ABSTRACT
Objective: investigate the knowledge, attitudes and practices of informal elderly caregivers about falls and its prevention. Method: this is a descriptive cross-sectional study conducted with 97 informal elderly caregivers residents in areas covered by five Health Strategy Units (ESF) in Cuiabá. Results: more than half of the participants are aware of falls and identify them as a problem, as well as they identify some risk factors and prevention measures. Regarding attitudes, more than half of the caregivers do not seem to act effectively to prevent falls. Most of them report adopting practices to prevent falls of the elderly, supervising the activities of their daily lives. Conclusion: caregivers know about falls and its prevention, but in a superficial way, and it seems to influence their attitudes and practices regarding the prevention of this event.

Descriptors: Health Knowledge, Attitudes, Practice; Caregivers; Accidental Falls; Aged; Health Services for the Aged.

RESUMO
Objetivo: investigar o conhecimento, as atitudes e as práticas dos cuidadores informais de idosos sobre quedas e sua prevenção. Método: trata-se de um estudo transversal descritivo, realizado com 97 cuidadores informais de idosos residentes nas áreas de abrangência de cinco Unidades de Estratégia Saúde da Família (ESF) do município de Cuiabá. Resultados: mais da metade dos participantes tem conhecimento das quedas e as identificam como um problema, assim como apontam alguns fatores de risco e medidas de prevenção. Em relação às atitudes, mais da metade dos cuidadores se mostram não favoráveis à prevenção das quedas. A maioria deles refere adotar práticas de prevenção de quedas dos idosos, principalmente a supervisão das atividades de sua vida diária. Conclusão: Os cuidadores conhecem sobre quedas e sua prevenção, porém de maneira superficial, e isso parece influenciar em suas atitudes e práticas referentes à prevenção desse evento.

Descritores: Conhecimentos, Atitudes e Prática em Saúde; Cuidadores; Acidentes por Quedas; Idoso; Serviços de Saúde para Idosos.

RESUMEN
Objetivo: investigar el conocimiento, las actitudes y las prácticas de los cuidadores informales de ancianos sobre caídas y su prevención. Método: se trata de un estudio transversal descriptivo realizado con 97 cuidadores informales de ancianos residentes en las áreas cubiertas por cinco unidades de Estrategia de Salud de la Familia (ESF) del municipio de Cuiabá. Resultados: más de la mitad de los participantes son conocedores de las caídas y las identifican como un problema, además de señalar algunos factores de riesgo y medidas de prevención. En lo referente a las actitudes, más de la mitad de los cuidadores no favorecen la prevención de caídas. La mayor parte de ellos reportan haber adoptado prácticas para prevenir las caídas de los ancianos, sobre todo la supervisión de las actividades de vida diaria del anciano. Conclusión: los cuidadores tienen conocimiento sobre caídas y su prevención, pero de manera superficial, lo que infunde en sus actitudes y sus prácticas referentes a la prevención del evento.

Descriptores: Conocimientos, Actitudes y Práctica en Salud; Accidentes por Caídas; Anciano; Servicios de Salud para Ancianos.
INTRODUCTION

Handling falls is a challenge currently faced in a world where many people are aging and is one of the most common and significant problems among the elders. Each year, approximately 28% to 35% of people over 65 years old fall, this proportion increases with age and the degree of fragility\(^1\). This event has serious consequences not only for the aged, but also for the family and society\(^2\).\(^3\).\(^4\).

In order to reduce the risk of falls and its consequences, efforts have been made all over the world, with the application of multiple and multisectoral preventive measures\(^5\). Fall prevention practices should be properly performed by the aged in order to be effective. When the aged is dependent, the involvement of caregivers in the identification of risk factors and in the process of prevention of falls is recommended\(^6\).

The role of the caregiver is fundamental in the prevention of falls of the elders. However, this function is usually added to those that the caregiver already has, often without preparation and for unpredictable time\(^7\).\(^8\). Studies have shown that many caregivers do not have enough skills and knowledge to care for the people they assist adequately, performing it based on experiences, observations, orientations from professionals or close people, based mainly on intuition and beliefs\(^9\).\(^10\).

