantidades insuficientes, qualidade inadequada de alimentos complementares e práticas inadequadas na alimentação infantil têm um efeito prejudicial sobre a saúde e o crescimento de crianças com menos de dois anos de idade. Mesmo com a amamentação, as crianças podem sofrer prejuízos no desenvolvimento e crescimento se não for oferecido quantidade suficiente e adequada na alimentação alimentar após os 6 meses de idade (BLACK et al, 2008).

2.3 Impacto das práticas alimentares na saúde da criança

Nas últimas décadas observou-se importantes modificações na alimentação infantil, uma redução do consumo de frutas, verduras e legumes e aumento do consumo de alimentos altamente ultraprocessados que são ricos em

açúcar, gordura saturada e sódio e pobres em fibras (PIERNAS & POPKIN, 2010; LEVY et al., 2012; HUFFMAN et al, 2014; CONTRERAS et al, 2016).

Praticas alimentares na infância

A Organização Mundial da Saúde (OMS) e a UNICEF recomendam a introdução de alimentos seguros e nutricionalmente adequados a partir dos 6 meses de idade, mantendo o aleitamento materno até os 2 anos de idade ou mais. As práticas alimentares recomendadas incluem a introdução oportuna de alimentos complementares, frequência de refeição, tamanho das porções, diversidade da dieta, textura alimentar adequada, preparação segura de alimentos e adequada higiene. (WHO, 1998; WHO & UNICEF, 2003).

No Brasil, os órgãos oficiais de alimentação e nutrição estabeleceram o guia de alimentação para crianças menores de dois anos denominado: *Dez passos da alimentação saudável para a crianças abaixo de 2* anos (BRASIL, 2010), baseado nas diretrizes da OMS. Em resumo, as recomendações do guia são: (1) amamentação exclusiva até os seis meses de idade; (2) amamentação continuada até os dois anos de idade com introdução gradual de alimentos complementares; (3) introdução da alimentação complementar (grãos, carne, feijão, verduras e frutas) a partir dos seis meses de idade, três vezes ao dia; (4) refeições em intervalos regulares (5) novos alimentos devem ser introduzidos gradualmente mais espessos até que a criança consiga comer uma refeição da família, mas os alimentos nunca devem ser liquidificados ou peneirados; (6) fornecimento de uma variedade de alimentos saudáveis todos os dias; (7) ingestão diária de diferentes frutas e vegetais; (8) evitar açúcar, doces, refrigerantes, salgadinhos e alimentos ultraprocessados / frituras; (9) uso de boas práticas de higiene para preparação e manipulação de alimentos; e (10) alimentação adequada e responsiva quando a criança estiver doente. Resultados positivos foram observados em alguns estudos, onde foram oferecidas orientações dietéticas baseadas nas diretrizes dos “Dez Passos para uma Alimentação Saudável para Crianças Brasileiras Menores de Dois Anos” por meio de visitas domiciliares com mães durante o primeiro ano de vida das crianças e demonstrou que a intervenção foi associada com maior proporção de aleitamento materno exclusivo aos 4 e 6 meses, aleitamento materno aos 12 meses, menor proporção de crianças com diarreia, problemas respiratórios, uso

de medicamentos e cáries aos 12 meses. No mesmo grupo de crianças, estudos longitudinais demonstraram que, na idade pré-escolar (3-4 anos), a prevalência de crianças com dieta de baixa qualidade e a presença de cáries foram menores naquelas que participaram do grupo intervenção em relação àquelas pertencentes ao controle (FELDENS & GIUGLIANI et al., 2010; Vitolo, Rauber et al., 2010).

Apesar dos esforços, da ampla literatura cientifica e diretrizes, as práticas alimentares de crianças em diversos países não estão de acordo com as recomendações para idade. Diversos estudos apontam que a introdução precoce de alimentos com elevado teor de açúcar e sal ainda é precoce e baixa qualidade da dieta (PREIS et al, 2016; KRASEVEC et al, 2016). No Brasil, estudos demostram a baixa qualidade da alimentação entre crianças de menor condição socioeconômica, estudo transversal com amostra representativa de crianças entre 12 a 59 meses de idade demonstrou a introdução precoce de alimentos não recomendados ainda nos primeiros seis meses de vida. A prevalência de introdução de açúcar antes dos quatro meses de idade da criança foi de aproximadamente 35% e de biscoito doce/salgado, queijo petit suisse e gelatina antes do sexto mês de vida da criança foram de 20% das crianças estudadas (DALLAZEN et al, 2018). Outro estudo recente, indicou que aproximadamente 40 % do consumo de energia total diária de crianças aos 6 anos de idade foram provenientes do alimentos ultra-processados (BIELEMANN et al, 2018). A má qualidade da dieta parece se estender até a idade pré-escolar, estudo transversal que avaliou a alimentação de 388 crianças pré-escolares de baixa condição socioeconômica no Sul do país, mostrou que 58% e 87,4% das crianças não consomem nem ao menos uma porção de frutas e verduras/legumes ao dia, respectivamente (VALMÓRBIDA & VITOLO, 2014).

Consequências

A consequência da nutrição nos primeiros anos de vida sobre o desenvolvimento de doenças foi apresentado na hipótese de Barker (BARKER, 2007; BARKER et al, 1993; BARKER et al, 1998). O conceito dos mil dias na vida da criança reforçou esta hipótese, assim a história nutricional de um indivíduo, ligada ao desenvolvimento de um estado saudável, começaria desde muito cedo. De fato, desde a gravidez e pelos próximos dois anos, os hábitos

alimentares maternos, o tipo da amamentação e, em seguida, a alimentação complementar representam esses momentos sensíveis, fundamentais para o desenvolvimento de importantes alterações endócrinas, metabólicas e imunológicas (AGOSTINI et al, 2017).

A incidência de obesidade infantil em todo o mundo em 2010 foi estimada em 43 milhões de crianças pré-escolares com sobrepeso e obesidade em países desenvolvidos e em desenvolvimento. Além disso, de acordo com De Onis et al, estima-se que 92 milhões de crianças em idade pré-escolar estejam em risco de excesso de peso (DE ONIS et al, 2010). A baixa qualidade da alimentação de crianças pode estar relacionada as prevalências de obesidade e outras doenças não transmissíveis. Estudo recente indicou as associações de açúcares adicionados com o aumento do consumo de energia, aumento da adiposidade, aumento da adiposidade central e aumento da dislipidemia, todos os quais são demonstrados fatores de risco para doenças cardiovasculares (VOS et al, 2017). Evidencias ainda, indicam que uma alimentação insuficiente em micronutrientes na infância está associado com a obesidade na vida adulta (MEAS et 2008; MONTEIRO & VICTORA 2005).

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3 OBJETIVOS

3.1. Objetivo geral

Avaliar o impacto da atualização dietética para profissionais de saúde da atenção primaria sobre práticas de alimentação infantil por meio do *Infant and Child Feeding Index* (ICFI).

