

NUTRITIONAL COUNSELING OFFERED TO CHILDREN AND ADOLESCENTS WITH DISABILITIES

Aconselhamento nutricional oferecido a crianças e adolescentes com deficiência

Consejo nutricional ofrecido a niños y adolescentes con discapacidad

Original Article

ABSTRACT

Objective: To evaluate the nutritional counseling offered to children and adolescents with disabilities in the municipality of Santa Cruz, RN, Brazil. **Methods:** Observational, cross-sectional, population-based study, developed from May to December 2013, with 102 children and adolescents attending a Children's Rehabilitation Center. We conducted socioeconomic, demographic, health and lifestyle assessments, and evaluated the received nutritional assistance (whether they had received nutritional counseling from any health professional in relation to food and nutrition, how often it occurred and which professional conducted such counseling). **Results:** Only 37% (n=37) of parents had received some nutritional guidance. Regarding the frequency of counseling, only 11.8% (n=4) of the youngsters received it 7 or more times/year; 23.5% (n=8) received it 2 to 6 times/year; and most (64.7 %, n=22) received it 1 time/year or less. The length of the nutritional counseling was short: the majority (64.7%, n=22) received only one guidance session throughout the whole period attending the institution, and less than 15% (n=5) received counseling for more than six consecutive months. For the majority (73.5%, n=25), the amount of time receiving nutritional guidance has not reached half of the monitoring period. Nutritional counseling was carried out mainly by nutritionists (89.2%, n=33). **Conclusion:** There was a low frequency of nutritional counseling directed specifically to the disabilities presented by the participants. When such activity was conducted, it occurred irregularly during the participant's follow-up, only during a short period of time, and lacking connection with the monitoring by the multidisciplinary team.

Descriptors: Child, Adolescent; Disabled Persons; Counseling, Risk Groups Nutrition.

RESUMO

Objetivo: Avaliar o aconselhamento nutricional oferecido a crianças e adolescentes com deficiência no município de Santa Cruz-RN, Brasil. **Métodos:** Estudo observacional, transversal, de base populacional, desenvolvido de maio a dezembro de 2013, com 102 crianças e adolescentes atendidos em um Centro de Reabilitação Infantil. Procedeu-se avaliação socioeconômica, demográfica, de saúde e de estilo de vida, assim como da assistência nutricional recebida (se já haviam recebido orientação nutricional de algum profissional da saúde em relação à alimentação e nutrição, com que frequência ocorria e qual o profissional a havia realizado). **Resultados:** Somente 37% (n=37) dos responsáveis já haviam recebido alguma orientação nutricional. Com relação à frequência do aconselhamento, somente 11,8% (n=4) dos jovens as recebeu 7 ou mais vezes/ano; 23,5% (n=8) as recebeu de 2 a 6 vezes/ano; e a maioria (64,7%; n=22) as recebeu 1 vez/ano ou menos. O tempo de duração dessas orientações foi curto: a maioria (64,7%; n=22) recebeu apenas uma orientação durante todo o período em que foi acompanhado pela instituição, e menos de 15% (n=5) obteve aconselhamento por mais de seis meses seguidos. Para a maioria dos jovens (73,5%; n=25), a quantidade de tempo recebendo orientações nutricionais não chegou à metade do período de acompanhamento. A orientação nutricional era realizada majoritariamente pelo nutricionista (89,2%; n=33). **Conclusão:** Houve baixa frequência de aconselhamento nutricional específico para as deficiências apresentadas pelos participantes,

Ursula Viana Bagni⁽¹⁾
Annamary do Nascimento
Oliveira⁽¹⁾
Cristiane Jordânia Pinto⁽¹⁾
Letícia Sabino Santos⁽¹⁾
Joyce Samara Marques de
Oliveira Araújo⁽¹⁾

1) Federal University of Rio Grande do Norte (Universidade Federal do Rio Grande do Norte - UFRN) - Natal (RN) - Brasil

Received on: 03/31/2015
Revised on: 04/17/2015
Accepted on: 07/13/2015

e quando tal atividade foi desenvolvida, deu-se de forma irregular durante o acompanhamento no serviço, por período de tempo curto, e de maneira desarticulada do acompanhamento pela equipe multiprofissional.