The knowledge of the caregivers is essential, since the highest degree of knowledge is related to positive attitudes and best practices in health\(^11\).\(^12\)\(^13\)\(^14\). In the case of falls of the elderly, the knowledge of caregivers is important for preventive practices to be properly adopted at home, in order to reduce the probability of its occurrence.

Studies about knowledge, attitudes and practices (KAP) of caregivers have been conducted with people of different age groups, especially children, and in different health conditions\(^12\)\(^15\)\(^16\)\(^17\). Investigations with elderly caregivers was conducted only about the knowledge and attitudes of caregivers or only about attitudes regarding topics such as cerebrovascular risk and some diseases, like Alzheimer’s and delirium\(^21\).\(^22\)\(^23\)\(^24\).

Only two studies with elderly caregivers focused on falls and their prevention were conducted, but the objective was to investigate only the caregivers’ knowledge. In one of the studies, the results showed that less than a half of the caregivers (42.7%) reported having knowledge about how to reduce the occurrence of falls, and 48.3% considered that the prevention of the event is possible\(^25\). In another study, the authors found that the knowledge that caregivers had about the prevention of falls of the elderly was superficial because they had not received adequate guidance\(^26\).

OBJECTIVE

To investigate the knowledge, attitudes and practices of informal elderly caregivers about falls and its prevention.

METHOD

Ethical aspects

The study is in accordance with Resolution No. 466/2012 of the National Health Council, and presents approval of the Research Ethics Committee of the Hospital Universitário Júlio Müller. The participation of elderly caregivers was conditioned to the signing of the Informed Consent Form.

Design, place of study and period

This is a cross-sectional and descriptive study conducted in five Family Health Strategy Units (ESF) located in the northern region of Cuiabá city (MT), Brazil. These units have the largest population of registered elderly in this region. Data collection was carried out from June to August 2017, at the caregivers’ homes.

Population or sample; inclusion and exclusion criteria

The study population consisted of caregivers residing in the areas covered by the Units, and the selection of participants was done by non-probability sample of convenience type. We used the following inclusion criteria: being an informal caregiver and main an elderly caregiver, and being 18 years of age or older. Caregivers aged 60 years or older who presented cognitive deficit evaluated by the Mini Mental State Examination (MMSE), with cutoff points equal to or lower than 19 for the illiterate; 23 for one to three years of schooling, 24 for four to seven years of schooling and 28 for seven years of schooling were excluded\(^27\)\(^28\).

From a list of elders registered in the Individual Register of the Unified Health System (SUS), via the e-SUS, and with the help of community health agents (CHW) responsible for the micro areas, 158 elders with caregivers were identified. Of these, 26 caregivers did not satisfy the inclusion criteria, four were excluded for presenting cognitive deficit, 24 were not found after two tries of communication and seven did not agree to participate of the study. At the end, 97 caregivers were part of the investigation.

Study protocol

The data were collected by an interview conducted by the researcher, using a structured questionnaire, based on models suggested in the literature about KAP\(^28\)\(^29\)\(^30\), with questions related to the knowledge, attitudes and practices of caregivers regarding falls and their prevention.

The content of the questionnaire was evaluated and validated by a committee of nine judges, selected by criteria such as experience in research about elderly falls, caregivers and KAP. The content validity index (CVI)\(^30\) was 0.93, showing agreement of the judges regarding the adequacy of the questionnaire.

The variables related to the caregiver were age group, gender, marital status, type of relationship with the elderly, years of study, income, source of income, time that act as elderly caregiver, previous experience in the activity and training. The variables related to the caregiver’s health conditions were self-evaluation of current health status, presence of health problem, type of health problem, regular use of medications and number of medications.

The variables of the aged who received care were age, cognitive alteration - evaluated by the MMSE –, health problems reported, degree of dependence – evaluated using the Functional Independence Measure - (FIM), history of falling in the last 12 months, and risk of falling - evaluated by Downton’s risk score.
The caregivers’ KAP in relation to falls and their prevention were defined based on Kaliyaperumal (31) and Macías and Glasauer (28). Knowledge is the individual’s understanding about falls, elders’ falls and its prevention, including the ability to remember facts related to the event. Attitudes are preconceived ideas, opinions, feelings, predispositions and beliefs that influence positively or negatively the caregiver’s behavior or practice in relation to falls of the elderly and its prevention. Practices are self-reported actions to prevent falls of the elders.