3.2. Objetivo especifico

- Avaliar o impacto da atualização sobre o tempo de introdução de alimentos no primeiro ano de vida;

- Avaliar a qualidade das práticas alimentares;

4 Artigo 1

The impact of a health worker training on infant feeding practices: a cluster-randomized trial

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ABSTRACT AND KEYWORDS

Objective: Assess the effectiveness of a health worker training on infant feeding practices in a low-income population. Methods: A cluster-randomized trial was conducted in Porto Alegre, Brazil. Health care clinics were randomized into intervention (n=9) and control (n=11) groups. At the intervention sites, the health care workers were trained on the "Ten Steps for Healthy Feeding for Brazilian Children from Birth to Two Years of Age". Infant feeding practices were assessed at 6 months (n=617) and later at 12 months (n=516) of the child´s age using a multiple-pass 24-hour dietary recall. Diet quality was assessed using the Infant and Child Feeding Index (ICFI), whose score ranges from 0 to 12 points. The consumption of non-recommended foods was also evaluated. Results: At 6 months, the mean ICFI score was higher in the intervention group (7.0±2.3 vs. 6.3±2.2; $p \leq 0.001$). The prevalence of infants who met the recommendation was higher in the intervention group for food frequency (37.2% vs. 27%; relative risk (RR) = 1.37; 95%CI= 1.09-1.74) and meat consumption (36.6% vs. 22.3%; RR= 1.63; 95%CI= 1.26-2.11). In the 12 months, intervention group, a positive impact was observed for the children who had more frequent follow-ups at the health clinics. Non-recommended foods such as added sugar (2.6±1.8 vs. 3.1±1.7), jelly (4.3±1.1 vs. 4.7±1.0), filled cookies (5.2±0.9 vs. 5.0±0.9 months; $p \leq 0.01$) were introduced earlier in the control group. Conclusion: A training provided to primary health care workers was effective in improving infant feeding practices during the first year of life in a low-income community.

Key-words: complementary feeding; intervention studies; primary health care; diet quality; child; child health services.

INTRODUCTION

During the first year of life, appropriate feeding practices are essential to the development of every child's full human potential [1,2,3]. However, complementary feeding practices are characterized by low consumption of fruit and vegetables and high consumption of ultra-processed foods that are high in sugar, saturated fat and sodium and low in fiber [4,5,6]. The consequences of these unhealthy diet patterns are related to some undesirable outcomes, such as overweight and obesity [7], hypertension [8], cardiovascular diseases [9], and dental caries [10]. Furthermore, the beginning of one's life is a critical period for developing healthy eating habits [11,12].

Evidence suggests that early-life interventions may play a role in modifying dietary patterns and promoting healthy food choices throughout life [13,14]. Based on World Health Organization [1] guidelines for breastfeeding and proper complementary feeding, the Brazilian Ministry of Health developed the "Ten Steps for Healthy Feeding from Birth to Two Years of Age" [15]. Our previous studies implemented this national policy through a randomized trial that included dietary counseling given to mothers during home visits. The intervention significantly improved breastfeeding and complementary feeding outcomes [16,17], the lipid profiles of school-age children [18] and the incidence of caries at 12 months and 3 years of age [10]. While these previous studies measured the effectiveness of providing mothers with counseling on child feeding practices, a subsequent study was conducted to investigate the effectiveness of the same dietary guidelines in a routine clinical setting. Therefore, a cluster-randomized trial was initiated at health care clinics. Initial results showed better exclusive breastfeeding rates and healthy complementary feeding introduction in the first year of life [19]. As a continuation, we aimed to evaluate the effectiveness of the ''Ten Steps'' intervention through a health worker training on infant diet quality using the Infant and Child Index Feeding (ICFI) [20]. We also aimed to assess the timing of introducing non-recommended foods to infants in low-income families.

MATERIALS AND METHODS

Study design and participants

This study was a cluster-randomized trial conducted in Porto Alegre, Brazil, a city of 1.4 million inhabitants. The trial included health clinics that provide primary care services to predominantly low-income families. Health clinics were eligible for inclusion if they received ≥100 infant visits annually and were not involved in any other nutritional guidance program. The randomization process took place at the university research office. Thirty-one of the city´s 52 health clinics met the eligibility criteria. Sixteen were initially selected via a witnessed drawing performed by the principal investigator, who drew labeled markers from an opaque container such that two health centers would be included from each of the city's eight administrative districts. Following a stratified randomization scheme, the health care centers were block-randomized by district. One health care center from each district was allocated to the intervention group and the other was allocated to the control group. In order to increase statistical power, four additional health centers were randomly drawn from the 15 eligible centers that were not initially selected. The health clinics differed in the number of clinical visits they received. Thus, to maintain a balanced sample by group, these four additional health clinics were block-randomized at a 1:3 ratio. This yielded 9 intervention and 11 control group health clinics. These 20 health clinics were invited to participate without being informed of their allocation status, and all of them consented.

Following the staff training at the intervention sites from April to December 2008, interviewers visited the health care centers of both the intervention and control groups in order to identify and enroll pregnant women who were in the last trimester of pregnancy. Thus, they would become the mothers who would receive future guidance from health care workers during the first year of their children's lives. The eligible pregnant women were informed about the study and agreed to participate. They answered a questionnaire about their socioeconomic status and expected delivery date. Data such as addresses and telephone numbers were obtained in order to schedule subsequent home visits. Pregnant women diagnosed as HIV-positive were not considered eligible for this study.

Intervention

The health care team included physicians, nurses and administrative staff from the intervention group health clinics who participated in a training based on the "Ten Steps for Healthy Feeding for Brazilian Children From Birth to Two Years of Age" guidelines [20]. First, an experienced nutritionist conducted a one-hour standardized training session for the health care team that outlined the "Ten Steps" recommendations as well as strategies for incorporating them into prenatal consultations. Printed materials about the guidelines were provided to the health clinics for consultation by the professionals as well as a link to the Brazilian Ministry of Health's Nutrition Department website. In addition, each health staff member received a pocket guide to be used as a reference during appointments and waiting room sessions. This pocket guide included the main dietary recommendations for desirable infant feeding practices.

In summary, the "Ten Steps" recommendations are: (1) exclusive breastfeeding until six months of age; (2) continued breastfeeding until two years of age with the gradual introduction of complementary foods; (3) complementary feeding (grains, meat, beans, vegetables and fruits) beginning at six months of age three times daily while continuing breastfeeding; (4) meals at regular intervals, adjusted to the child's internal hunger cues; (5) new foods should gradually get thicker until the child is able to eat a normal family meal, but foods should never be liquefied; (6) provision of a variety of healthy foods every day; (7) daily intake of different fruits and vegetables; (8) avoidance of sugar, sweets, soft drinks, salty snacks and ultra-processed/fried foods; (9) use of good hygiene practices for food preparation and handling; and (10) appropriate, responsive feeding when the child is ill.