Descritores: Criança; Adolescente; Pessoas com Deficiência; Aconselhamento; Nutrição de Grupos de Risco.

RESUMEN

Objetivo: Evaluar el consejo nutricional ofrecido a niños y adolescentes con discapacidad del municipio de Santa Cruz-RN, Brasil. **Métodos:** Estudio observacional, transversal y de base poblacional desarrollado entre mayo y diciembre de 2013 con 102 niños y adolescentes asistidos en un Centro de Rehabilitación Infantil. Se hizo una evaluación socioeconómica, demográfica, de la salud y del estilo de vida así como de la atención nutricional recibida (si ya habían recibido orientación nutricional de algún profesional de la salud respecto la alimentación y la nutrición, con qué frecuencia se daba y cual profesional la había realizado).

Resultados: Solamente el 37% (n=37) de los responsables ya habían recibido alguna orientación nutricional. Respecto la frecuencia del consejo solamente el 11,8% (n=4) de los jóvenes las recibió 7 o más veces al año; el 23,5% (n=8) las recibió entre 2 y 6 veces al año; y la mayoría (64,7%; n=22) la recibió 1 vez al año o menos. El tiempo de duración de estas orientaciones fue corto: la mayoría (64,7%; n=22) recibió solamente una orientación durante todo el período en el que fue acompañado por la institución y menos del 15% (n=5) recibió consejo más de seis meses. Para la mayoría de los jóvenes (73,5%; n=25) la cantidad de tiempo recibiendo las orientaciones nutricionales no alcanzó la mitad del período de consejo. La orientación nutricional fue realizada en la mayor parte de las veces por el nutricionista (89,2%; n=33). **Conclusión:** Hubo baja frecuencia de consejo nutricional específico para las deficiencias presentadas por los participantes y cuando la actividad fue desarrollada la misma se dio de manera irregular durante el seguimiento del servicio, en corto período de tiempo y de manera desarticulada del seguimiento del equipo multiprofesional.

Descriptores: Niño; Adolescente; Personas con Discapacidad; Consejo; Nutrición de Grupos Vulnerables.

INTRODUCTION

Persons with disabilities have greater nutritional vulnerability because of metabolic and pathophysiological changes associated with the various types of disability, predisposing to chronic noncommunicable diseases and other comorbidities⁽¹⁾. Increased body fat, obesity, cardiovascular disease, osteoporosis, changes in the metabolism of carbohydrates, proteins and lipids, kidney stones, diabetes, arterial hypertension, dyslipidemia, and metabolic syndrome are frequently observed⁽¹⁻³⁾.

The disability may also alter food intake and affect energy and nutrient intakes⁽²⁻⁶⁾. Persons with basic motor deficit may have their oral motor function affected or have difficulty in controlling movements of the mouth, head, trunk and/or limbs, which lead to disorders of mastication, swallowing and/or dysphagia that can result in malnutrition, dehydration, aspiration and pneumonia^(7,8). In other cases, there is the need for greater energy intake, since they spend more energy in the execution of movements⁽⁹⁾.

Furthermore, behavioral disorders present in certain disabilities (e.g., refusal to eat, selectivity of food) and factors extrinsic to the individual himself (e.g., reliance on third parties to prepare meals, lack of autonomy in choosing the food, lack of adapted tools, economic hardship, social isolation) can also intensify the nutritional vulnerability of persons with disabilities⁽¹⁰⁾.

It is clear, thus, that the attention to food and nutrition of persons with disabilities must be multiplied, being imperative an appropriate nutritional counseling geared towards this population in different life cycles⁽¹¹⁾. Like any other citizen, the disabled person has the right to promotion, prevention, rehabilitation and specific diagnosis in health facilities accredited by the Brazilian Unified Health System (*Sistema Único de Saúde - SUS*)^(12,13), in order to attain comprehensive care and multi-professional assistance under interdisciplinary approach⁽¹³⁾. These fundamental rights are safeguarded by the National Policy for the Health of Persons with Disabilities⁽¹⁴⁾ and, since the introduction of the Care Network for Persons with Disabilities⁽¹³⁾ by the Ministry of Health, in 2012, have been increasingly provided to this population.