In order to classify the caregivers’ KAP, these criteria were established:

- Knowledge - know and do not know. We considered that the caregiver knew, when answered correctly the questions 25, 27, 29 and cited at least one risk factor, a consequence and a measure for the prevention of falls correctly.
- Attitudes - favorable and unfavorable. We considered that the caregiver had a favorable attitude when answered at least six questions.
- Practices - practices and not practices. The caregiver was considered as practicing fall prevention measures when reported that performed at least three preventive measures correctly.

Analysis of results and statistics

The data were coded and typed twice in electronic spreadsheets of the Epi Info program, version 7.2, of the Centers for Disease Control and Prevention (CDC). The data analysis was descriptive, presented in tables and graphs with absolute and relative frequencies for each variable.

RESULTS

Of the 97 elderly caregivers interviewed, the majority (72.2%) are in the age group between 40 and 69 years (average of 51.1 years) and are female (85.6%); 47.4% of them are married or are in stable union. They have nine or more years of schooling (71.1%) and receive from one to three minimum wages (60.9%), something from formal or informal work, retirement or pension. The majority (60.8%) of the participants are son/daughter of the aged, and report not having previous experience as a caregiver (73.2%). The function is performed for a time that varies from less than one to four years (44.4%), and most part of them (94.8%) were not trained to be a caregiver.

Regarding the caregiver’s health conditions, 40.2% self-evaluated their health status as good and 70.1% reported having health problems - the main ones were hypertension (28.9%), spine problems (17.5%) and endocrine problems (16.8%). Half of the caregivers (50.5%) regularly use medications, and 77.7% use one to three medications. The main ones were antihypertensives (26.8%) and oral hypoglycemic agents (14.4%).

In relation to the characteristics of people receiving care, more than half (57.8%) of the aged cared for by caregivers are aged 80 years or older, most (74.2%) have cognitive deficit, 40.2% have modified dependence with assistance of up to 25%; and 25.8% have modified independence. The main health problems were hypertension (61.9%), sensory problems (38.1%) and osteoarticular problems (34%). Concerning falls, 42.3% of the aged reported an accident in the last 12 months; of these, 43.9% fell once and 26.8% three times or more. About the risk of falls, almost all the aged people (90.7%) were classified at high risk for the event.

With respect to the KAP classification of caregivers in relation to elderly falls and its prevention, it was evidenced that more than half (51.6%) know it, 56.7% have an unfavorable attitude and 73.2% do not practice preventive measures (Figure 1).

About the caregiver’s knowledge about falls and its prevention, more than half (53.6%) consider that all the elders can suffer falls, 38.1% reported that it is a frequent event and 19.6% do not know to inform. The main causes for the occurrence of falls mentioned by caregivers were changes in balance (50.5%), loss of muscle strength (48.5%), carelessness or lack of attention (26.8%), loose mats at home (25.8%) and wet floors (24.7%). Almost all (99%) caregivers reported that the fall has consequences for the aged, such as fractures (82.5%), loss of functional capacity (43.3%) and head injuries (22.7%) (Table 1).

In relation to the prevention of falls of elderly people, 89.7% of them reported that it is possible to prevent it. The main prevention measures mentioned were changes in the home (52.6%) and supervision of the aged person (47.4%). When asked about the source of knowledge they had about falls and their prevention, the majority (42.3%) reported that the experience/coexistence with the aged is the origin of the learning, followed by radio/television (32%) and health professionals (9.3%) (Table 1).

Regarding the caregivers’ attitudes towards falls and its prevention, more than half (52.6%) partially agree that falling is a natural event in old age and 86.6% of them consider it as a problem, of which 60.7% report it as a very serious problem. The majority (92.8%) totally agree that the caregiver should be concerned with the fall of the elderly; 55.7% absolutely believe in the prevention of falls, and that every caregiver should identify the risks for falls and adopt preventive measures (84.5%). Most of them (96.9%) report feeling very worried when the elderly fall frequently (Table 2).

