



EVALUATION OF THE NATIONAL IRON SUPPLEMENTATION PROGRAM

Avaliação do programa nacional de suplementação de ferro

Evaluación del Programa Nacional de Suplementación de Hierro

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ABSTRACT

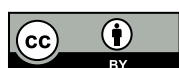
Objective: Evaluate the National Iron Supplementation Program - PNSF based on the knowledge of the health professionals involved in the implementation of this program. **Methods:** A qualitative research was carried out in the second half of 2018. Semi-structured interviews were conducted with 7 professionals involved in the National Program for Iron Supplementation in Basic Health Units of the municipality. Inclusion and exclusion criteria selected the interviewees. In the interview the PNSF and foods interfering with the bioavailability of iron were discussed. Data analysis was based on thematic content analysis. **Results:** The ferric supplement was not given for 3 months and the health professionals interviewed did not have sufficient knowledge about foods that interfere with iron absorption, indicating an important failure at the moment of orientation on the supplement. The absence of training on the program was a factor that attracted attention. **Conclusion:** The operation of the National Iron Supplementation Program PNSF in the municipality during the studied period occurred unsatisfactorily. There should be greater attention of the managers of the strategy regarding the distribution of the supplement and training of the professionals, aiming at improvements for the program and consequently for its users.

Descriptors: Anemia, Iron-Deficiency; Public Policy; Iron.

RESUMO

Objetivo: Avaliar o Programa Nacional de Suplementação de Ferro (PNSF) a partir do conhecimento dos profissionais de saúde envolvidos na execução deste. **Métodos:** Pesquisa qualitativa executada no segundo semestre de 2018. Foram realizadas entrevistas semiestruturadas com 7 profissionais envolvidos no Programa Nacional de Suplementação de Ferro atuantes em Unidades Básicas de Saúde de um município. A seleção dos entrevistados se deu a partir de critérios de inclusão e exclusão. Na entrevista foram abordados o PNSF e os alimentos que interferem na biodisponibilidade de ferro. A análise dos dados se deu por análise de conteúdo temática. **Resultados:** A distribuição do suplemento férrico não acontecia há 3 meses e os profissionais de saúde entrevistados não tinham conhecimento suficiente sobre alimentos que interferem na absorção de ferro, apontando importante falha no momento da orientação sobre o suplemento. A ausência de capacitações sobre o programa foi um fator que chamou atenção. **Conclusão:** O funcionamento do Programa Nacional de Suplementação de Ferro no referido município, durante o período estudado, deu-se de forma insatisfatória. Deve haver maior atenção dos gestores da estratégia em relação à distribuição do suplemento e à capacitação dos profissionais, objetivando melhorias para o programa e, conseqüentemente, para seus usuários.

Descritores: Anemia Ferropriva; Política Pública; Ferro.



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RESUMEN

Objetivo: Evaluar el Programa Nacional de Suplementación de Hierro (PNSF) a partir del conocimiento de los profesionales sanitarios involucrados en su ejecución. **Métodos:** Investigación cualitativa realizada en el segundo semestre de 2018. Se realizaron entrevistas semiestructuradas con 7 profesionales del Programa Nacional de Suplementación de Hierro de las Unidades Básicas de Salud de un municipio. La selección de los entrevistados se dio a partir de los criterios de inclusión y exclusión. En la entrevista se ha abordado el PNSF y los alimentos que contribuyen para la biodisponibilidad del hierro. El análisis de los datos se dio por el análisis de contenido temático. **Resultados:** La distribución del suplemento de hierro no se daba desde hace 3 meses y los profesionales sanitarios entrevistados no tenían el conocimiento suficiente sobre los alimentos que interfieren en la absorción del hierro relatando importante omisión en el momento de la orientación sobre el suplemento. La ausencia de capacitaciones sobre el programa ha llamado la atención. **Conclusión:** El funcionamiento del Programa Nacional de Suplementación de Hierro del referido municipio durante el periodo investigado se dio de manera insatisfactoria. Se debe poner más atención de parte de los gestores para la estrategia respecto la distribución del suplemento y la capacitación de los profesionales con el objetivo de mejorar el programa y, en consecuencia, sus usuarios.