Two printed brochures were provided to the health clinics for the health care workers to give to the mothers during infant follow-ups. The first was a flyer that mentioned the "Ten Steps" and encouraged the mothers to get more information about them from the health care workers. It included a sentence emphasizing the importance of following up with their babies at the health clinics during their first year of life. The second was a leaflet that included the following messages: (a) Breast milk increases your child's resistance to illness; do not offer sugar or other liquids to your baby (b) Only a varied diet will provide to your child with all nutrients necessary for healthy growth; offer to you baby grains, beans, meat, vegetables and fruits (c) Help your child to chew by offering him/her soft lumpy foods; chewing strengthens the jaw muscles, helps with speech development, keeps teeth healthy and enables him/her to share in more of the

foods that you eat as a family (d) Wash your hands before preparing or offering food to your child; all kitchen utensils used for food preparation should be clean (e) Meat must be a part of your child's meal; offer one piece of liver once a week; children without anemia are healthier and smarter (f) Do not replace meals with a snack or milk; (g) Do not offer sugar, junk food, soft drinks, candies or salty snacks to your child before two years of age. In addition, we provided two colorful banners made of durable material that were to be displayed in the health clinics' waiting rooms. The content included: (1) information about introducing complementary food, number of meals and food scheme; and (2) colorful pictures of foods that should not be offered to children under two years of age (such as cookies, coffee, jelly, salty foods, candy, soft drinks and snacks) and the message: "Remember that your child has his/her whole life to eat these foods".

Data collection

Trained field workers who were not involved in the intervention and who were unaware of group allocation conducted maternal interviews using structured questionnaires at baseline (during pregnancy) and later during follow-up home visits at a mean child age of 6 months (range: 5 to 9 months) and 12 months (range: 11 to 15 months). After the data were collected, the information was confirmed through telephone calls made to 5% of the mothers surveyed, who were randomly selected. All of the field workers received theoretical and practical training on data collection, which took an average of eight hours. Birth date, gender, birth weight/height and frequency of appointments at the health clinics were obtained from the children's medical records.

Dietary data were obtained by administering a multiple-pass 24-hour dietary recall. For each child, one dietary recall was collected at 6 months and two at 12 months of age, on non-consecutive days. The mothers provided information about all the foods and beverages consumed by their children during the previous day. Details about food types, amounts and preparation methods were recorded. Common household measures (e.g. teaspoons, tablespoons, cups and serving sizes) were used to help the mothers report the amounts of food given to their children and to standardize portion sizes. In addition, at both ages, the mothers were asked how many times their children had consumed meat, fruits, vegetables and beans in the previous seven days.

The introduction of non-recommended foods was evaluated using a structured questionnaire in which mothers were asked the age of their infants (in months) at which

any of the following foods or drinks items was introduced: added sugar, tea, candy, jelly, soft drinks, filled cookies, chocolate, coffee, *petit suisse* cheese, salty snacks and processed meat (ham, mortadella, salami and sausage). These foods are not recommended for consumption before two years of age according to Brazilian dietary guidelines [15].

Infant and Child Feeding Index (ICFI)

Diet quality was determined using the Infant and Child Feeding Index (ICFI)[19]. In summary, the ICFI score is composed of the sum the scores for five selected feeding practices: 1) breastfeeding (whether or not the mother is currently breastfeeding her child); 2) use of a baby bottle in the previous 24 hours (yes or no); 3) dietary diversity (whether or not the child received foods from each food group in the previous 24 hours); 4) meal frequency (how many times the child was offered solid or semi-solid foods in the previous 24 hours; and 5) food frequency (how many days the child received foods from each food group in the previous seven days). The scoring system assigns a score of 0 for a potentially harmful practice (one that does not meet the recommendation) and a score of 1 for a positive practice (one that meets the recommendation). Practices considered particularly important at a given age (such as breastfeeding at six months of age and offering meat as part of complementary feeding at six and 12 months of age) receive a score of 2. Thus, the composite ICFI score can range from 0 to 12.

Some modifications were made to the ICFI's food classification system in order to align with the Brazilian recommendations [15]. The milk group was not included in the dietary diversity or food frequency scores at either age because milk is thought to displace breast milk and is associated with greater use of baby bottles. Regarding the meal frequency score, a meal was defined as including at least three of the following food groups: fruits/vegetables, cereals/grains/tubers, beans and meat (red meat, chicken, fish, pork or eggs).

Statistical analyses

The size of the sample initially recruited for the trial was based on the aim of detecting the intervention's impact on exclusive breastfeeding duration. Six hundred mother-child pairs were estimated to detect a 40% frequency of exclusive breastfeeding

up to four months of age in the intervention group [21], a 25% frequency in the control group (90% power and α of 0.5) and a design effect of 1.5. The recruitment of 720 pregnant women was estimated in order to attain the sample size and account for an expected loss of 20%. The intervention's effect on infant feeding practices at 6 and 12 months (according to the ICFI) was evaluated using the Generalized Estimation Equation (GEE) model, adjusted for cluster with robust variance and Poisson distribution. The variables were described as percentages or averages and standard deviations. In order to quantify the intervention, the relative risks (RR) and respective 95% confidence intervals (95%CI) were calculated. We performed an additional analysis at 12 months to verify whether the infants who were followed up during the first year (as recommended by the Brazilian Ministry of Health, with ≥7 appointments) showed any improvement in feeding practices in the intervention group. The GEE (adjusted for cluster) was used to assess the intervention's effect on the IFCI scores, according to the number of appointments completed by 12 months of age.

The second main outcome analyzed by this study was the introduction of non-recommended foods during the first year of life. Survival analysis was carried out according to the age (in months) at which non-recommended foods were introduced in each group. Chi-squared tests were performed to compare the categorical variables. The Kruskal-Wallis test (abnormally distributed variables) or Student's t test were used to compare continuous variables between the groups. All statistical analyses were performed using the SPSS 16.0 statistical program (SPSS Inc., Chicago, IL USA) and statistical significance was set at $p<0.05$.

Ethics

This study was approved by the Ethics Committee of the Federal University of Health Sciences in Porto Alegre and the Ethics Committee of the Porto Alegre municipal government and was registered on the ClinicalTrials.gov website under the identification number NCT00635453. The mothers provided informed consent on behalf of their children.

RESULTS

A total of 633 infants at 6 months and 545 infants at 12 months of age were visited at home. The causes of sample loss included: refusal to participate in the study, death of

the child or mother and moving to another city (**Figure 1**). For the purposes of this study, children with genetic diseases and incomplete dietary data were excluded from the analyses. Therefore, ICFI outcomes were available for 617 children (317 in the intervention group and 300 in the control group) at 6 months and 516 children (274 intervention/242 control) at 12 months of age.

The children's baseline characteristics were similar in both the intervention and control groups (**Table 1**) ($p>0.05$). Over half of the children were male (52.5%; n= 325). Overall, the mothers' ages varied from 12 to 44 years (25.4 ± 6.7) and 21.2% were adolescents when they gave birth. Thirty percent (n=220) of the mothers had eight years of schooling or less and 75.5% (n=381) of the families had a monthly income of less than three times the national minimum wage (approximately US$ 565.00/⁄month).