Table 3 shows the practices of prevention of falls of the elderly performed by caregivers. Almost all of them (99.0%) report practicing it in daily care. The main preventive measures mentioned and related to the behavior of the elderly are vigilance (57.7%), orientation to walk with caution (18.6%) and restriction of their activities (12.4%). The practices related to changing the environment are to avoid loose mats in the house (28.9%), avoid the floor wet (23.7%), and install support bars in the bathroom and other environments (12.4%).
### Table 1 – Distribution of elderly caregivers according to knowledge of falls and prevention of falls, Cuiabá, Mato Grosso, Brazil, 2017

| Variable                                      | Frequency (n) | Percentage (%) |
|-----------------------------------------------|---------------|----------------|
| Is it possible for any elderly person to fall? |               |                |
| Yes                                           | 52            | 53.6           |
| No                                            | 45            | 46.4           |
| The fall of an elderly person is an event      |               |                |
| Infrequent                                    | 23            | 23.7           |
| Frequent                                      | 37            | 38.1           |
| Very frequent                                 | 18            | 18.6           |
| I don't know                                  | 19            | 19.6           |
| What can cause an elderly person to fall?*    |               |                |
| Change in balance                             | 49            | 50.5           |
| Loss of muscle strength                       | 47            | 48.5           |
| Neglect or lack of attention                  | 26            | 26.8           |
| Loose mats at home                            | 25            | 25.8           |
| Wet floors                                    | 24            | 24.7           |
| Flat floor                                    | 17            | 17.5           |
| Comorbidity                                   | 14            | 14.4           |
| Stairs with irregular steps                   | 13            | 13.4           |
| Old age                                       | 12            | 12.4           |
| Use of inappropriate slippers or shoes        | 10            | 10.3           |
| Irregular sidewalks                           | 10            | 10.3           |
| Sensory problems                              | 9             | 9.3            |
| Scattered objects                             | 8             | 8.2            |
| Furniture arrangement                         | 7             | 7.2            |
| Inadequate nutrition                          | 6             | 6.2            |
| Stubbornness                                  | 6             | 6.2            |
| Difficulty with mobility                      | 5             | 5.2            |
| Lack of supervision                           | 4             | 4.1            |
| Insufficient lighting                         | 3             | 3.1            |
| Dementia                                      | 2             | 2.1            |
| Climbing and descending stairs without precaution | 2             | 2.1            |
| Rise in the bank                              | 1             | 1.1            |
| Other                                         | 9             | 9.3            |
| Do the fall bring consequences to the elderly?|               |                |
| Yes                                           | 96            | 99             |
| No                                            | 1             | 1              |
| Which consequences?*                          |               |                |
| Fractures                                     | 80            | 82.5           |
| Loss of functional capacity                   | 42            | 43.3           |
| Head injuries                                 | 22            | 22.7           |
| Death                                         | 21            | 21.7           |
| Contusions                                    | 12            | 12.4           |
| Skin abrasions                                | 11            | 11.3           |
| Fear of falling                               | 10            | 10.3           |
| Social isolation                              | 6             | 6.2            |
| Depression                                    | 1             | 1.1            |
| Economic expenses                             | 1             | 1.1            |
| Other                                         | 6             | 6.2            |
| Does exist a way to prevent the fall of elderly people? |       |                |
| Yes                                           | 87            | 89.7           |
| No                                            | 10            | 10.3           |
| How to prevent the fall of elderly people?*   |               |                |
| Changes in domicile                           | 51            | 52.6           |
| Supervision                                   | 46            | 47.4           |
| Use of walking stick or walker, if necessary  | 9             | 9.3            |
| Good nutrition and calcium supplementation    | 8             | 8.3            |
| Use of handrails on stairs                    | 5             | 5.2            |
| Practice of physical exercise                 | 2             | 2.1            |
| Use of suitable anti-slip shoes               | 1             | 1.1            |
| Other                                         | 7             | 7.2            |
| Source of knowledge *                         |               |                |
| Daily experience/coexistence                  | 41            | 42.3           |
| Radio/TV                                      | 31            | 32             |
| Internet                                      | 16            | 16.5           |
| Family members                                | 14            | 14.4           |
| Friends                                       | 12            | 12.4           |
| Health professionals                          | 9             | 9.3            |
| Magazine/journal                              | 4             | 4.1            |
| Other                                         | 10            | 10.3           |

Note: *Multiple choice variable.