Descriptores: Anemia Ferropénica; Política Pública; Hierro.

INTRODUCTION

Iron deficiency is the cause of the greatest nutritional deficiency on the planet and can affect any age or social group. The World Health Organization (WHO) states that about 24.8% of the world's population has iron deficiency anemia, which makes it a serious public health problem. The most vulnerable groups are preschoolers, pregnant women and women of childbearing age⁽¹⁾.

Iron deficiency anemia can be understood as a late manifestation of the low amount of iron present in the body, causing low hemoglobin concentration in the blood, leading to symptoms such as fatigue, dyspnea, difficulty concentrating and hypocolored mucosa⁽²⁾. In the long run, such deficiency can cause poor school performance, headache, poor immune conditions, and changes in the metabolism of important hormones⁽³⁾.

Iron deficiency anemia is also associated with increased fetal deaths and low birth weight, which may cause cognitive retardation and impairment in the child's mental development⁽⁴⁾. In severe cases, depression, lethargy, convulsions⁽⁵⁾ and increased cardiac output may occur as a consequence of the inability to carry oxygen through the blood, worsening pre-existing heart disease⁽⁶⁾.

Symptoms of such anemia can trigger long-term economic impacts, especially in underdeveloped countries. WHO states that decreased productivity and impaired cognitive development caused by iron deficiency anemia can cause losses of up to 0.81% of Gross Domestic Product (GDP) per year⁽⁷⁾.

The etiology of such pathology may be due to poor intake of food sources of iron; by the high demand for nutrients in certain states, such as pregnancy; early withdrawal of breastfeeding; by iron malabsorption; by parasite infestation; among other factors⁽³⁾. Late food intake, diets with a predominance of cow's milk⁽⁸⁾ and dairy products, or the absence of iron source foods during food introduction are risk factors for the development of childhood iron deficiency anemia.

As a strategy to combat iron deficiency anemia in Brazil, the Ministry of Health has developed policies and programs aimed at reducing such incidence. These include the mandatory fortification of wheat and maize flour with iron and folic acid, the National Iron Supplementation Program (PNSF), the strategy for fortification of powdered micronutrient feeding (NUTRISUS) and the promotion of adequate nutrition. and healthy through the Breastfeeding Brazil strategy^(9,10).

The PNSF is a strategy that makes up the National Food and Nutrition Policy (PNAN) and aims to combat iron deficiency anemia in Brazil through the prophylactic administration of iron supplements distributed free of charge by the Unified Health System (SUS) to children aged 6 years. 24 months, pregnant women (including folic acid administration) and women up to the 3rd month postpartum or abortion. In addition to the distribution of the drug, there should be promotion actions on healthy and adequate food for the population of the municipality⁽¹¹⁾.

It is considered here, as a fundamental premise, that the health professionals responsible for PNSF have knowledge about the program and about the bioavailability of iron to properly guide the population. In this sense, we can even highlight from studies that involve nuances that surround the execution of the PNSF according to the reports of professionals^(12,13).

Given this statement, the question is: Do health professionals working in PNSF have sufficient knowledge about this strategy and about the foods that interfere with iron absorption? Therefore, the objective of this study was to

evaluate the National Iron Supplementation Program (PNSF) in a given municipality from the knowledge of health professionals involved in the implementation of this program.

METHODS

This is a qualitative study based on the assumption that human subjective relations play an active role in the production of knowledge, since a great role is given to the interpretation^(14,15). Thus, the definition and delimitation of the procedures and techniques used here fit the scope of qualitative research. It is noteworthy that the temporal and geographical clipping used comprises the Basic Health Units (BHU) of the city of Juazeiro do Norte, Ceará, Brazil, during September 2018.

The research included the participation of professionals directly or indirectly involved in the execution of the PNSF and had as inclusion criteria the health professionals involved in the execution of the program in UBS of Juazeiro do Norte. Those professionals whose relationship with the UBS were internships were excluded.

Regarding data collection, the visits to the first three BHUs on the list were representative, as there was no variability in the semantic or lexical field of the interviewees, and it was possible to notice the theoretical saturation of the sample⁽¹⁶⁾. Thus, the respondents ended up totaling seven people, six female and one male. These participants were chosen because of their availability and their participation in the municipality's PNSF. For the purposes of job specification and training, the participants were: 3 nurses, 2 pharmacists, 1 physician and 1 nursing technician.

