Self-care by discalced carmelite nuns in the light of Orem’s Theory*

ABSTRACT

Objective: To understand the perception of self-care by contemplative nuns residing in a Discalced Carmelite Monastery. Method: Descriptive, exploratory study, with a qualitative approach, conducted in a Discalced Carmelite Monastery in Minas Gerais state. Data collection from nuns was performed in January 2018 through a questionnaire on their sociodemographic profile and a semi-structured interview script. The interviews were transcribed, reviewed, and submitted to content analysis. Results: Twenty nuns took part in this study. Three categories emerged: self-care comprehension, how self-care is practiced and what should be done to improve self-care. One subcategory was selected from each thematic category. Subcategories were, respectively, care of others, nutrition, and exercise. Nuns were seen to understand self-care as care of others, practicing it mostly through nutrition while considering exercise a point to be improved. Conclusion: Nuns were found to understand what self-care is in its essence and to perform it. However, their priority is to provide care of others as a form of mutual care, which impacts on self-care.

DESCRIPTORS

Nuns; Self Care; Nursing Care; Nursing Theory; Religion.
INTRODUCTION

This study's object is self-care by nuns living in a Discalced Carmelite Order (DCO) monastery, who are known for leading contemplative lives or for being Catholic Church sisters. Such Order aims at constituting a fraternal and praying community at the Catholic Church's service, with a mission hidden within the monastery's walls and at the world's disposal to pray for everyone.

In addition to praying, fraternity is also an essential element of contemplative life, which is maintained by contributions from everyone in accordance with their endowments. Fraternal life calls nuns to be at people's disposal, solicitous, and solidary, experiencing mutual help\(^{(1)}\). However, self-care is observed to become secondary due to their solicitude.

The Discalced Carmelites are, by their turn, a strictly contemplative religious institute, i.e. they are under Papal Enclosure, which is how monasteries thoroughly dedicated to worship of the divine and nourishing a life of isolation within their walls are known\(^{(2)}\). Hence, these nuns live the evangelical counsel in a small fraternal community founded on solitude, silence, prayer, penitence, and austerity\(^{(2)}\), secluded from tasks outside the monastery while living an effective separation from the world.

Understanding the essence of self-care, care of oneself, and others is thus relevant for Discalced Carmelite nuns to perform all their daily activities thoroughly and with quality. One theorist who discusses the essence of this object is Dorothea Orem. Her theory consists in the idea that individuals, if able, must take care of themselves and others\(^{(3)}\).

Orem divides her theory into three categories: theory of self-care, theory of self-care deficit, and theory of nursing systems. Self-care is defined as the execution or realization of practical activities by individuals for their own benefit with the objective of maintaining their life, health, and well-being. Self-care deficit is understood to exist when an adult is unable or limited in their performance of continuous and effective self-care, demanding help from nurses and others in the care process, who are known as self-care agents\(^{(3)}\).

Nuns are observed to have a prevailing dedication to being self-care agents for one another, achieving self-forgetfulness. However, finding balance is necessary, since agents must be well and healthy to provide care for others in a more proper and effective manner.

Self-care capacity may be affected by basic conditioning factors, such as age, gender, development status, health status, sociocultural orientation, modality of diagnosis and treatment, family system, life standards, environmental factors, adequacy, and resource availability\(^{(4)}\). Preoccupation with nuns' health must be related to the epidemiological profile of women's health. Data show that these live longer than men; however, they also fall ill more frequently\(^{(5)}\).

This study is justified by approaching an object which is seldom explored in the scientific literature, specially concerning nursing and specific population groups which require care attributed to nurses. Studies covering perception of self-care by nuns, accounting for their characteristics and singularities, are scarce. Also, recent data indicate there is a total 11,500 sisters of this Order worldwide. This is the second highest number of members for a cloistered women's Order in the Catholic world\(^{(6)}\). This order is found in 98 countries, amounting to almost 890 monasteries, 57 of which are in Brazilian territory\(^{(6)}\). Even so, their health conditions and self-care needs have been little discussed.

This study may thus produce evidence on this theme while contributing to the promotion of self-care among Discalced Carmelite women living in monasteries, aiming at understanding their health needs to provide more effective and individualized assistance. Results obtained may be directed towards promoting health education and creating resources for education, extension, and future research for the advancement of quality of life and promotion of self-care.