Actually, however, it is known that nutritional counseling for persons with disabilities is still very incipient worldwide. In Brazil, where around 24% of the population has some form of disability⁽¹⁵⁾, there are few studies investigating this issue, particularly in Northeast states and the inland of these states, where attention to persons with disabilities may be weakened. In this sense, this article aims at filling this knowledge gap, by assessing the nutritional counseling offered to children and adolescents with disabilities in the municipality of Santa Cruz-RN, Brazil.

METHODS

This is an observational, cross-sectional, descriptive study, carried out with quantitative approach. The study included children and adolescents attending the Monsignor Raimundo Gomes Barbosa Children's Rehabilitation Center (CRC), located in Santa Cruz, in the inland region of Rio Grande do Norte state. The organization monitors young persons with different types of disabilities and special needs,

such as cerebral palsy, mental, physical, auditory and visual impairment, behavioral disorder, learning disabilities, brain immaturity, speech disorder, psychomotor disorder, and autism.

The municipality of Santa Cruz, RN is situated 111 km from the state capital and stands as the most important city of the microregion Borborema Potiguar; it is a reference for this region in the inland of the state, regarding the use of its healthcare services. In this context, the CRC in Santa Cruz is a reference unit, not only for the residents in the municipality, but also for those from neighboring towns, and monitoring is carried out by a multi-professional team of physicians, physical therapists, speech therapist, nutritionist, occupational therapist and psychologist.

The study population consisted of all children and adolescents between 0 and 19 years of age, of both sexes, attending the CRC of Santa Cruz in 2013 (n=169). With the aim of evaluating that population in its totality, all the young people eligible to participate were invited. The eligibility criteria were: being monitored at the CRC at the time of the study, and having their participation allowed by the person responsible for them. Exclusion criteria were the occurrence of diseases or health problems that prevented data collection during the period set for field research, or abandonment of the CRC monitoring.

Among the 164 young people monitored at the CRC at the beginning of data collection, 97 participated (one refused; seven left the CRC before the researchers were able to invite them to participate, and one agreed to participate, but abandoned the CRC before being evaluated; 58 could not be invited by the researchers to participate, because they were not present at the CRC throughout the data collection period, or had changed address and/or phone number). Other five young people admitted to the CRC during data collection were eligible and included in the study. Therefore, a total of 102 children and adolescents with disabilities took part in the study.

Data collection was held at the CRC facilities, in the period from May to December 2013, through appointment for the day of regular monitoring, at intervals of consultations with professionals. Interviews were conducted, addressing questions on the socioeconomic, demographic, health and lifestyle characteristics of the children or adolescents, and the received nutritional assistance as well. They were asked if any of the health professionals had provided them nutritional counseling in relation to food and nutrition, how often it had occurred and what professional had done it. Information about the disability was collected and its classification was done following Decree no. 3,298, of December 20, 1999, and no. 5,296 of December 2, 2004; its severity level was defined according to criteria adopted by the Brazilian Institute of Geography and Statistics (*Instituto*

Brasileiro de Geografia e Estatística - IBGE)⁽¹⁵⁾ in the 2010 Census. When the person in charge of the child/adolescent did not know or could not describe properly their disability (classification, characteristics etc.), such information was collected from the CRC medical records in order to ensure data completeness.

Because of the limited time available for data collection with some participants (residents in other municipalities and dependent on the schedule set by the Municipal Health transportation for residence-CRC-residence locomotion), data incompleteness was observed for some of the variables investigated, such as number of household members (n=1), tap water (n=1) and filtered water (n=1) at home, and provision of nutritional counseling specific to the disability in question (n=3). For other variables, some participants did not know or refused to give the answer (e.g., skin color (n=15), family income (n=16), frequency (n=3) and duration (n=3) of the nutritional counseling received), which also contributed to the incompleteness of the questionnaires and variables constructed from this information.