The interviews were conducted in reserved spaces within the BHUs, during off-hours. As a facilitating accessory to the interviews, one was assisted by a voice recorder. All respondents expressed interest in what was then a research project. There was no conflict between the parties, which resulted in a cordial atmosphere throughout the interviews.

It was used as data collection instrument a script of semi-structured interviews about the functioning of PNSF and the foods that facilitate and hinder the absorption of iron. To verify the effectiveness of the data collection instruments, a pilot test was performed. Data analysis was also based on the existing literature on the theme to discuss the results found.

The statements were transcribed, analyzed and organized into categories using thematic content analysis⁽¹⁵⁾. The following categories were obtained as follows: PNSF execution in the municipality of Juazeiro do Norte; Professionals' knowledge about PNSF; Professionals' knowledge about iron bioavailability: facilitating and hindering foods.

Interview participants were asked to sign the Informed Consent Form (ICF), as established in Chapter I of Resolution No. 510 of April 7, 2016 of the National Health Council⁽¹⁷⁾.

In view of the confidentiality of the interviewees, identification was performed using the codenames: Professional from 1 to 7 for subsequent explanation of their lines. The project was forwarded to the Juazeiro do Norte Department of Health, along with an application for authorization for visits to the UBS and for data collection. The research was carried out with the approval of the Research Ethics Committee of the Juazeiro do Norte Faculty under Opinion No. 2,852,990.

RESULTS AND DISCUSSION

PNSF execution in the municipality of Juazeiro do Norte

Regarding the execution of users to the PNSF, the professionals showed complete agreement on the lack of distribution of the iron supplement in the UBS where they work:

"The Ministry no longer sent the supplement, there is no distribution. Not even for pregnant women! The pregnant woman come to the prenatal consultation and we are giving the recipe and they are buying." (Professional 1)

"So every little pregnant woman who goes with the nurse I see the prescription of iron and folic acid. The children I can not tell you, because you can not see the audience coming to get. It's been missing for three months, but it's because the state didn't send it [...] In the last quarter, it didn't come, so the last stock Juazeiro had was zeroing, zeroing, then we are waiting to receive." (Professional 6)

"This is seasonal here: there are times that there are, and there are times that there are not. Now, now, there's not." (Professional 7)

Note from the above that there has been no distribution of iron supplement for at least three months. Considering that the majority of the population assisted by the public health service is of low income, free obtaining is mostly the

only way to access the medicine. The absence of iron supplement in health facilities impairs the program's efficiency in the municipality, as it interrupts treatment, impairing its functioning and effectiveness.

At the end of 2018, the Ministry of Health released data on national coverage of PNSF. Regarding ferrous sulphate supplementation in children aged 6 - 24 months, the age recommended by the supplementation program; only 2.69% of the national target was effectively met. Regarding the coverage of ferrous sulfate and folic acid supplementation in pregnant women, 12.93% and 11.20% of predicted, respectively, were achieved⁽¹⁸⁾. For puerperal women or women who have had miscarriages, daily iron supplementation is recommended until the third month after delivery or abortion⁽¹¹⁾, but there is no research measuring coverage data for this group. Low supplement coverage points to major program failure throughout Brazil.

In developing countries, strategies to combat anemia are also ineffective. For pregnant women, daily supplementation of iron and folic acid during pregnancy is advised, but disappointing results. For children, iron fortification in complementary foods is shown to be effective but not affordable for the entire population. When complementary foods are not available, preventive iron supplementation from 6 to 18 months of age is advised. These interventions are most effective when they integrate other approaches, such as improving nutritional practices, controlling infections, and promoting breastfeeding⁽¹⁹⁾.