Taking this into account, the guiding question of this study is: what is the perception of self-care by contemplative life nuns residing at a Discalced Carmelite Order monastery as per Dorothea Orem's Nursing Theory?

Considering this study's question, its objective is understanding how contemplative life nuns living in a Discalced Carmelite Order monastery perceive self-care.

METHOD

STUDY TYPE

This is a descriptive exploratory qualitative study.

SCENARIO

The study scenario was a Monastery in Minas Gerais considered as medium-sized where members of this religious Order live. It is in a high area in the municipal limits, which is typical of monasteries of this Order. In addition to performing the internal activities of prayer, chores, manual tasks, and community life, nuns living in this monastery provide counselling to the local population. These activities take place in private rooms called locutoriums. There are three of them in the Monastery.

Twenty-three nuns lived there during the data collection, all of which were invited to participate.

SELECTION CRITERIA

The inclusion criterion was having been a Carmelite for a minimum six months, whereas the exclusion criterion was absence during data collection.

DATA COLLECTION

Data collection was performed in January 2018 through two instruments designed by the authors: a sociodemographic questionnaire based on previous experience and literature on this area, containing seven close-ended questions,
and a semi-structured interview script, which included five open-ended questions.

The following open-ended questions were formulated: what is your understanding of self-care? How do you practice self-care? What could you do to improve self-care? When you need care from others, how do you seek for help? What do you understand as care of others?

The interviews were stored in a flash drive. Participants were identified by flower names chosen by each nun by identification to preserve anonymity. If the chosen flower matched one of the previous choices, participants were asked to name a different flower.

**DATA TREATMENT AND ANALYSIS**

All interviews were thoroughly transcribed by the main author and subsequently reviewed for data organization. The Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups were used.

Manual content analysis, as proposed by Laurence Bardin, was then carried out in three steps: (1) pre-analysis, in which the interviews were read and evaluated to choose the material; (2) exploration of the material, in which statements were separated by themes; and (3) interpretation, in which the research results and their interpretive presentation were defined.

**ETHICAL ASPECTS**

Nuns were instructed on the study object, to which they provided permission by signing the Informed Consent Form (ICF) and the voice recording form. This research was submitted to the Research Ethics Committee and initiated only after its authorization and approval in Opinion n. 2.439.478, in December 17, 2017, and the signing of the Consent Form from the sister responsible for that Monastery to abide by Resolution 466/2012 by the National Health Council, which provides for studies involving human beings.

Three thematic categories emerged from interview analysis: I) Self-care comprehension; II) How self-care is practiced; and III) What should be done to improve self-care. One more representative subcategory was selected out of each thematic category.

**RESULTS**

Twenty nuns out of the twenty-three who lived in the Monastery participated in this study. A mean age of 45.5 years was observed. Most participants, 15 (75%), were white and thirteen (65%) had graduated from high school, as shown in Table 1. Eight participants (40%) practiced physical activity weekly. Their mean sleeping time was 5.45 hours per night. Fifteen participants (75%) reported seeking for health services only when experiencing problems. Concerning surgical procedures, eight participants (40%) had been submitted to hysterectomy.

The most remarkable subcategories emerging from the nuns’ answers were selected considering the results from the analysis of categories from the interviews. This decision directed the description of categories and subcategories.

**CATEGORY 1 – SELF-CARE COMPREHENSION**

In category I) self-care comprehension, subcategory care of others was identified. Although the nuns were aware of the importance of self-care, they prioritized caring for others.
since, in their understanding, this reflects on their self-care. This is demonstrated by the following answers:

I understand self-care as body care. (...) And our body, our life, is a gift from God to brothers, at the service of humanity. The more I take care of my body with affection, the more I will be well to better serve God, the better it will be for the good of mankind, of people, and I am here to serve, so I have to be well (Orchid).

Self-care is also related to others because, if I don't take care of myself, I can't be available for other people. So... as I notice what my needs are, I pay more attention to other people's needs (Dahlia).

Also, when asked what care of others is, they broadly explained that it is about “forgetting oneself” and “paying attention to other people's needs”.

Regarding “forgetting oneself”, the main part of the idea conveyed by the nuns was observed in the following answers:

If Jesus forgot himself for us, if He abandoned himself for us, I think we should imitate that. But, to take care of others, it's necessary to be well yourself. This is a conflict, because we don't know the right measure of caring for yourself and caring for other people (Sunflower).