### Table 2 – Distribution of elderly caregivers according to attitudes to prevent falls, Cuiabá, Mato Grosso, Brazil, 2017

| Variable                                      | Frequency (n) | Percentage (%) |
|-----------------------------------------------|---------------|----------------|
| The fall is a natural event in old age        |               |                |
| Disagree                                      | 14            | 14.4           |
| Partially agrees                              | 51            | 52.6           |
| Totally agree                                 | 32            | 33             |
| Do you consider the fall of an elderly person as a problem? | | |
| No                                           | 13            | 13.4           |
| Yes                                          | 84            | 86.6           |
| If yes, how much serious?                     |               |                |
| Not serious                                   | 7             | 8.3            |
| Very serious                                  | 51            | 60.7           |
| Extremely serious                             | 26            | 31             |
| Every caregiver should be concerned about the fall of the elderly | | |
| Partially agrees                              | 7             | 7.2            |
| Totally agree                                 | 90            | 92.8           |
| Do you believe that falls can be prevented?   |               |                |
| Do not believe                                | 9             | 9.3            |
| Partially believe                             | 34            | 35.1           |
| Totally believe                               | 54            | 55.6           |
| Every caregiver must identify the risks and prevent accidents by falls | | |
| Partially agree                               | 15            | 15.5           |
| Totally agree                                 | 82            | 84.5           |
| If the elderly fall frequently, how do you feel about it? | | |
| Not too worried                               | 3             | 3.1            |
| Very concerned                                | 94            | 96.9           |
| Total                                         | 97            | 100            |

### Table 3 – Distribution of elderly caregivers according to fall prevention practices, Cuiabá, Mato Grosso, Brazil, 2017

| Variable                                      | Frequency (n) | Percentage (%) |
|-----------------------------------------------|---------------|----------------|
| In the daily care of the elderly, do you usually prevent fall accidents? | | |
| Yes                                           | 96            | 99             |
| No                                            | 1             | 1              |
| How do you prevent fall accidents?*           |               |                |
| Watch the elderly                             | 56            | 57.7           |
| Avoid loose mats in the house                 | 28            | 28.9           |
| Avoid wet floor                               | 23            | 23.7           |
| Orient the elderly to walk with caution       | 18            | 18.6           |
| Restrict the activities of the elderly        | 12            | 12.4           |
| Install sling bars in the bathroom and other environments | | |
| Use anti-slip mats                            | 9             | 9.3            |
| Avoid scattered toys                           | 8             | 8.3            |
| Removes furniture that represents danger to the elderly | | |
| Orient to the use of walking stick and walker, if necessary | | |
| Orient to the use of suitable shoes and not to the use of slippers | | |
| Install anti-slip floors                      | 5             | 5.2            |
| Provides healthy nutrition                     | 3             | 3.1            |
| Performs periodic check-ups with the doctor   | 3             | 3.1            |
| Advises not to climb on banks, chairs or boxes to reach objects | | |
| Avoids leaving loose cables in the house      | 2             | 2.1            |
| Install lighting in the house                 | 1             | 1.1            |
| Other                                         | 9             | 9.3            |

Note: *Multiple choice variable.
DISCUSSION

This study is the first to be carried out about KAP of informal elderly caregivers in relation to falls and its prevention. Its results contribute to deeper scientific knowledge as they produce information about what these caregivers know about falls and its prevention, their attitudes towards them and how they act to prevent this problem.

The participants in this research have similar characteristics to the informal elderly caregivers of other studies. In general, they are daughters and wives of elders, middle-aged and low-income, and they are in this position for a short time, without previous experience of care (32-35).

According to the criteria adopted in this study, caregivers know about falls of the elderly and its prevention. A little more than half of the participants minimally know that the fall of the aged is a frequent event and that it is at risk, identifying some causes and consequences of falls and referring to certain measures to prevent them. This result is compatible with those of other studies in which the knowledge about fall prevention presented by informal elderly caregivers was incomplete or considered minimal (25) and superficial (26).