The intervention's effect on the infant feeding practices is presented in **Table 2**. Infants from the intervention group had a significantly higher mean ICFI score compared with those in the control group (7.0±2.3 *vs* 6.3±2.2; $p<0.01$) at 6 months of age. Regarding the ICFI's components, the prevalence of children who achieved the recommended score for food frequency was significantly higher in the intervention group (37.2% *vs* 27%; RR: 1.37 CI:1.09-1.74; $p<0.05$). The prevalence of children who ate meat (36.6% *vs* 22.3%; $p < 0.01$) four or more times a week was higher in the intervention group than in the control group at six months of age. The percentage of children who received fruits was higher in the intervention group, although the difference was not statistically significant (69.4% *vs* 61%). At 12 months of age, a complementary analysis showed that infants in the intervention group who had more follow-up appointments during the first year of life had a higher mean ICFI score (8.9±1.81 *vs* 8.4±1.76; $p < 0.01$), dietary diversity score (81.1% *vs* 73.2% RR: 1.11; CI: 1.01-1.22) and meal frequency score (22.9% *vs* 4.9%; RR 4.68; CI: 1.34-16.36). The difference was not statistically significant in the control group. As a secondary outcome, it was observed that the introduction of the following non-recommended foods was delayed during the first year for the children in the intervention group compared to those in the control group: added sugar (3.1±1.7 *vs* 2.6±1.8 months; $p \leq 0.01$), tea (2.7±1.6 *vs* 2.2±1.6 months; $p \leq 0.01$), jelly (4.7±1.0 *vs* 4.3±1.1 months; $p \leq 0.01$) and filled cookies (5.2±0.9 *vs* 5.0±0.9 months; $p \leq 0.01$) (**Figure 2 and Table 3**).

DISCUSSION

Our findings showed that a health care worker training based on the national guideline "Ten Steps for Healthy Feeding for Brazilian Children From Birth to Two Years of Age" policy had a positive impact on the Infant and Child Feeding Index (ICFI) score in the first year of life.

The ICFI (which uses a maximum score of 12 points) summarizes healthy eating guidelines for children in the first two years of life. A higher score indicates a better quality of eating practices, which mainly include breastfeeding, bottle feeding, food groups and food diversity [19]. There is evidence that the ICFI score is positively correlated to infant nutritional status in underprivileged population groups [22,23,24]. However, the use of the ICFI to measure the impact of an intervention program on children's eating practices has only been published by Zhang [25] in China, where he observed higher ICFI scores for the intervention group at all ages evaluated between 6 and 18 months. The study did not provide details on the components responsible for the higher scores but the guidelines were reinforced by training the professionals as conducting home visits. Our results showed higher scores for the intervention group at 6 months of age, with values ranging from 7.01 to 12. In general, there was a deficiency in all five components considered by the ICFI, even in the intervention group. However, the most significant result found was the higher frequency of meat consumption. This result can be explained by the emphasis given in the health professional training to the high prevalence of anemia in children under two years of age in Brazil [26], the technical information provided on the bioavailability of iron from meat and the recommendation that meat be introduced to children at as early as six months of age [27]. The national qualitative research that formed the basis for developing the Ten Steps showed that mothers introduced meat to their children late because they considered it inappropriate for infants under 10 months of age since meat was difficult for babies to chew and digest [20]. As a hypothesis, we also believe that the nutritional information given to the health professionals that beans and beets not be recommended to combat anemia due to the low bioavailability of the iron present in these foods may have prompted the professionals to counsel mothers to give their children meat when initiating complementary feeding. It was observed that vegetable and fruit consumption at 6 months of age led to a nearly 10% increase in the prevalence of children in the intervention group who consumed them more than four times in the previous seven days. However, this was not significant. Nevertheless, the relevance of this result is emphasized because there is evidence that populations of low socioeconomic status

consume these food groups less frequently than others [28] due to limited access and higher costs [29].

The ICFI scores did not differ between the control and intervention groups at 12 months of age. However, to understand this result, we performed complementary analyses to separate the groups according to the frequency with which the children were taken to the health clinics for follow-up visits in the first year of life. The Brazilian guidelines recommend that children have a minimum of 7 appointments during this period. Thus, we observed that the ICFI score was higher for children in the intervention group who had sufficient follow-up (8.9 ±1.81) compared to those who had less than 7 visits (8.4 ±1.76). This difference was not observed in the control group. Thus, studies in different countries whose socioeconomic development is similar to that of Brazil show that training health professionals is effective in positively changing maternal attitudes and practices regarding breastfeeding and complementary feeding [30,31,32,33]. Nevertheless, policies are needed to ensure that children are monitored at health clinics so that mothers are effectively counseled.

As a secondary outcome, this study evaluated the intervention's effect on the timing of introducing unhealthy foods in the first six months of a child's life. The training on this topic that was provided to the health professionals in this study was effective in delaying the introduction of unhealthy foods in the first months of life. However, the frequent early introduction of these foods to children in the first year of life stands out, and the impact on the intervention group is still far from ideal. Furthermore, there was no difference between the groups for many foods, suggesting that this population has a strong cultural tendency to prematurely offer children unhealthy foods. The consumption of these foods in various developing countries is alarming [34,35], given that their premature and excessive consumption is associated with dyslipidemia [36], hyperthyroidism [37], a higher incidence of dental caries [38] and overweight in children [39,40]. Thus, these results underscore the importance of implementing urgent and more effective public nutrition policies that address the risks of prematurely introducing added sugar and junk food to infants in the first year of life.

The present study has some strengths that warrant discussion. First, the randomized design was robust and many confounders were taken into account. Second, the statistical analyses considered cluster effects to minimize type I errors. As a limitation, our results cannot be generalized to large populations because we only included children from low-income groups. Another limitation that requires comment is that the study did

not evaluate the cause-and-effect relationships of the health professionals' actions, since the outcome data were not obtained directly after the children were seen at the health clinics. However, we point out that this study was designed to investigate the dietary practices of the population assisted in the areas where the health clinics were located without interfering in their routine services and childcare logistics.

This study's findings suggest that a low-cost and sustainable intervention in a real-world setting can be effective in promoting better feeding practices during the first year of life of children from low income families. Further studies are needed to determine whether the beneficial effects of the intervention evaluated in this study persist over a longer period of time.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported. The reporting of this work is compliant with CONSORT guidelines, registered on the ClinicalTrials.gov website under the identification number NCT00635453. The lead author affirms that no important aspects of the study have been omitted and that any discrepancies from the study as planned have been explained.

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Table 1 - Characteristics of children and their households at baseline

Characteristics	***n*** [a]	**Intervention**	**Control**
		n (%) or mean ±SD	
Children			
Boys	619	168(52.8)	157(52.2)
Birth weight (g)	611	3315.41±506.13	3256.47±505.33
Birth length (cm)	606	49.13±2.28	48.94±2.62
Only child	619	140(38.9)	135(38.0)
Households at baseline			
Gestational Age (weeks)	580	39.16±1.62	39.13±1.69
Maternal age at child's birth <20 years	619	62(19.5)	69(22.9)
Marital status (married/living with partner)	615	254(70.6)	228(64.2)
Total number of household members ≥7	619	40(12.4)	34(11.3)
Household income ≤ 3 times national minimum wage[b]	601	211(68.7)	213 (72.4)
Maternal schooling <8 years	619	88(27.7)	104(34.6)
Mother's employment	615	111(34.9)	87(28.9)
Father's employment	605	275(90.5)	256(87.7)

[a] n indicates the number of responses recorded for each characteristic; [b] Equivalent to approximately 900 US dollars at 2008 exchange rate; SD: standard deviation; g: grams; cm: centimeters;

Table 2- Percentage of children at 6 to 9 months and 12 to 15 months of age meeting the recommendation for each component of the Infant and Child Feeding Index (ICFI) by group.