When in the convent, I must forget myself to think of other people, and when I start to forget myself to care for other people, I become a happier person, and happiness becomes about giving. This is giving! I've left everything to give myself to God (Forget-me-not).

Regarding “paying attention to other people's needs”, the idea emphasized by the participants was revealed by the following assertions:

Don't wait for them to ask for help; you must observe. You need to have this attentive attitude, noticing when other people need help and offering them. It's more about attention. Community life helps because we get to know one another, which helps developing this attention and figuring out what the other expects from us (Dahlia).

I try to be alert always! What does my sister need? It's not what I think she needs; this is also true. You really have to see her situation and her need; if she says she doesn't need anything, we respect that and don't do anything, right? (...) we have to care for one another... I really like this word... Care... (Lily)

Category II – How self-care is practiced

In the second category, “how self-care is practiced”, participants reported diverse forms of self-care performance. However, nutrition was the main self-care practice to emerge from their answers, objectively presented by them:

(...) I try to care for my nutrition. (...) about nutrition, taking care, opting for lighter, healthier food (Lily).

I usually take care of my health by eating well. Thank God the community offers good, truly clean, hygienic, properly prepared food (Orchid).

So, I try to eat well; when I understand something is not good for me, I remove it from my diet immediately (Dahlia).

Category III – What should be done to improve self-care

In the last category, “what should be done to improve self-care”, the nuns reported their various interests in increasing sleep time and seeking for support from health professionals. In addition to these, the most expressive sub-category was observed to be physical exercise.

I need to organize to have that deep sleep moment, because I know I need it and because, if I don't sleep properly, the next day I can't pray, don't relate well and become a nervous, uneasy person. (Gerbera)

I only go to the doctor when I see there's no solution, but I could seek assistance more frequently, couldn't I? (Lavender)

So, I would like, if I could, to go out for walks... Some, well, deeper form of exercise, let's say. But it's a little difficult to do this here because of time, you know? Because our hours are all scheduled (Lily).

I guess I could make a little more effort to go for a walk, at least. At least that. I guess it would help a little bit. (...) I know it's a very good thing. Although I know all the benefits it can bring, I don't put the effort. But... Who knows... (Orchid).

In synthesis, the nuns’ understanding of self-care includes care of others. Alert to others' needs, they forget about themselves. The nuns have also been observed to practice self-care through healthy nutrition and consider physical exercise as a self-care activity to be improved.

Discussion

According to the described results, the sociodemographic profile of Discalced Carmelite Nuns corroborates previous studies. Researchers have conducted a study with nineteen nuns living in a Discalced Carmelite Monastery in São Paulo state. They have found data similar to those produced by this study, revealing a mean age of fifty years and predominance of high school graduates and white women.

Relevant information on their profile included the number of participants submitted to hysterectomy, eight (40%) of the interviewees, four of which had a total hysterectomy, whereas the other four had a partial one. This is a high number in comparison to the latest Brazilian statistical data, according to which 7.7% of women were submitted to this surgical procedure in 2013.

This result may reflect another finding on their profile, according to which fifteen (75%) seek the health service only when experiencing problems, even though they report a need for changing and seeking health professionals more frequently. Also, considering that one in every five hysterectomies is unnecessary, some of the surgeries could have been avoided and less invasive means of treatment could have been chosen.
Distance from health services can also be considered an avoidable risk factor for falling ill. However, the nuns conform to the Brazilian population, which, according to recent studies, seek health services for preventive actions increasingly less(12).

Among other relevant results from the nuns’ profile, mean sleeping time was remarkable. Nuns understand it as something to be improved in self-care. This point was shown to be important for the theory of self-care. Although Dorothea Orem’s theory does not emphasize sleep as a universal self-care requirement, i.e., a requirement which is common to everyone, it emphasizes rest, which is even broader(3). Impairment of fundamental human needs, such as getting enough sleep, can interfere directly in care of others(13).

Results show that mean sleeping time for the interviewees was 5.45 hours. A study by the National Sleep Foundation, aimed at updating the recommendation for sleep duration, recommends that people from eighteen to sixty-four years should sleep from seven to nine hours and, above sixty-five, from seven to eight hours(14). The nuns involved in this study are hence perceived to experience a deficit in a fundamental human need.