The study was approved by the Research Ethics Committee of the Federal University of Rio Grande do Norte (Opinion no. 487,774, CAAE Protocol no. 12802813.7.0000.5537) and had its execution authorized by the CRC managers. All procedures were only performed after clarification of those responsible for the young people as to the study objectives and procedures, and by signing the Free and Informed Consent Form, in accordance with Resolution no. 466, of December 12, 2012, the National Health Council.

Statistical analyses were performed using SPSS version 20.0, considering the value of $p < 0.05$ for statistical significance. The demographic, socioeconomic and health characteristics of the young subjects were initially described, with presentation of the variables distribution (absolute and percentage). Bivariate analysis was subsequently conducted to investigate the relationship between disability and nutritional counseling offered to the participants, based on the chi-square test.

RESULTS

Among the 102 participants evaluated, most were male (n=55; 53.9%) and between 5 and 9 years of age (n=57; 55.9%). For most of the disabled, the head of the family was the father or mother (n=94; 92.2%), which studied up to elementary school (n=57; 55.9%). The daily care for the disabled was also usually provided by the father or mother (n=91; 89.2%). Almost 83% of families (n=71) had per capita income less than half the minimum wage, and in about 69% of households (n=70) lived more than four people. Sewage disposal to the public system and tap

water were present in most households (n=79; 77.5% n= 86; 85.1% respectively), but filtered water was only available for drinking in 50.5% of households (n=51) (Table I).

The most common deficiencies were mental (n=76; 74.5%) and physical (n=11; 10.8%). About 25% (n=25) of the subjects faced adversities while eating, such as difficulty

Table I - Demographic and socioeconomic characteristics of children and adolescents with disabilities attending the Children's Rehabilitation Center. Santa Cruz, RN, 2013.

Variables	n	%
Sex	102	
Male	55	53.9
Female	47	46.1
Age range	102	
0 to 4 years	15	14.7
5 to 9 years	57	55.9
10 to 19 years	30	29.4
Skin color	87	
White	46	52.9
Black / Brown	41	47.1
Yellow / Amerindian	0	0.0
Head of the family	102	
Father/Mother	94	92.2
Grandfather / Grandmother	5	5.9
Other	2	2.0
Education level of the head of the family	102	
Illiterate	18	17.6
Able to read and write / fundamental school	57	55.9
High school / higher education	27	26.5
Main caregiver for the disabled person	102	
Father / Mother	91	89.2
Grandfather / Grandmother	7	6.9
Other relative	4	3.9
Education level of the main caregiver for the disabled	102	
Illiterate	6	5.9
Able to read and write / fundamental school	65	63.7
High school / higher education	31	30.4
Per capita income*	86	
< 0.25 minimum wage	34	39.5
0.25 to 0.50 minimum wages	37	43.0
>0.50 minimum wages	15	17.4
Number of residents at the household	101	
Up to 4 persons	31	30.7
> 4 persons	70	69.3
Tap water at the household	101	
Yes	86	85.1
No	15	14.9
Filtered water at the household	101	
Yes	51	50.5
No	50	49.5
Sewage disposal	102	
Public system	79	77.5
Septic tank	17	16.7
Other type	6	5.8

*For this calculation, the value of the national minimum wage (R\$ 678.00), effective in 2013, was taken as reference.

in chewing and swallowing (n=8), difficulty in controlling the head, trunk and/or limbs (n=11), or multiple difficulties (n=6). The ability to feed themselves was limited in 18% (n=18) of young people, half of which (n=9) could not accomplish this task alone, even with help from people and/or adapted utensils (Table II).