Feeding practice	6 to 9 months				12 to 15 months			
	Score	**Intervention (n=317)**	**Control (n=300)**	**RR** *(95%CI)*	**Score**	**Intervention (n=274)**	**Control (n=242)**	**RR** *(95%CI)*
		% (n)	*% (n)*			*% (n)*	*% (n)*	
1. Breastfeeding	Yes = +2	66.2% (210)	64.3% (193)	1.03 (0.95-1.11)	Yes = +1	50% (137)	49.2% (119)	1.01 (0.85-1.21)
2. Bottle feeding	No = +1	19.6% (62)	16.3% (49)	1.19 (0.78-1.83)	No = +1	24.1% (66)	23.6% (57)	1.02 (0.73-1.43)
3. Dietary diversity (past 24h)								
grains+meat+beans+vegetables	Consumed = +2	49.2% (156)	43.7% (131)	1.12 (0.95-1.33)	Consumed = +2	79.9% (219)	79.3% (192)	1.00 (0.92-1.10)
4. Meal frequency (past 24h)								
fruits+meal	Consumed = +2	28.7% (91)	23.0% (69)	1.24 (0.97-1.59)	Consumed = +2	19% (52)	18.6% (45)	1.02 (0.61-1.68)
5. Food frequency (past 7d)[b]		37.2% (118)	27.0% (81)	1.37 (1.09-1.74) *****		90.9% (249)	92.1% (223)	0.98 (0.91-1.06)
	Fruits/vegetables				Fruit[a]			
	≥ 4 d/past 7d = +2	69.4% (220)	61.0% (183)	1.13 (0.97-1.33)	≥ 4 d/past 7d = +1	95.3% (261)	93.8% (227)	1.01 (0.97-1.05)
					Vegetables[a]			
meat+fruits/vegetables+beans					≥ 4 d/past 7d = +2	66.1% (181)	58.7% (142)	1.12 (0.95-1.32)
	Meat				Meat			
	≥ 4 d/past 7d = +2	36.6% (116)	22.3% (67)	1.63 (1.30-2.01) *****	≥ 4 d/past 7d = +2	73.7% (202)	68.6% (166)	1.07 (0.91-1.27)
	Beans				Beans			
	≥ 3 d/past 7d = +1	37.5% (119)	34.3% (103)	1.09 (0.76-1.55)	≥ 3 d/past 7d = +1	96.7% (265)	97.5% (236)	0.99 (0.96-1.02)
ICFI score *mean±SD*		7.01±2.38	6.34±2.21*****			8,81±1.75	8,70±1.68	

* p≤ 0.05; RR= relative risk; SD = s*tandard deviation;* [a] At 12 to 15 months of age, fruit and vegetable consumption were evaluated separately due to the importance of complementary feeding during this period; [b] Prevalence of children who met the consumption recommendations past 7 d for fruits, vegetables, meat and beans

Table 3- Intervention effect on the timing of introducing non-recommended foods to infant's diet (in months) at six months of age.

Non-recommended foods	**Intervention** *mean±SD (n)*	**Control** *mean±SD (n)*	**p**
Added sugar	3.16 ±1.74	2.65±1.8	< 0.001
Tea	2.71±1.62	2.23±1.60	< 0.001
Candies	5.14 ±1.16	4.92±1.18	0.175
Jelly	4.71±1.0	4.36±1.10	< 0.001
Soft drinks	4.98±1.18	4.87±1.04	0.409
Filled cookies	5.29±0.98	5.00±0.99	< 0.001
Chocolate	5.25±1.06	5.02±1.11	0.197
Coffee	4.95±1.51	5.12±1.29	0.526
Petit suisse cheese	4.76±1.17	4.51±1.00	0.094
Salty snacks	5.40±1.06	5.21±0.86	0.389
Processed meat[a]	5.25±1.0	5.00±1.45	0.306