Concerning comprehension of self-care, fifteen (75%) out of twenty interviewees report considering care of others as a priority objective for self-care. It is possible to identify thus a similarity with nursing professionals, who provide care for others and often forget about themselves(15). Although feeling fulfilled when taking care of others, nuns do not perform the necessary self-care(13).

Self-care is also observed to influence the efficiency of assistance provided to others(13). It is possible to reflect whether care of others is effective when there is self-forgetfulness or if it would be better provided if caretakers practiced better self-care. Self-care is thought to be the first manner of taking care of others, i.e., the example presupposes the action(16).

A limitation in care of others is demonstrated among nuns, for they understand it as “forgetting about oneself”. Due to its mutual care, this relationship is characterized by joy rather than the guilt of taking care of oneself(16). One of the research lines on joy, social support, which is defined as perceived or real support received by at least one different individual, presents a direct effect over well-being(17). Such support is mutual and easily noticed among nuns in this study.

In addition, for care of others to be efficient, their aspirations, challenges and capabilities should be understood, rather than simply wanting the best for them. If this is not understood, care of others is limited to imposing the care-taker’s ideals, which do not provide support based on their reality. Care relations presuppose sensitivity towards others’ capabilities and not only their needs, as well as knowledge and respect for others’ aspirations, broadening the efficacy of actions while favoring their participation in their own care(18).

It is possible to observe this relation among the studied group, since their understanding of self-care includes also “being attentive to others’ necessities”. By being attentive to others, it is possible to observe their capabilities, desires, and needs, while understanding and respecting their aspirations. Hence, a mutual care relation is created, a reciprocity of care, particularly when considering that this is a small community living in isolation in the Monastery.

The nuns believe that they practice self-care through proper nutrition. This is compatible with Dorothea Orem’s theory, which proposes nutrition as one of the universal self-care requirements. The way individuals eat, the organization and division of meals throughout the day, are affected mainly by social, cultural, and individual factors(19).

All the interviewees, sharing the same reality, got their food the same way. Most reported having four meals per day. In their meals, nuns were observed to follow the golden rule to promote health and well-being through nutrition, since they do not consume too much ultra-processed food, opting mostly for natural food(19). That is, water, milk, fruit, broth, salads, rice, beans, pasta, braised vegetables, and greens prevail over products which do not require preparation, such as instant soups and pasta, frozen meals, and sauce from the supermarket.

The dietary guide for the Brazilian population provides orientation on the act of eating and its dimensions. Recommendations include eating regularly and attentively, avoiding nibbling between meals, slowly, enjoying the food, and not engaging in a different activity. Environment is also an important factor for the act of eating. Meals should be had in appropriate environments, with no stimuli to other activities, to provide for concentration on the act of eating. Having meals accompanied may also be greatly beneficial for the development of relations between people(19).

Nuns were thus seen to follow the recommendations by reportedly taking care of themselves through nutrition, since they comply with a healthy diet which is controlled in terms of time, place, and circumstance. Considering that all these recommendations meet the Discalced Carmelites’ life, the communal table is a symbol of fraternal communion for them. They are advised not to eat out of time schedules. During meals, which are silently had in the dining hall, they listen to readings of the Bible or other useful texts(2).

When explaining what they believe should be improved in their self-care, the need for increasing physical activity frequency was emphasized. In comparison to their profile, such judgment sounds correct, since only three interviewees practiced physical activity daily, whereas eight practiced it weekly. Physical activity is defined as any body movement produced by the musculoskeletal system that requires spending energy. It can also be part of daily chores such as cleaning(20).

Regarding the difficulties in performing physical exercise reported by the nuns, it should be emphasized that in total institutions, such as the Monastery, time is allocated primarily to the realization of religious activities. Hence, activities are previously established, placing physical exercise as secondary, optional, and independent. This is due
to the characterization of the Monastery as a refuge from the world, serving to the complete fulfillment of Discalced Carmelite nuns’ commitments [21].

In their daily life, the Discalced Carmelite nuns conciliate prayer and manual tasks, which includes both common chores and specific activities aimed at raising funds for self-maintenance, such as: manufacturing Hosts, embroidering liturgical ornaments or manufacturing icons and sacred images [22]. Hence, due to their domestic activities, it is inaccurate to consider these nuns as completely sedentary, since sedentary behavior is reduced by the promotion of incidental physical activity, such as standing, climbing stairs and going for short walks [20].