When evaluating the nutritional counseling offered to children and adolescents with disabilities, it was found that only 37% (n=37) of those responsible for them had already received some nutritional guidance from the start of monitoring of children/adolescents at the CRC, being more frequent among those with multiple disabilities or physical disabilities. The professional who commonly performed guidance on food and nutrition was the nutritionist (89.2%; n=33), followed by the doctor or nurse (5.4%; n=2) (Table III).

Regarding the counseling frequency, that is, the regularity in receiving these nutritional guidelines to their specific disability, only 11.8% of the young persons (n=4) received them 7 or more times/year; 23.5% (n=8) received them 2 to 6 times/year; and the majority (n=22; 64.7%) received them 1 time/year or less. The duration of these orientations, which reflects the continuity of nutritional counseling, was also short: most (n=22; 64.7%) received only one orientation throughout their period of monitoring by the institution, and less than 15 % (n=5) received counseling for more than six consecutive months. As a result, it was found that, for the majority (n=25; 73.5%), the amount of time receiving nutritional guidelines did not reach half of the monitoring period in the CRC (Table III), which lasted, on average, 32.2 months for the population studied.

Table II - Health characteristics of children and adolescents with disabilities attending the Children's Rehabilitation Center. Santa Cruz, RN, 2013.

Variables	n	%
Type of disability	102	
Visual	1	1.0
Auditory	6	2.9
Physical	11	10.8
Mental	76	74.5
Multiple	8	7.8
Period of monitoring in the institution	102	
Up to 12 months	38	37.3
13 to 36 months	28	27.5
37 months or more	36	35.3
Difficulties while eating	102	
None	77	75.5
Chewing/swallowing	8	7.8
Controlling the head, trunk and/or limbs	11	10.8
Multiple difficulties	6	5.9
Ability to eat by oneself	102	
Eats alone, without help from people and/or adapted utensils	84	82.2
Eats alone, but needs help from people and/or adapted utensils	9	8.8
Cannot eat alone, even with help from people and/or adapted utensils	9	8.8

Table III - Nutritional counseling offered to children and adolescents with disabilities attending the Children's Rehabilitation Center, according to the type of disability. Santa Cruz, RN, 2013.

Variables	Total		Physical		Mental		Type of disability		p-value
	n	%	n	%	n	%	Visual/Auditory	Multiple	
	n	%	n	%	n	%	n	%	
Has received nutritional counseling specific to the disability by any health professional	100		11		74		7		
	37	37	6	54.5	22	29.7	3	42.9	83.3
	63	63	5	45.5	52	70.3	4	57.1	0.04*
Professional in charge of the nutritional counseling specific to the disability									
	37		6		22		3		
	33	89.2	6	100	20	90.9	2	66.7	5
	2	5.4	0	0	1	4.5	1	33.3	0
	2	5.4	0	0	1	4.5	0	0	1
Frequency (regularity) of the nutritional counseling specific to the disability									
	34		6		19		3		
	22	64.7	4	66.7	12	63.2	3	100	3
	8	23.5	1	16.7	5	26.3	0	0	2
	4	11.8	1	16.7	2	10.5	0	0	1
Duration (continuity) of the nutritional counseling specific to the disability throughout the monitoring at the CRC									
	34		6		19		3		
	22	64.7	4	66.7	12	63.2	3	100	3
	7	20.6	1	16.7	4	21.1	0	0	2
	5	14.7	1	16.7	3	15.8	0	0	1
Proportion of the monitoring period at the CRC receiving nutritional counseling specific to the disability									
	34		6		19		3		
	25	73.5	5	83.3	14	73.7	2	66.7	4
	9	26.5	1	16.7	5	26.3	1	33.3	2

*p<0,05.

DISCUSSION

This study found a low frequency of nutritional counseling specific to the deficiencies presented by the investigated children and adolescents. Such actions, when developed, occurred erratically during the monitoring of the youth in the service, for a short period, and in a disjointed manner in relation to the monitoring by the multidisciplinary team. Such assistance moves in the opposite direction in relation to what is advocated by the Care Network for Persons with Disabilities in the context of the Unified Health System⁽¹³⁾, where access and quality of services should be guaranteed, with comprehensive care and multi-professional interdisciplinary assistance.