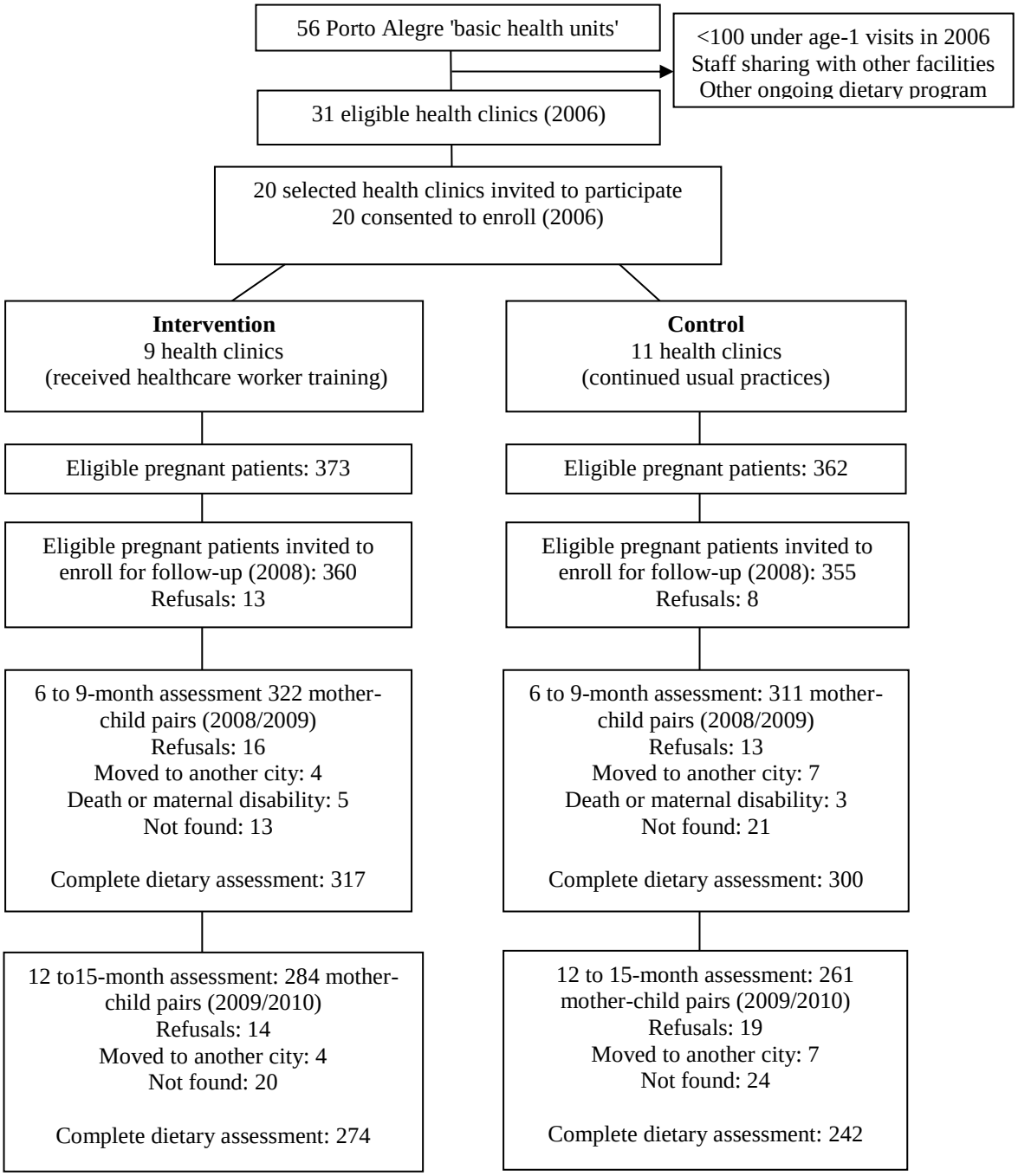


Figure 1. Study overview.

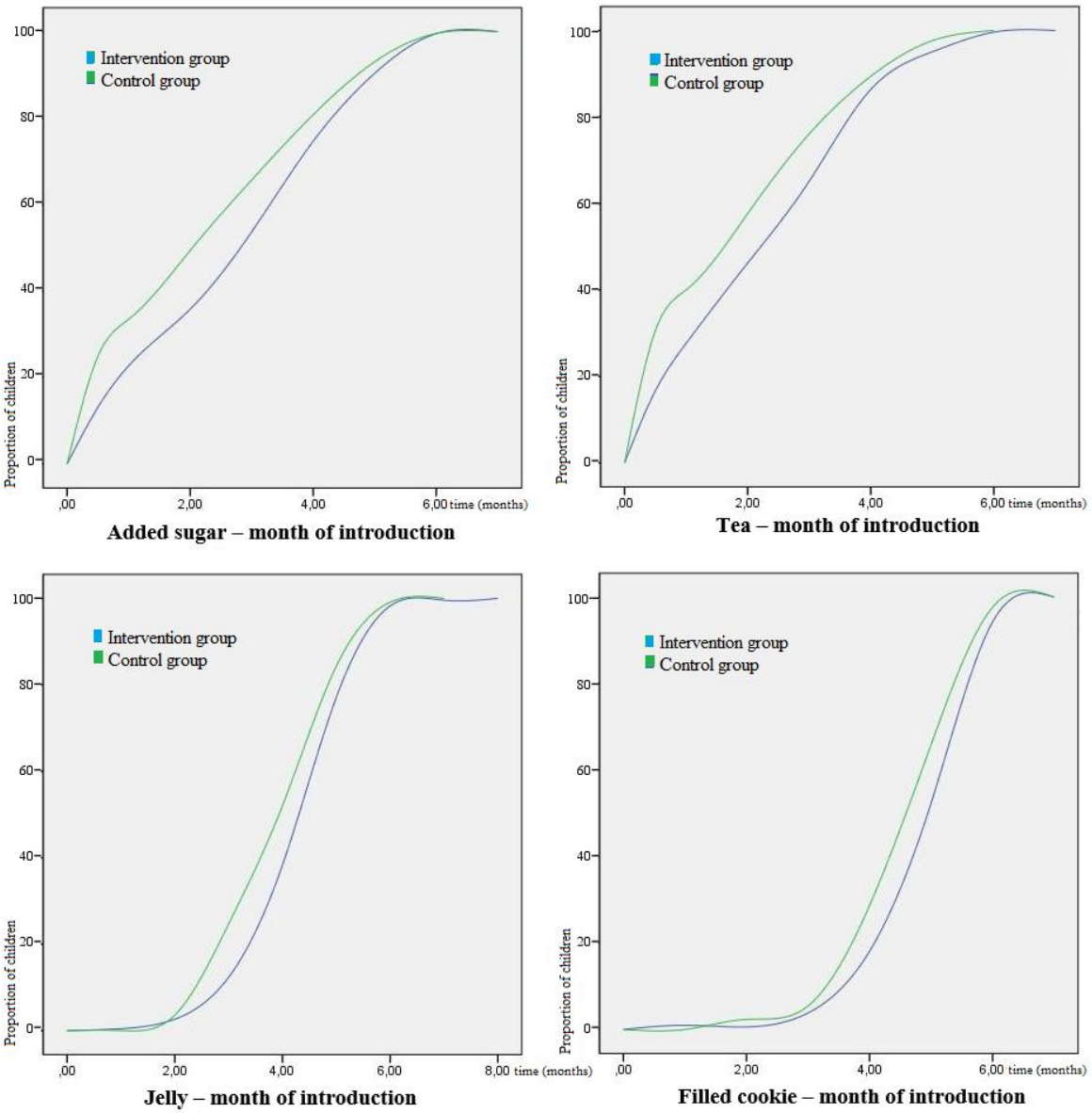


Figure 2. Survival curves of the age (in months) at which the following non-recommended *foods were introduced:* added sugar, tea, jelly and filled cookies (comparison between the intervention and control groups).