However, adults who are eighteen or older are recommended to perform 150 minutes of moderate physical activity or 75 minutes of intense physical activity weekly. Those above sixty-five years and presenting reduced mobility should do physical activity to improve balance, reducing risks of falls. When adults in this age group are unable to achieve the required amount of physical activity due to health conditions, they must be as physically active as their abilities and conditions allow [23]. However, only two nuns were observed to be older than sixty-five during the interview period, one of whom is reportedly among those who never practice physical activity.

Although the nuns are far from practicing the recommended amount of physical activity, most demonstrate understanding and disposition to improve this important self-care requirement. Also, the nuns perform daily chores, which may help them to gradually achieve the recommended levels for appropriate health, disposition, and physical well-being.

This study is thus remarkably original and relevant for understanding nuns’ perception of self-care. Limitations include the fact that this was conducted in a single Monastery, which restricts extrapolation of results to other religious settings. Also, the scarcity of previous published studies in the area restrain more evidence-based discussion of different perspectives and data.

A deeper understanding of the studied population, aimed at providing more effective health care, is considered to have been achieved. This study intends also to add to existing knowledge on Dorothea Orem’s theory of self-care, considering this is an original viewpoint for reflection on an understudied population.

CONCLUSION

Regarding the nuns’ perception of self-care, this study concludes that nuns have a prevailing dedication to agency towards self-care conduction, forgetting about themselves. Also, they are attentive to others’ needs as a manner of taking care of themselves. The objective proposed in this study was achieved, providing a perception of how nuns in a Discalced Carmelite Monastery understand and practice self-care from the perspective of Dorothea Orem’s Nursing Theory.

The nuns understand what self-care is in its essence, practicing it by taking care of themselves in diverse manners. However, they emphasize care of others as mutual care, which has implications for self-care. It is hence necessary to deepen this theme as well as the promotion of health education, seeking improvements in self-care, quality of life and promotion of nuns’ health, contributing to their awareness.

This study is expected to contribute to a better comprehension of nuns of contemplative life, especially regarding their health care, to provide more effective and individualized health assistance, since efficient care demands knowledge and respect for the aspirations of others. While leaving resources for performing further research and deepening the approached topic, new studies on this theme and its correlation with individual and collective health promotion are suggested.
categorías: comprensión del autocuidado, cómo practica el autocuidado y qué pueden hacer para mejorar su autocuidado. De cada una de las tres categorías temáticas, se seleccionó una subcategoría. Estas fueron respectivamente el cuidado del otro, la comida y el ejercicio. Se entendió que las monjas comprenden el autocuidado como el cuidado del otro. Practican el autocuidado principalmente a través de la alimentación y consideran el ejercicio como algo que pueden mejorar en el cuidado de sí mismas. **Conclusion:** Se constató que las monjas entienden lo que es el autocuidado y lo hacen. Sin embargo, dan prioridad al cuidado del otro como una forma de cuidado mutuo, que tiene un impacto en el autocuidado.