This scenario becomes even more critical when considering that the young subjects included in the study reside in cities of the inland region of a state in the Northeast of the country, have low socioeconomic status, and depend on caregivers with low education level. Such situation often results in limited access to information on proper nutritional management of the disability and inability to carry out monitoring in private healthcare services.

It is evident, therefore, that, although the issue of health promotion and comprehensive care has been increasingly gaining prominence in Brazil in recent years, there is no great visibility yet for people who have some form of disability⁽¹⁶⁾.

Access to health promotion services is essential for the determination of the quality of life and health of persons with disabilities^(16,17). The National Policy for Health Promotion⁽¹⁸⁾ defines health promotion as a strategy of “health production”, i.e., a set of articulated actions developed in the public health system of Brazil that can contribute to meet the needs of society as regards to health. By promoting these persons’ health, there is a simultaneous contribution to the prevention of secondary diseases, such as obesity, hypertension, diabetes and others, that may arise because of the disability and lifestyle⁽¹⁹⁾.

In this context, nutritional counseling specific to the particular needs of the disabled person is an important element to ensure the maintenance of health and prevent the onset of nutritional disorders. A nutritional guidance is required, whether individually or for the family, in order to minimize food monotony and offer a balanced and varied menu to ensure a better health status^(10,20). Despite the absence of consensus in the literature, specific studies have reported the positive impact of the nutritional intervention and promotion of healthy eating for persons with disabilities, with positive development in the nutritional parameters^(11,21,22).

In our country, one can notice the lack of services related to health promotion and prevention for persons with disabilities^(23,24), in addition to difficulties in access to outpatient services in general⁽²⁵⁾, what cause them to look for care directly at specialized services and hospitals, thus overloading these establishments and demonstrating that primary care levels are not accessible to this population⁽²⁵⁾. In this study, even with access of young subjects with disabilities to the Children’s Rehabilitation Center, there was no guarantee that the service would contemplate all their needs, particularly the nutritional counseling during their monitoring. The lack of qualified professionals and the scarcity of service systems or rigour with public policies meant to provide support for persons with disabilities constitute major barriers⁽¹⁷⁾.

Considering the importance of the nutritional counseling, the American Dietetic Association⁽⁴⁾ reinforces that the nutritionist is essential in health services that serve people with special needs. These professionals play a key role in the health team, in the clinical, biochemical, anthropometric, dietary evaluations of feeding skills, as well as in the understanding of environmental, social, economic, and educational factors that affect the therapy of a person with disabilities. They should develop or adopt criteria and tools of nutritional screening, assessment and monitoring, and it is their accountability to guide families and caregivers about the selection and preparation of foods as part of their therapy.

However, not only the nutritionist, but all members of the multi-professional team should be involved in the nutritional therapy of the person with disabilities, including as regards the guidance on utensils adapted to help eating or on food textures and consistencies for safe consumption⁽⁴⁾. The fact that, in this study, the nutritional guidelines were offered mainly by the nutritionist demonstrates the lack of commitment to the food on the part of the multi-professional team, which seems to be disregarded as an important element in the disabled person’s rehabilitation process. It is thus necessary to strengthen the concept of comprehensive care in the praxis of these professionals, for them to be heedful to the magnitude of food and its relationship with the quality of life in this population.

In health actions directed at persons with disabilities, it is vital to take into account a mosaic of different needs and specificities⁽²³⁾, since they constitute a heterogeneous group, which reunites within the same category individuals who may have different motor, sensory, intellectual or multiple conditions. In this study, however, the nutritional counseling was found uneven between different types of deficiency, which may reflect the professionals’ unpreparedness to guide the most appropriate diet for certain disabilities,

such as the mental disability, where less than 30% of the participants had received nutritional counseling. According to the American Dietetic Association⁽⁴⁾, the availability of continuing education interdisciplinary programs on nutrition aimed at people with disabilities is important to expand the professionals' understanding of these fields of knowledge.