5 Conclusão

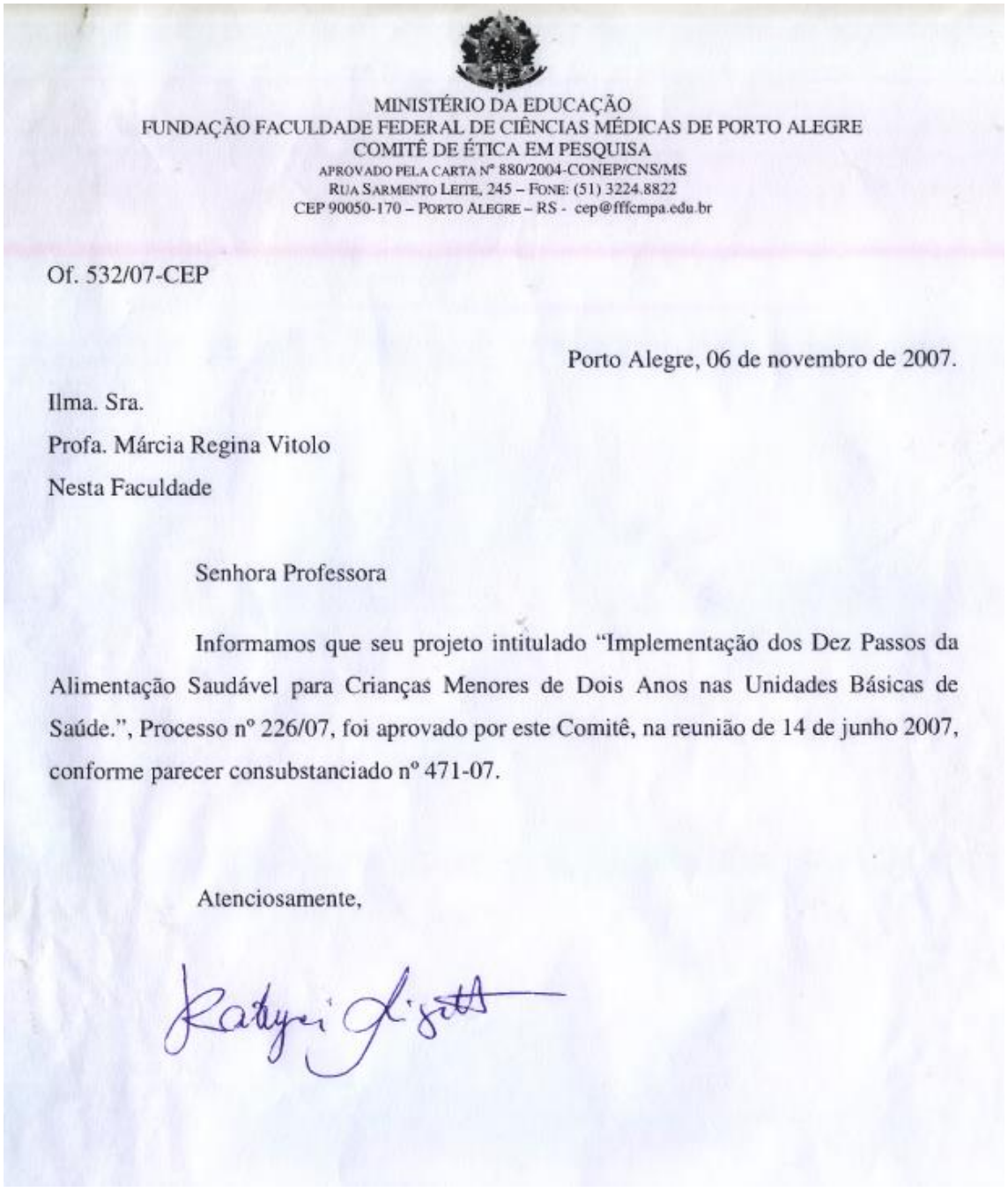
Os resultados reforçam que a proposta de atualização baseada nas diretrizes do guia nacional: Dez Passos da Alimentação Saudável para Crianças Menores de Dois Anos - entre profissionais de saúde dos serviços de atenção primária, pode ser uma estratégia para aumentar a qualidade das práticas alimentares e evitar o consumo precoce de alimentos não recomendáveis para crianças menores de dois anos. Além disso, a proposta deste estudo reforça a diretriz da Política Nacional de Alimentação e Nutrição, de qualificação dos profissionais da saúde como estratégica para o enfrentamento dos agravos e problemas decorrentes do atual quadro alimentar e nutricional brasileiro.

Por outro lado, este estudo também evidencia práticas alimentares inadequadas entre crianças de baixa condição socioeconômica, com consumo baixo de frutas e verduras e legumes e introdução precoce de alimentos não recomendáveis para crianças menores de dois anos de vida. A ingestão precoce e frequente de alimentos altamente energéticos e ricos em sal e açúcar foi associada ao maior risco de desenvolvimento de doenças como: obesidade, dislipidemias e cáries. Além disso, considerando que as preferências alimentares são formadas nos primeiros anos de vida, o consumo precoce desses alimentos contribui para manutenção de hábitos inadequados em idades posteriores.

6 Anexos

6.1. Aprovação pelo comitê de ética

ANEXO I - Parecer do Comitê de Ética em Pesquisa 1° fase do estudo



MINISTÉRIO DA EDUCAÇÃO
FUNDAÇÃO FACULDADE FEDERAL DE CIÊNCIAS MÉDICAS DE PORTO ALEGRE
COMITÊ DE ÉTICA EM PESQUISA
APROVADO PELA CARTA Nº 880/2004-CONEP/CNS/MS
RUA SARMENTO LEITE, 245 – FONE: (51) 3224.8822
CEP 90050-170 – PORTO ALEGRE – RS - cep@fffcmpa.edu.br

Of. 532/07-CEP

Porto Alegre, 06 de novembro de 2007.

Ilma. Sra.
Profa. Márcia Regina Vitolo
Nesta Faculdade

Senhora Professora

Informamos que seu projeto intitulado "Implementação dos Dez Passos da Alimentação Saudável para Crianças Menores de Dois Anos nas Unidades Básicas de Saúde.", Processo nº 226/07, foi aprovado por este Comitê, na reunião de 14 de junho 2007, conforme parecer consubstanciado nº 471-07.

Atenciosamente,

ANEXO II – Parecer do Comitê de Ética em Pesquisa 2° fase do estudo

COMITÊ DE ÉTICA EM PESQUISA - CEP
UFCSPA

O Comitê de Ética em Pesquisa da UFCSPA, registrado na Comissão Nacional de Ética em Pesquisa (CONEP) sob o nº 075/05 em 23/07/04, analisou o Projeto:

Projeto: 11-748 **Versão do Projeto:** **Versão do TCLE:**

Pesquisadores:
MÁRCIA REGINA VITOLO
CARLOS ALBERTO FELDENS

Título: IMPACTO DE INTERVENÇÃO NA ATENÇÃO PRIMÁRIA À SAÚDE NAS CONDIÇÕES NUTRICIONAIS DE CRIANÇAS EM IDADE PRÉ-ESCOLAR:SEGUNDA FASE DE AVALIAÇÃO DE ENSAIO DE CAMPO RANDOMIZADO POR CONGLOMERADOS

Esse projeto foi aprovado em seus aspectos éticos e metodológicos conforme as Resoluções 196/09 e demais Resoluções complementares. Toda e qualquer alteração do projeto, assim como eventos adversos graves, deverão ser comunicados a este CEP. Os TCLE, quando necessários, somente poderão ser utilizados após prévia e explícita aprovação (carimbo) de sua redação por este CEP".

Porto Alegre, 06 de maio de 2011.

José Geraldo Vernet Taborda
Coordenador do CEP/UFCSPA

ANEXO III - Parecer do Comitê de Ética em Pesquisa 3° fase do estudo

UNIVERSIDADE FEDERAL DE CIÊNCIAS DA SAÚDE DE PORTO ALEGRE

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Impacto nas condições nutricionais e de saúde de crianças na idade de 6 e 7 anos que participaram de um ensaio de campo randomizado por conglomerados no primeiro ano de vida

Pesquisador: Marcia Regina Vitolo

Área Temática:

Versão: 1

CAAE: 30741714.7.0000.5345

Instituição Proponente: Universidade Federal de Ciências da Saúde de Porto Alegre

Patrocinador Principal: Conselho Nacional de Desenvolvimento Científico e Tecnológico

DADOS DO PARECER

Número do Parecer: 689.596

Data da Relatoria: 12/06/2014

Apresentação do Projeto:

O presente estudo é continuidade de um projeto (471-07 e nº 748/11 Comitê de Ética e Pesquisa da UFCSPA) desenvolvido para avaliar o impacto de atualização de profissionais da atenção primária à saúde em relação ao guia alimentar "Dez passos para uma alimentação saudável para crianças brasileiras menores de dois anos" nas condições nutricionais e de saúde de crianças assistidas por unidades de saúde da cidade de Porto Alegre.