In addition to the lack of distribution in the municipality studied, professionals reported difficulties encountered by program users to continue treatment:

"Most pregnant women have diarrhea with ferrous sulfate or even constipation; the opposite, isn't it? So we always advise: 'Oh, if you feel something, stop and come here'." (Professional 6)

"I treat a lot of pregnant women who stop ferrous sulfate because their intestines are stuck. That's hard, isn't it? They stop and don't care about taking more. Now, children are easier, because the parents who give, so they take it right." (Professional 4)

The undesirable side effects of ferrous sulfate are constipation, diarrhea, abdominal cramps, characteristic metallic taste^(20,21), which are important factors to be observed regarding the continuity of treatment by its users, offered free or not. Nutrition education is an inexpensive and efficient strategy for providing healthy eating information to the population, including iron deficiency anemia diet therapy and iron supplement interaction when consumed with specific foods⁽²²⁾. Qualifying health professionals involved in the program to provide nutritional guidance can be considered an alternative to minimize the consequences of the low number of nutritionists in the locality, improving the effectiveness of the strategy.

Moreover, it was perceived, in the reports of the professionals of the current study, the need to sensitize users regarding the importance of iron supplementation and the harms of iron deficiency anemia so that there can be a greater incentive from professionals towards users, enabling lower treatment dropout.

Knowledge of professionals about PNSF

About PNSF, most of the professionals interviewed in the current survey showed sufficient knowledge about its purpose, users, and functionality:

"This is why every child, every human being, needs an amount of iron in the body, so what was this program designed for? Of supply, is already saying: 'supplementation', to supply the deficiencies of iron in the body." (Professional 1)

"We supplement with ferrous sulfate and folic acid for pregnant women; children, in this case, only ferrous sulfate. Now, thus, for pregnant women we always pass. Now, children, not always, because the consultation is quick and sometimes they have to vaccinate, you understand?" (Professional 2)

"Of children we always make this search, is not it; In childcare we already pass the ferrous sulfate for them to take, is not, depending on the age group. They take a cup once a week, then pregnant women also use ferrous sulfate throughout pregnancy. In the first consultation, we already take them to take until the end, and the postpartum until 2 months after delivery. They also use ferrous sulfate." (Professional 6)

From the reports above, health professionals working in PNSF have sufficient knowledge only to perform the distribution of the drug according to the user's profile. This bias could be confirmed when some respondents were confused about the need for the program, more specifically the need for the distribution of the supplement, and perceived a lower efficiency of the strategy adopted by the municipality.

The dissemination of the vitamin A program and the immunization program are covered in health facilities through posters, a factor that can demonstrate greater appreciation by users and health professionals concerning PNSF⁽²³⁾, as there is no exposure of educational material. Knowing this, the preparation of educational material about the program for exhibition at UBS is relevant for popularization:

"I received, look, but a long time ago [...] I think I did it as soon as the program was launched, that is, a long time ago." (Professional 2)

"Training is not, because here many professionals do not pass to children in childcare. A little paper arrived once the city talking about it, it is not, but it is paper and paper we do not value so much, unfortunately. But thus empowerment [d] the importance of this has never had no." (Professional 3)

The reports mentioned above indicate weaknesses regarding the qualification of professionals working in the PNSF, signaling the need for greater attention by strategy managers. An important point observed was regarding the training on PNSF. When asked about the frequency of training on the strategy, the professionals reported never having participated or just participated at the beginning of its implementation.

Studies show that the absence or little amount of training on the program is considered a limiting factor, which may undermine the strategy^(20,24). Because they are professionals who, in addition to being responsible for the distribution of the supplement, are responsible for giving drug use guidelines and nutritional guidelines for such users, training is undoubtedly necessary. The preparation of educational material for exhibition at UBS is relevant for popularization of PNSF.

Professionals' knowledge about iron bioavailability: facilitating and hindering foods

Given the testimonies, there was a lack of knowledge regarding foods that hinder the absorption of iron. On the facilitating foods the knowledge proved sufficient:

"I advise everyone to take ferrous sulphate at lunch or before lunch, and in the diet to have vitamin C [...] I have mango juice, orange juice. But those that cut, is not it, the effect? I never heard of it!" (Professional 1)

"Foods that help in iron absorption? So I always orient and we try a little bit to join together with the nutritionist here, which is: 'Sucks an orange after lunch, sucks an orange that helps in the absorption of iron'. Now the hindrances ... look, the ones that impair absorption I never said, because I don't know (laughs)." (Professional 2)

"The foods that help are the acerola, the orange, a lemon, isn't it, but the ones that make it hurt, I don't know." (Professional 4)