**DESCRITORES**
Monjas; Autocuidado; Atención de Enfermería; Teoría de Enfermería; Religión.

**REFERENCES**
1. Bergoglio JM. Vultum dei quaequare. Constitución apostólica sobre la vida contemplativa femenina. Vaticano: Librería Editrice Vaticana, 2016.
2. Constituciones de las Monjas Descalzas de la Orden de la Bienaventurada Virgen María del Monte Carmelo adaptadas según las disposiciones del Concilio Vaticano II y las normas canónicas vigentes aprobadas por la Sede Apostólica [Internet]. Vaticano; 1991 [citado 2018 nov. 27]. Disponible en: http://www.carmelitaniscalzi.com/wp-content/uploads/2016/06/Constituciones-de-las-Carmelitas-Descalzas-1991_ES.pdf
3. Hartweg DL, Pickens J. A concept analysis of normalcy within Orem’s self-care deficit nursing theory. Self Care Depend Care Nurs [Internet]. 2016 [citado 2018 Nov 28];22(1):4-13. Disponible desde: https://static1.squarespace.com/static/55f1d474e4b03fe7646a4d5d/t/566eb8e0850820b9f00a168/1459534056695/Vol22_No01_Spring_2016-1.pdf
4. Queiros PJP, Vidinha TSS, Almeida Filho AJ. Autocuidado: o contributo teórico de Orem para a disciplina e profissão de enfermagem. Rev Enferm Referencia. 2014;IV(3):157-64. doi: 10.12707/RIV14081
5. Brasil. Ministério da Saúde. Saúde Brasil 2011: uma análise da situação de saúde e a vigilância da saúde da mulher [Internet]. Brasília; 2012 [citado 2018 fev. 15]. Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/saude_brasil_2011.pdf
6. Discalced Carmelites: General Curia of the Teresian Carmel. Who we are: nuns [Internet]. Rome: Ocd; 2017 [citado 2017 May 5]. Disponible desde: http://www.carmelitaniscalzi.com/en/who-we-are/nuns/
7. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007;19(6):349-57. doi: 10.1093/intqhc/mzm042
8. Bardin L. Análisis de contenido. Lisboa: Edições 70; 2011.
9. Garcia MV, Rosado MJ. Liberdade em clausura. Rever Rev Estud Relig [Internet]. 2014 [citado 2018 nov. 28];14(2):74-115. Disponible desde: https://revistas.pucsp.br/rever/article/view/2174/16018
10. Brasil. Ministério da Saúde. Pesquisa Nacional de Saúde. Módulo de Saúde da Mulher [Internet]. Brasília; 2013 [citado 2018 fev. 15]. Disponível em: http://tabnet.datasus.gov.br/cgi/pns/Notas_Tecnicas_PNS_R.pdf
11. Corona LE, Swenson CW, Sheetz KH, Shelby G, Pearlman MD, et al. Use of other treatments before hysterectomy for benign conditions in a statewide hospital collaborative. Am J Obstet Gynecol. 2015;212(3):304.e1-7. doi: 10.1016/j.ajo.2014.11.031
12. Leverato CD, Mello LM, Silva AS, Nunes AA. Fatores associados à procura por serviços de saúde numa perspectiva relacional de gênero. Ciênc Saúde Coletiva. 2014;19(4);1263-74. doi: 10.1590/1413-81232014194.01242013
13. Cruz TA, Carvalho AMC, Silva RD. Reflexão do autocuidado entre profissionais de enfermagem. Rev Enferm Contemp. 2016;5(1):96-108. doi: 10.17267/2317-3378rec.v5i1.566
14. Hirshkowitz M, Whiton K, Albert SM, Alessi C, Bruni O, DonCarlos L, et al. National Sleep Foundation’s sleep time duration recommendations: methodology and results summary. Sleep Health. 2015;1(1):40-3. doi: 10.1016/j.sleh.2014.12.010
15. Fernandes JC, Portela LF, Rotenberg L, Gripp RH. Working hours and health behaviour among nurses at public hospitals. Rev Latino Am Enfermagem. 2013;21(5):1104-11. doi: 10.1590/S0104-116920130005000013
16. Colombia, Instituto Colombiano de Bienestar Familiar. Asumir nuestra transformación: vínculos de cuidado mutuo en familias y comunidades [Internet]. Bogotá; 2017 [citado 2018 fev. 18]. Disponible desde: https://www.icbf.gov.co/sites/default/files/procesos/pu1_pp_module1_asumir_nuestra_transformacion.pdf
17. Layous K, Lyubomirsky S. The how, why, what, when, and who of happiness: mechanisms underlying the success of positive activity interventions. In: Gruber J, Moskowitz JT, editors. Positive emotion: integrating the light sides and dark sides. Oxford: University Press Scholarship Online; 2014. p. 473-95.
18. Queiroz IS, Jardim OM, Alves MGD. “Escuta no pátio”: cuidado e vínculo como prácticas de redução de danos. Pesq Prát Psicossociais [Internet]. 2016 [citado 2018 Nov 21]; (13):650-68. Disponible desde: http://pepsic.bvsalud.org/pdf/pepp/v13n1/10.pdf
19. Brasil. Ministério da Saúde. Guia alimentar para a população brasileira [Internet]. 2ª ed. Brasília; 2014 [citado 2018 fev. 15]. Disponible desde: http://bvsms.saude.gov.br/bvs/publicacoes/guia_alimentar_populacao_brasileira_2ed.pdf
20. World Health Organization. Global action plan on physical activity 2018-2030: more active people for a healthier world [Internet]. Geneva: WHO; 2018 [citado 2018 Nov 17]. Disponible desde: https://apps.who.intiris/bitstream/handle/10665/44399/9789241599797_eng.pdf?sequence=1