It is recognized that nutritional counseling for persons with disabilities is not an easy task because, despite the existing nutritional vulnerability in this population, standardized or officially recommended nutritional protocols for diagnosis, monitoring, and nutritional rehabilitation of persons with different types of disabilities have not been developed yet, either in Brazil or in other countries⁽⁴⁾, nor recommendations on how to prevent, inhibit, or minimize nutritional disorders in this group, in order to improve their quality of life. Thus, decision-making is still unspecific and based on parameters of the population without disabilities⁽¹⁾, which is inappropriate. In this sense, the American Dietetic Association⁽⁴⁾ recommends that researchers in the field of nutrition focus on this theme, for health professionals to be offered subsidies to develop the most appropriate nutritional guidelines for each disability.

As observed in this study, it is possible that, in other health services, nutritional counseling is not being properly inserted in the rehabilitation process of individuals with disability who are assisted, and thus the principles of universality, accessibility, continuity of care, and comprehensive care are not met as recommended by the Ministry of Health. It is necessary that the nutritionist, as well as other health professionals of the multidisciplinary team, expand the set of food and nutrition actions aimed at this group, in order to prevent nutritional problems and increase their quality of life.

It is also recommended that studies similar to this one be developed in different locations, in order to show the real scenario of nutritional counseling offered to children and adolescents with disabilities in Brazil. Such information is crucial to identify weaknesses in the nutritional care provided to persons with disabilities and to define strategies aimed at overcoming such obstacles in the promotion, prevention, and recovery of health and adequate nutritional status in persons with disabilities. They will also be useful to support the planning and implementation of feasible and effective actions of food and nutrition aimed at this group in order to prevent and recover nutritional disorders and health conditions.

CONCLUSION

There was a low frequency of nutritional counseling specific to the disabilities presented by the participants and,

when such activity was developed, it occurred erratically during monitoring in the service, for a short period of time, and in a disjointed manner in relation to the monitoring conducted by the multidisciplinary team.

REFERENCES

1. Abreu T, Friedman R, Fayh APT. Aspectos fisiopatológicos e avaliação do estado nutricional de indivíduos com deficiências físicas. *Rev HCPA*. 2011;31(3):345-52.
2. Sabour H, Javidan AN, Ranjbarnovin N, Vafa MR, Khazaeipour Z, Ghaderi F, et al. Cardiometabolic risk factors in Iranians with spinal cord injury: analysis by injury-related variables. *J Rehabil Res Dev*. 2013;50(5):635-42.
3. Marín AS, Xandri JM. Nutritional status of intellectual disabled persons with Down syndrome. *Nutr Hosp*. 2011;26(5):1059-66.
4. American Dietetic Association. Position of the American Dietetic Association: providing nutrition services for people with developmental disabilities and special health care needs. *J Am Diet Assoc*. 2010;110(2):296-307.
5. Bertoli S, Battezzati A, Merati G, Margonato V, Maggioni M, Testolin G et al. Nutritional Status and dietary patterns in disabled people. *Nutr Metab Cardiovasc Dis*. 2006; 16:100-12.
6. Valter CA, Panziera C, Ribeiro JL, Sant'Anna MM, Fayh APT. Perfil antropométrico e consumo alimentar de indivíduos com deficiência praticantes de natação e futsal. *EFDeportes* [periódico na Internet]. 2010 [accessed on 2015 Feb 10]; 15(150). Available from: <http://www.efdeportes.com/efd150/consumo-alimentar-de-individuos-com-deficiencia.htm>
7. Okeke IB, Ojinnaka NC. Nutritional Status of Children with Cerebral Palsy in Enugu Nigeria. *Eur J Sci Res*. 2010;39(4):505-13.
8. Benfer KA, Weir KA, Bell KL, Ware RS, Davies PS, Boyd RN. Food and fluid texture consumption in a population-based cohort of preschool children with cerebral palsy: relationship to dietary intake. *Dev Med Child Neurol*. 2015 [Epub ahead of print]
9. Mohanty RK, Lenka P, Equebal A, Kumar A. Comparison of energy cost in transtibial amputees using "prosthesis" and "crutches without prosthesis" for walking activities. *Ann Phys Rehabil Med*. 2012;55(4):252-62.