Probably this is because most of the caregivers in this study started the function recently, without preparation, and due to the ways in which this knowledge was acquired. One of the main sources of knowledge about falls mentioned comes from experience, and this type of knowledge, in general, they can achieve from their coexistence with older people who have fallen or from the experience of others. Likewise, the media, such as television and the Internet, are another important source of knowledge of the caregivers of this work. Today, these media are accessed at any place and time, allowing them to obtain information about health problems, treatments and means of prevention (36).

However, although the experiences and means of communication are sources of information and their role in adult learning is very important (37), it should be considered that the knowledge of these caregivers is superficial, limited to information far from the scientific knowledge produced and available about the subject.

Superficial knowledge can affect the caregivers’ attitude towards health situations, as well as the way that they care for people (38). With regard to falls of the elders, this level of knowledge may lead caregivers to adopt few practices or perform them inappropriately. The prevention of falls of the elderly at home effectively requires a more detailed knowledge, which includes the specific changes of aging and the causes and consequences of falls, as well as the appropriate measures to prevent it.

Caregivers need to have a better knowledge in quantity and quality, so that they can adequately care for the elderly, producing positive effects in the prevention of falls. Health education is an effective strategy for the improvement of knowledge demonstrated by some studies (39,40). In this process, it is important the active participation of health professionals, since only 9.3% of the caregivers in this study reported obtaining knowledge from them. It is worth emphasizing that nurses have competencies to develop health education and they may be a key element to provide spaces for dialogue and exchange of knowledge, as well as actions to monitor caregivers, strengthening trust and fostering their responsibilities to the elderly.

The caregivers’ attitudes are not favorable to the prevention of falls, according to the criteria adopted in this study. This result rises attention because, even if they are concerned about the occurrence of falls of the elderly they care for and feel responsible for avoiding them, they do not face the problem in a favorable way.

Equally, this result is surprising because the caregivers are mainly daughters and wives, people whose bond is greater with the elderly. The family bond and the fact that they are women usually leads to more committed care(41,42). A probable explanation for this result is the fact that attitudes can be influenced by knowledge (44-46). To the extent that the caregivers of this study have a superficial knowledge, it is likely that this influences their attitudes, that is, the way they are predisposed to face the problem of falls.

The influence of attitudes on people’s behavior is known, because they affect their way of interpreting and dealing with falls and its prevention (2). The attitudes of caregivers are essential for the adoption of preventive measures and maintenance of the elderly in safety inside and outside the home.

This may also be an explanation for the result of the classification of caregivers’ practices in relation to the prevention of falls. According to the criteria adopted in this study, the caregivers should report performing at least three preventive measures of correct falls, but the majority mentioned only one, demonstrating that they do not perform them, even if almost all of them affirm the opposite.

This does not guarantee the prevention of the fall of the aged. In order for an effective prevention of falls performed by caregivers, it is necessary that the practices encompass both behavioral and environmental measures. The set of practices offers greater safety to the elderly and prevents them of being exposed to fall risks in their daily domestic activities (2, 46).

Certainly, knowledge is not the only determinant of the lack or insufficiency of health behaviors (45,47). However, it is an important component to be considered in the adoption of fall prevention practices by caregivers. Without considerable and satisfactory knowledge about this subject, its practices will be insufficient to prevent falls of the elderly they care for.

Considering that people’s behavior is very complex and involves the influence of several factors, another explanation for the caregivers of this study not to adopt the preventive practices of falls of the aged may be their social conditions. There are fall prevention measures that necessarily require financial investment from the caregiving families in order to be implemented - for example, the installation of support bars, floor replacement and the acquisition of devices, among others. In the implementation of these measures, the performance of health professionals is fundamental, with evaluation of the real risks of falls of the elderly and the socioeconomic conditions of the family to be able to acquire the devices or invest in necessary changes. Health professionals can intervene as mediators between caregivers and social support institutions in case of need.
**Study limitations**

A limitation of the study is the convenience sample, which does not allow generalizations to be made to other groups of caregivers. However, our result is relevant because it offers a better understanding of the knowledge, attitudes of informal elderly caregivers and their fall's prevention practices.