"Look, our population, it's very poor, so there's a lot that goes from being a health problem to being a social problem and shirks our responsibility, because sometimes the guy is unemployed, can't afford to buy a healthier food for the wife, for the family, so it all weighs in. There was a pregnant woman, once consulted for a while, and I talking about nutrition, that other, food, then she looked at me and said: 'Doctor, in my fridge there is only pepper'. Unfortunately, I didn't have anything to say to her anymore, did I? Then I don't even guide things that help or hinder, but vitamin C helps." (Professional 7)

From the above statements, it is noticeable the lack of knowledge of professionals about foods that impair iron absorption, being of great concern such finding, because the lack of knowledge precludes the correct orientation of users, contributing to the ineffectiveness of treatment of iron deficiency anemia and the Health Strategy in the municipality.

Poor intake of iron source foods or malabsorption due to excessive consumption of antacids or foods containing polyphenols, phytates, tannins, calcium, and phosphate are part of the etiology of iron deficiency anemia. To avoid malabsorption, you should avoid consuming such foods at the same meal and combine iron sources or vitamin C ferric supplementation to improve their absorption^(25,26).

Calcium, a nutrient found in cow's milk, present in the food culture of a large part of the population, especially children, inhibits iron absorption since it disputes absorption in the same place of the human organism, so it is not recommended to consume them in an association. Polyphenols, a substance found in coffee and teas, which, like milk, are consumed daily by most Brazilians and often in excessive amounts, inhibit iron absorption from the formation of insoluble compounds^(26,27).

Few studies associate the consumption of iron-lowering foods with their deficiency or treatment failure⁽²⁵⁻²⁷⁾, but this hypothesis is pertinent since preschoolers are most affected by anemia iron and these are major consumers of milk and dairy.

Besides, as a means of minimizing the side effects reported by supplement use and subsequently encouraging the population to seek PNSF, nutritional guidance from health professionals is proposed here. However, it is recognized that there is a deficiency regarding the number of nutritionists in the primary care of the municipality investigated. As a contingency, it might be possible to establish partnerships to promote continuing training that would increase the level of knowledge of professionals already working at the UBS.

Health professionals working in PNSF must know the subjects discussed here to guide the population and contribute to better quality treatment. Although there is the possibility of objectively inferring only the characteristics and relationships established in the city studied, this research, when confronted with other research, can report public health problems related to health promotion; in this case, according to PNSF deliberations.

This study has limitations regarding the number of respondents, not portraying the perception of all professionals involved in the program in the municipality. It is also possible to highlight that there is also a certain lack of studies regarding the knowledge of professionals working in health strategies aiming at the real execution of programs such as PNSF.

FINAL CONSIDERATIONS

The present study revealed that the National Iron Supplementation Program, in the analyzed municipality, has points that should be improved. It was found, from the analysis of the statements, the absence of distribution of medicines. It is remarkable that this practice disrupts the treatment of its users and impairs the effectiveness of the program in combating iron deficiency anemia.

It was found that professionals' knowledge about foods that impair iron absorption is insufficient. As a result of this fact, in addition to the inability of the municipality to offer the supplement, the outline of the situation on the part of the patients is impaired due to the lack of knowledge of professionals, including the impairment to therapy, given the insufficient or absent guidance on the treatment that affects your bioavailability. There is a lack of training and awareness among health professionals about the importance of the program and iron deficiency anemia underestimated pathology and serious social and economic consequences worldwide.

Remedies could be taken, for example, greater investment by the Ministry of Health in training directed to this strategy involving all professional categories that are linked to the program. Investments regarding the making of educational material to popularize the PNSF for its users are also relevant, since the audiovisual appeal, or even graphic, materialized in posters, can be efficient in dealing with the public.

CONFLICTS OF INTEREST

There were no conflicts of interest during the development of this research.

CONTRIBUTIONS

Richelle Moreira Marques contributed to the elaboration and design of the study; data acquisition, analysis and interpretation; the writing and / or revision of the manuscript.

Amanda de Andrade Marques, Anna Licya Calixto Serafim, Dayanne Braga Candido, Priscylla Tavares Almeida contributed to the writing and / or revision of the manuscript.

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