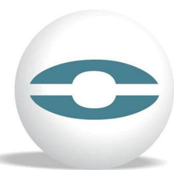

ENGLISH

Federal Fluminense University

AURORA DE AFONSO COSTA NURSING SCHOOL

Original Articles

Repercussions of the climateric among nurses – an exploratory study

Mariana Nepomuceno Giron[1], Thamyres Campos Fonseca[1], Lina Marcia Miguéis Berardinelli[1], Lucia Helena Garcia Penna[1]

[1]University of Rio de Janeiro State

ABSTRACT
The climacteric presents some unique features, especially in relation to body functioning. Although women may experience symptoms due to hormonal, physical and psycho-emotional changes, they may claim that there is a lack of information. **Aim:** To identify the physical effects of the climacteric on professional nurses who are involved directly in healthcare. **Method:** This is an exploratory, descriptive study carried out with climacteric professional nurses at a University Hospital in Rio de Janeiro in 2010. Data were collected through semi-structured interviews and the results were subjected to content analysis. **Results:** Exhausting working hours associated with the physical effects of the climacteric increases the chances of alterations in nurses' personal and professional lives. **Conclusion**: Considering that nursing is still a predominantly female profession, it is important to look at these professionals from a specific viewpoint, and take the repercussions of the climacteric period into consideration, including in terms of their professional processes and, ultimately, their life as a whole.
Keywords: Nursing; Climacteric; Women's health

INTRODUCTION

The end of a woman's reproductive phase has been addressed by public policy since 1980, with the implementation of the Comprehensive Healthcare for Women Program – PAISM, in portuguese[1]. Until then, government actions were focused on the needs of mother and child. PAISM triggered a paradigm shift in Brazilian women's healthcare in that it started to address gender issues as well as the sexual and social roles of women throughout their life cycle, taking into account their social context. After the implementation of PAISM, women were no longer seen as child bearers whose healthcare should be limited to prenatal, child delivery and postpartum. Thus, the other stages of women's lives begin to attract the attention of healthcare policymakers[1]. In 2004, the Ministry of Health expanded the program, transforming it into the National Policy on Comprehensive Health Care for Women (PNAISM, in portuguese)[2], and began a greater investment in female-specific groups such as the elderly, those living in the countryside, those with special needs, black, indigenous, prisoners and lesbians. From this perspective, women must be understood in their socio-cultural context[3]. These government investments are justified by a national reality in which about 97,342,162 of the Brazilian population are women. Among these, women over 50 years of age make up 15,505,461 of the population 15% of the total female population). The increase in the life expectancy of the population, and of women in particular, is now 80 years of age[4]. This has occurred as a result of improvements in the quality of life. So, the climacteric, a transition that occurs in the 35-65 years age group, currently is of increasing importance, since, according to the Health Ministry, this age group accounted for about 32% of the whole female population in 2007 [2,5]. Analyses of the Brazilian labour market show that women's participation in economic activity, a trend that began in the late 1960s, has been increasing, while fertility rates have been declining[6]. Due to the increased activity of women in the labour market, pregnancies have been delayed, there has been a

reduction in the number of children, and even the role of women within the family has changed. Considering the number of women who make up part of the population, issues such as female longevity, inclusion in public and private life, and future life expectancy have become too important to be neglected. Thus, it is essential that health professionals pay attention to the present healthcare situation, and the needs arising from this new social context that directly affect the health of women professionals.

The climacteric presents some unique features, especially with regard to body functioning. Women can present symptomatology due to hormonal, physical and psycho-emotional changes, some of them requiring monitoring. The monitoring of climacteric women should be directed towards an understanding of this period of life and the best way to cope with it. In this sense, women need to know their role in society as well as their rights and duties, the way in which their body functions with its possibilities and limitations, and should also understand that climacteric transition is a period as natural as any other experienced throughout their life cycle. As women begin to understand how their body functions, as well as their sexual role and social rights as citizens, they start to feel more empowered and in possession of a greater freedom and autonomy. According to the National Policy on Comprehensive Health Care for Women(2), among the symptoms that may occur during the climacteric/menopause,

> Some are due to sudden hormonal imbalance and others are linked to the general state of the woman and the life style adopted hitherto. Self-image, role and social relationships, expectations and life projects also contribute to the onset and severity of symptoms.