**Contributions to the area of nursing, health or public policy**

Our results have important implications for public health, since they provide support for the planning and implementation of educational programs, directing health professionals in the development of specific actions for the older part of the population, thus contributing to the process of promotion and prevention of falls to this group. In addition, it provides subsidies to future intervention studies for this population.

**CONCLUSION**

We concluded that elderly caregivers know about falls and their prevention - however, this knowledge is superficial and limited to common sense information. Their attitudes are not favorable to the prevention of falls and they do not practice the measures in order to ensure the prevention of the occurrence of this event to the elders they care for.

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**REFERENCES**

1. Gullich I, Cordova DDP. Falls in the elderly: a population-based study. Rev Soc Clín Méd [Internet]. 2017 [cited 2017 Jan 19];15(4):230-4. Available from: [link]

2. Secretaria de Estado da Saúde de São Paulo. Relatório global da OMS sobre prevenção de quedas na velhice [Internet]. São Paulo; 2010 [cited 2016 Oct 23].

3. Guerra HS, Sousa RA, Bernardes DCF, Santana JA, Barreira LM. Prevalence of falls by the elderly in a home community. RESC [Internet]. 2016 [cited 2017 Jan 10];9(3):547-55. Available from: [link]

4. Carneiro JA, Ramos GCF, Barbosa ATF, Vieira EDS, Silva JSR, Caldeira AP. Falls among the non-institutionalized elderly in northern Minas Gerais, Brazil: prevalence and associated factors. Rev Bras Geriatr Gerontol [Internet]. 2016 [cited 2016 Nov 15];19(4):613-25. Available from: [link]

5. Barros IFO, Pereira MB, Weiller TH, Anversa ETR. Hospitalizations due to falls among elderly Brazilians and related costs under the Public Health System. Kairós Gerontol [Internet]. 2015 [cited 2016 Nov 15];18(4):63-80. Available from: [link]

6. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Patient safety at home [Internet]. Brasília, DF; 2016 [cited 2017 Jan 20]. Available from: [link]

7. Vieira CPB, Filho AVM, Freitas CHA, Jorge MSB. Practices of elderly's informal caregiver at home. Rev Bras Enferm [Internet]. 2011 [cited 2016 Dec 20];64(3):570-9. Available from: [link]

8. Baptista BO, Beuter M, Girardon-Perlini NMO, Brondani CM, Budó MLD, Santos NO. Overload of family caregiver at home: an integrative literature review. Rev Gaúcha Enferm [Internet]. 2012 [cited 2016 Dec 18];33(1):147-56. Available from: [link]

9. Moreno-Cámara S, Palomino-Moral PA, Moral-Fernández L, Frias-Osuna A. Problems in the process of adapting to change among the family caregivers of elderly people with dementia. Gac Sanit [Internet]. 2016 [cited 2016 Dec 19];30(3):201-7. Available from: [link]

10. Iacono T, Evans E, Davis A, Bhawardj A, Turner B, Torr J, et al. Family caring of older adults with intellectual disability and coping according to loci of responsibility. Res Dev Disabil [Internet]. 2016 [cited 2017 Jan 12];57:170-80. Available from: [link]

11. Desta BK, Assimamaw NT, Ashenafi TD. Knowledge, practice, and associated factors of home-based management of diarrhea among caregivers of children attending under-five clinic in Fogita Lekoma district, Awí Zone, Amhara Regional State, Northwest Ethiopia, 2016. Nurs Research and Pract [Internet]. 2017 [cited 2017 Jan 12];2017:8084548. Available from: [link]

12. Kassam R, Sekiwunga R, Collins JB, Tembe J, Liow E. Caregivers' treatment-seeking behaviors and predictors of whether a child received an appropriate antimalarial treatment: a household survey in rural Uganda. BMC Infect Dis [Internet]. 2016 [cited 2017 Jan 15];16:478. Available from: [link]