10. Campos MA, Sousa R. Nutrição e Deficiência(s). Lisboa: Direção-Geral da Saúde; 2015.
11. Bertoli S, Spadafranca A, Merati G, Testolin G, Veicsteinas A, Battezzati A. Nutritional counselling in disabled people: effects on dietary patterns, body composition and cardiovascular risk factors. *Eur J Phys Rehabil Med*. 2008;44(2):149-58.
12. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Departamento de Ações Programáticas Estratégicas. A pessoa com deficiência e o Sistema Único de Saúde. 2ª ed. Brasília: Ministério da Saúde; 2008.
13. Ministério da Saúde (BR). Portaria Nº 793, de 24 de abril de 2012. *Diário Oficial da União* 25 abr 2012; 1:94-95.
14. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Política Nacional de Saúde da Pessoa com Deficiência. Brasília: Editora do Ministério da Saúde; 2010.
15. Instituto Brasileiro de Geografia e Estatística. Censo Demográfico 2010: características gerais da população, religião e pessoas com deficiência. Rio de Janeiro: IBGE; 2010.
16. Interdonato GC, Greguol M. Promoção da saúde de pessoas com deficiência: uma revisão sistemática. *HU Rev*. 2012;37(3):369-75.
17. Smith RD. Promoting the health of people with physical disabilities: a discussion of the financing and organization of public health services in Australia. *Health Promot Internation*. 2000;15(1):79-86.
18. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Política Nacional de Promoção da Saúde. Brasília: Ministério da Saúde; 2012.
19. Rimmer JH, Rowland JL, Yamaki K. Obesity and secondary conditions in adolescents with disabilities: addressing the needs of an underserved population. *J Adolesc Health*. 2007;41(3):224-9.
20. Lira MKA, Bion FM, Pessoa DCNP, Souza EF, Vasconcelos DAA. Perfil socioeconômico, estado nutricional e consumo alimentar de portadores de deficiência mental. *Rev Bras Nutr Clin*. 2010;25(3): 218-23.
21. Faria ER, Marinho MS, Abranches MV, Fonseca LA, Priore SE. Evolução e Impacto da Intervenção Nutricional em Portadores de Necessidades Especiais Assistidos pela APAE de Viçosa, MG. In: *Anais do 2º Congresso Brasileiro de Extensão Universitária*, Belo Horizonte, 2004 Set 12 a 15 [accessed on 2015 Feb 05]. Available from: www.ufmg.br/congrext/Saude/Saude86.pdf
22. Souza NS, Horsts RFML. Avaliação da Educação Nutricional para portadores de Síndrome de Down em Associações de Pais e Amigos dos Excepcionais (APAE's) do Vale do Aço, MG. *Nutrir Gerais*. 2011;5(9):770-82.
23. Bernardes LCG, Maior IMML, Spezia CH, Araújo TCCF. Pessoas com deficiência e políticas públicas no Brasil: reflexões bioéticas. *Ciênc Saúde Coletiva* 2009;14(1):31-8.
24. Castro SS, Lefèvre F, Lefèvre AMC, Cesar CLG. Acessibilidade aos serviços de saúde por pessoas com deficiência. *Rev Saúde Pública*. 2011;45(1):99-105.
25. Freire DB, Gigante LP, Béria JU, Palazzo LS, Figueiredo ACL, Raymann BCW. Acesso de pessoas deficientes auditivas a serviços de saúde em cidade do sul do Brasil. *Cad Saúde Pública*. 2009;25(4):889-97.

Mailing address:

Ursula Viana Bagni
Universidade Federal do Rio Grande do Norte
Departamento de Nutrição
Av. Senador Salgado Filho, 3000
Bairro: Lagoa Nova - Campus Universitário
CEP 59078-970 - Natal - RN - Brasil
E-mail: ursulaviana@gmail.com