The main climacteric effects on the body manifest themselves in the short, medium and long term. These are: physical and emotional discomfort; hot flushes; insomnia; joint pain; nervousness; irritability; depression; atrophy of the epithelium, mucous vaginal mucous and collagens; cardiovascular and endocrine alterations(5). Among the changes that occur during the climacteric, what strikes us most are the physical discomfort and emotional distress, along with the taboos and myths surrounding this moment, which

often makes it a difficult stage to undergo. Another stressor for women is the lack of understanding on the part of their partners, children and relatives, who do not know how to deal with the signs and symptoms of the climacteric. Climacteric characteristics, when transformed into symptoms, make women more vulnerable to medicalization and the development of diseases[5]. The term 'climacteric' comes from the Greek *Klimactoni*, meaning crisis. During the 1st International Congress on Climacteric in 1976, the International Menopause Society identified the following concepts with regard to the climacteric: the period of a woman's life in which occurs the transition from the reproductive to the non-reproductive phase; and menopause, which is defined as an interruption of menstrual periods for at least twelve consecutive months[7]. Climacteric Syndrome was also conceptualized by the medical profession as the set of signs and symptoms occurring in this period[8]. The healthcare service provided to women should be more specific and comprehensive, and should be able to deal with a considerable number of women in the climacteric phase, either in its curative and preventive forms[8], since women constitute the majority of users who demand health services, besides spending more than 50 years - one third of their lives – in this phase[9]. Unfortunately, most women still experience the climacteric in silence, feeling uninformed and unprepared for this period of their lives. There is a considerable lack of information available to users of public services. This is far beyond the knowledge of hormone replacement therapy and anatomical and physiological mechanisms (biological and medicalization focus). In fact, there are several psycho-social factors involved in this stage of life[10,11,12]. The creation of the National Policy on Comprehensive Health Care for Women[2] attempted to break away from this current approach within the health services, trying to seek a more holistic approach so as to meet women's needs during all stages of their lives. However, there are difficulties in implementing this new paradigm, since the focus on disease is still very strong in terms of some of the proposed actions, a fact that hinders the provision of healthcare services for climacteric women[11]. It is possible to see

that there is still little time allowed for qualified treatment of this group of women as part of daily healthcare services. Unfortunately, the Brazilian healthcare system focuses on curative care based on Hormone Replacement Therapy (HRT), while health education, an important aspect for the development of self-care and active participation in decisions on body care, is not a systematic practice in everyday healthcare services[13]. Currently, even with all the modern advances and the increasing proportion of women entering the climacteric, this phase remains underrated and poorly addressed on training courses, which is precisely why healthcare professionals show little knowledge and awareness of climacteric women's needs[13]. In terms of maturity, the climacteric is characterized as the phase of a woman's life in which, as a result of the signs and symptoms resulting from bodily changes, women begin to reflect and wonder about their lives, and how other people would perceive them[7]. After all, contemporary society still considers breeding to be the only socially valued role for women. Accordingly, the climacteric is commonly confused with the menopause, being feared and stigmatized by society and surrounded by mysteries and taboos. Women at midlife, fear the climacteric because they believe that by ceasing their fertile period, they would no longer be useful, since they would have lost a part of themselves which defines and identifies them[9]. In addition, as if hormonal changes requiring physical, psychological and emotional adjustments were not enough, healthcare professionals also suffer with very long working hours and a strenuous workload. Moreover, there are aggravating factors such as shortage of professionals and the psycho-emotional stress experienced in the hospital environment[5,14]. The type and pace of working as a nurse triggers stress, pain, suffering and physical exhaustion, brought about not only by the hospital environment itself, but also by the process of dealing with patients showing different clinical status and the poor condition of the National Health System (SUS), such as, for example, the lack of human and material resources. Furthermore, because nurses have to carry heavy physical loads, they are particularly susceptible to osteoarticular problems. Also, few rest periods during the

typical workday increases the probability of diseases[15]. In addition, working night shifts and sleep disorders generate family disturbances, depressive tendencies, gastric problems caused by long hours without eating, and irregular intervals between meals. Socially, low wages and limited access to leisure are a source of distress and possible sources of psychiatric disorders[15]. Taking into account the issues surrounding nursing work and the body changes that occur in these woman professionals as a result of the climacteric, the object of this study is to identify the impact of the climacteric on the lives of professional nurses. Therefore, one particular question arose: What are the physical effects of the climacteric on healthcare professionals that interfere with the quality of assistance delivered by them? In order to answer this question, this study aims to identify the physical effects of the climacteric on professional nurses which directly influence the development of healthcare assistance.