13. Hatamabadi HR, Mazfoozpour S, Alimohammadi H, Younesian S. Evaluation of factors influencing knowledge and attitudes of mothers with preschool children regarding their adoption of preventive measures for home injuries referred to academic emergency centres, Tehran, Iran. Int J Inj Contr Saf Promot [Internet]. 2014 [cited 2017 Jan 15];21(3):252-9. Available from: [link]

14. Ogünrinde OG, Raji T, Owolabi OA, Anigo KM. Knowledge, attitude and practice of management of children with diarrheal disease in northwestern Nigeria. J Trop Pediatr [Internet]. 2012 [cited 2017 Jan 19];58(2):143-6. Available from: [link]
38. Saengsuwan J, Laohasiriwong W, Boonyaleepan S, Sawanyawisuth K, Tiamkao S. Knowledge, attitudes, and care techniques of caregivers of PWE in Northeastern Thailand. Epilepsy Behav [Internet]. 2013 [cited 2017 Dec 19];27(1):257-63. Available from: 10.1016/j.eplepsy.2013.01.014

39. Megahed AM, Khalil NA, Ibrahim RA, El Disoki RS. Knowledge, attitude and practice of rural mothers towards home injuries among children under 5 years of age in Menouf District – Menoufia Governorate, Egypt. Menoufia Med J [Internet]. 2016 [cited 2017 Dec 19];29(4):1033-9. Available from: http://www.mmj.eg.net/temp/MenoufiaMedJ2941033-7545227_205732.pdf

40. Pereira KC, Paulino JR, Saltarelli RMF, Carvalho AMP, Santos RB, Silveira TVL, et al. The construction of knowledge about the prevention of accidents and first aid by the lay public. R Enferm Cent O Min [Internet]. 2015 [cited 2017 Dec 20];5(1):1478-85. Available from: http://www.seer.ufsj.edu.br/index.php/recom/article/view/456

41. Hedler HC, Faleiros VP, Santos MJS, Almeida MAA. Social representation of care recipients and of family care providers for the elderly. Rev Katálysis [Internet]. 2016 [cited 2018 Jan 15];19(1):143-53. Available from: 10.1590/1414-49802016.00100015

42. Gutierrez DMD, Minayo MCS. Knowledge production on family health care. Ciênc Saúde Coletiva [Internet]. 2010 [cited 2018 Jan 15];15(Suppl 1):1497-508. Available from: 10.1590/S1413-81232010000700062

43. Mehes A, Brito M, Camargo BV. Social representations, health beliefs and behaviors: a comparative study between men and women. Temas Psicol [Internet]. 2011 [cited 2018 Jan 18];19(1):283-303. Available from: http://pepsic.bvsalud.org/pdf/tp/v19n1/v19n1a23.pdf

44. Camargo RD, Hernández RH, Maldonado SH, Cárdenas IL, Carvajal L, Cuevo PMP. Knowledge, attitudes and practices of caregivers of people with disabilities in processes of social inclusion in the municipality of Madrid, Cundinamarca, Colombia. Rev Cienc Salud [Internet]. 2015 [cited 2018 Jan 20];13(2):171-85. Available from: 10.12804/revsalud13.02.2015.04

45. Ding L, Sun Q, Sun W, Du Y, Li Y, Bian X, et al. Antibiotic use in rural China: a cross-sectional survey of knowledge, attitudes and self-reported practices among caregivers in Shandong province. BMC Infect Dis [Internet]. 2015 [cited 2018 Jan 25];15:576. Available from: 10.1186/s12879-015-1323-z

46. Soares EDA. Análise da iluminação e decoração nas residências de pessoas da terceira idade. Especialize [Internet]. 2013 [cited 2018 Jan 30];16. Available from: https://slidex.tips/download/analise-da-iluminacao-e-decoracao-das-residencias-de-pessoas-da-

47. Ministério da Saúde (BR). Secretaria de vigilância em Saúde. Departamento de DTS, Aids e Hepatites Virais. Survey of knowledge, attitudes and practices in the Brazilian population [Internet]. Brasília, DF; 2016 [cited 2018 Jan 30]. Available from: http://www.aids.gov.br/pt-br/pub/2016/pesquisa-de-conhecimentos-attitudes-e-praticas-na-populacao-brasileira-pcap-2013