O mesmo visa estudar se existe impacto da atualização para profissionais da atenção primária em relação às práticas alimentares no primeiro ano de vida (realizado no estudo anterior) nas condições de nutrição e saúde de crianças na idade escolar e os fatores de risco para obesidade, anemia, dislipidemias e alterações metabólicas.

Para isso, crianças na idade de 6-7 anos receberão visitas domiciliares. Os dados antropométricos e dietéticos serão coletados por estudantes de graduação e pós-graduação da Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA) por meio de questionário abordando fatores familiares, antropométricos e dietéticos. Os entrevistadores não terão conhecimento do grupo no qual as crianças pertenceram (intervenção ou controle) e serão previamente treinados para coleta de dados. Será realizada confirmação dos dados coletados em 5% da amostra por telefone. Será realizado analise de amostras de sangue na Universidade Federal de Ciências da

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UF: RS **Município:** PORTO ALEGRE
Telefone: (513)303 -8804 **E-mail:** cep@ufcspa.edu.br

Saúde de Porto Alegre (UFCSPA). O deslocamento das mães e crianças, em grupos, será realizado por meio de serviço terceirizado de transporte.

Objetivo da Pesquisa:

Avaliar o impacto de uma atualização para profissionais da atenção primária em relação às práticas alimentares no primeiro ano de vida nas condições de nutrição e saúde de crianças na idade escolar e os fatores de risco para obesidade, anemia, dislipidemias e alterações metabólicas.

Avaliação dos Riscos e Benefícios:

A nível individual, as crianças terão os resultados de todos os exames e serão encaminhadas ao posto de saúde se necessário. Os resultados dessa pesquisa poderão subsidiar políticas públicas de alimentação e nutrição, sobretudo da população infantil de baixa renda.

Os riscos são pequenos e envolvem a realização de punção venosa na fossa cúbita. Os autores não descrevem os potenciais riscos de equimoses, dor local etc.

Comentários e Considerações sobre a Pesquisa:

É um estudo relevante que poderá auxiliar em políticas públicas de alimentação e nutrição na população infantil. O mesmo apresenta objetivos e metodologia claros. O mesmo foi contemplado com o Edital do Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPQ) Nº 14/2013-47731/2013-8.

Considerações sobre os Termos de apresentação obrigatória:

As mudanças solicitadas no termo de consentimento livre e esclarecido foram atendidas.

Os pesquisadores justificaram a falta de anuência da Secretaria Municipal de Saúde uma vez que o projeto não será realizado nas Unidades Básicas de Saúde e sim por visitas domiciliares.

Recomendações:

As sugestões foram atendidas.

Conclusões ou Pendências e Lista de Inadequações:

Parecer favorável a aprovação.

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

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Considerações Finais a critério do CEP:

Término do projeto 05/2015.

De acordo com o parecer do Relator.

PORTO ALEGRE, 17 de Junho de 2014

Assinado por:
José Geraldo Vernet Taborda
(Coordenador)

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6.2. Normas da revista

Author Guidelines

The *Journal of Human Nutrition and Dietetics* is an international peer-reviewed journal that publishes high quality, peer-reviewed research, reviews, practice guidelines and discussion papers for an international readership.

The journal welcomes quantitative and qualitative human studies, high quality clinical trials, validation studies and systematic reviews.

The journal scope encompasses public health nutrition, health promotion, food choice, nutritional status, psychology of eating behavior, the sociology of food intake, nutritional epidemiology, dietary surveys, nutritional requirements, body composition, nutrigenomics and epigenetics, weight management, obesity, clinical nutrition and the practice of therapeutic dietetics. The journal does not publish case studies or animal experiments. The journal editors are committed to deliver initial decisions on manuscripts within 6-8 weeks of submission.

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The *Journal of Human Nutrition and Dietetics* publishes the following types of material:
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Short Reports
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Systematic Reviews and meta-analyses
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Editorials

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Preparation of submissions

Papers submitted to the journal for consideration for publication should be written in English and be written in a clear and concise manner. If English is not the first language of the authors, the paper should be checked by an English speaker prior to submission. Ensuring that manuscripts are in a form suitable for submission is solely the responsibility of the author.

Authors who are considering submission to the journal should look at a current issue of theJournal of Human Nutrition and Dietetics and note the typographical conventions, layout of tables and figures and referencing style. If you are a first-time author the Frequently Asked Questions section may also be useful. The journal editors blog also has a series of articles on 'How to write' which you may find useful. Typescripts should be prepared with 1·5 line spacing and wide margins (2 cm), the preferred font being Times New Roman size 12, or similar. At the ends of lines words should not be hyphenated unless hyphens are to be printed. Authors should provide line numbers on the manuscripts, with continuous numbering throughout the document.

Authorship

Full details of the roles of ALL authors must be included on the Title page of the manuscript. The name and address of the corresponding author to whom correspondence should be sent should be clearly stated, together with telephone and fax numbers and email address.

ALL named authors must have made an active contribution to the conception and design and/or analysis and interpretation of the data and/or the drafting of the paper and ALL must have critically reviewed its content and have approved the final version submitted for publication. Participation solely in the acquisition of funding or the collection of data does not justify authorship and, except in the case of complex large-scale or multi-centre research, the number of authors should not normally exceed six.

Format of submissions

Full papers (original research), systematic reviews and guidelines will normally be between 2500 and 4000 words. Short reports should normally be 800-1200 words, should follow the same format for full papers, and in general should only be used for robust research that is in its infancy and which shows important results. The inclusion of a figure or table would generally utilize approximately 500 words of this word limit, so a typical paper with 3 figure or table inclusions would normally comprise 2,500 words of text. Authors are strongly encouraged to submit data that is not central to their paper as supplementary material. If accepted, this material will be free to access online, regardless of the open access status of the published paper.

The manuscript should include:

a) *Title page*: The manuscript title should be focused and succinct whilst giving sufficient information to encourage potential readers to read the paper. Where possible the title should be one complete sentence. The title should avoid excessive description of the location of the research (e.g. the city, country etc) unless it is important to the understanding of the paper.

The title should be followed by authors' names. These should be given without titles or degrees and one forename may be given in full. The name and address of the institution where the work was performed should be given, with the main working address for each author. The title page should also include up to six keywords and details of the role each of the author(s) undertook in the study.

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Journal articles
1. Steele JR, Meskell RJ, Foy J et al. Determining the osmolality of over-concentrated and supplemented infant formulas. J.Hum Nutr Diet. 2013;26:32-37.
2. Nelson M, Margetts BM & Black A. Letter to the Editor. J Hum Nutr Diet. 1993;6: 79-81.
3. Dixon N. Writing for publication- a guide for new authors. Int J Qual Health Care. 2001;13**:** 417-421.

Books and monographs
4. Kim J. Factors analysis. In: Statistical Package for the Social Sciences. pp. 468-514 [Nie K. Steinbrenner K & Brent DH, editors]. New York: McGraw-Hill; 1975.

Sources from the internet
5. Public Health England (2014) Public Health England Obesity Statistics. http://www.noo.org.uk (accessed October 2014).

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