METHOD

A qualitative approach with an exploratory descriptive design was used in this study. It was conducted at a University Hospital in the city of Rio de Janeiro. Participants were healthcare professionals working at two units and two surgical clinics, namely: a Health Centre Infirmary, a Urology Infirmary, a General Gynecology Infirmary and an Intensive Therapy Centre (ITC). The study participants included 9 healthcare professionals, among whom 6 are technical nurses and 3 are graduate nurses working at the units described. They worked during morning and evening shifts and on-call arrangements. The inclusion criteria were as follows: nurses between 35 and 65 years of age, who fitted the definition established by the Ministry of Health for the climacteric period, and were interested in participating in the study on a voluntary basis[5]. This research was conducted in accordance with Resolution 196/96 of the National Health Council/MH, which supervises research involving human beings[16]. The project was submitted to the Ethics Committee

in Research of the aforementioned University Hospital, and approved under Protocol 2569-CEP/HU - CAAE: 0008.0.228.00-10. All participants voluntarily agreed to collaborate after being informed about the study's aim, and formally confirmed their acceptance by signing an Informed Consent Form (ICF). Data collection was carried out through semi-structured individual interviews, following a previously elaborated questionnaire of 4 main open questions and 8 complementary questions. Interviews were recorded using an electronic device (MP3) and the interviews were subsequently transcribed and arranged in chronological order. The data produced were subjected to an analysis content technique(17) and broken down into categories. This process used the following steps: a reading of the whole material to achieve an overview of the data; the identification of relevant contents, i.e., information that stood out because of its similarity or dissimilarity. Then, it was broken down into emerging categories, as follows: bodily changes due to the climacteric presented by the healthcare professionals and the effects of the climacteric on the quality of life of these same professionals. After that, data were analyzed and compared to the relevant literature. It is noteworthy that only the first category was analyzed in this study. In order to maintain the anonymity of the participants, they were given the names of Brazilian stones.

RESULTS

The study's participants were 9 professional nurses, among whom 6 were technical nurses and 3 were graduate nurses. The characterization of the study population is shown in Table 1 below:

Table 1: Professional Nurses' Profile

Age group	**Abs. Fr.**	**Rel. Fr.**
35 – 45 years old	5	55.6%
46 – 55 years old	3	33.3%
56 – 65 years old	1	11.1%
Total	9	100.0%

Level of Education	**Abs. Fr.**	**Rel. Fr.**

High School	5	55.6%
University	4	44.4%
Total	9	100.0%

Sector	Abs. Fr	Rel. Fr.
Clinical Unit	4	44.4%
Surgical Unit	5	55.6%
Total	9	100.0%

Employment Bond	Abs. Fr.	Rel. Fr.
Only one employer	6	66.7%
Two or more employers	3	33.3%
Total	9	100.0%

After being questioned about the physical/biological and psychological/emotional changes experienced during the climacteric, approximately half of the respondents (55.5%), independently of age, said that they had not felt any changes up to the time of the interview.

> *None in particular. I have not entered the climacteric yet. Nothing has changed for me, I am still a woman who is extremely productive and, since I naturally feel hot, nothing new has happened (...)* (Amethyst)

> *I do not feel anything. I don't even have PMT, or cramping. I have nothing. I feel nothing, feel nothing, my menstruation is normal, everything is normal.* (Granada)

However, the same women who denied any changes, reported some kind of alteration on their bodies or behaviour as follows:

> *What distresses me even more is the emotional issue, you know? Any little thing shakes me emotionally. I'm more sensitive, this is what most affects me. [...] I get emotional more easily. Get irritated more easily. [...] Because I feel like a pressure pan ready to explode... but when I used to get my periods, it would give me relief, that feeling of well-being.* (Emerald)

> *You feel okay, but after a while you do not have patience with anything, everything annoys you [...] I've become less patient.* (Ruby)

After that, we have identified the symptoms that most annoy women during the climacteric. These are "heat waves" (hot flushes) followed by intense sweating. Such complaints were noted in the comments of four of the participants:

> *What bothered me most was that I used to get soaked in sweat. [...] It did not cease completely, sometimes it happened once a day, sometimes I spent three, four days without feeling it, but then I felt it again. You sweat, you know, that warmth inside. My face would get all wet, although I do not normally sweat. Then it would happen and my face would drip with sweat.* (Sapphire)

> *The heat is too much and my legs hurt when the heat comes, you know? [...] Sometimes it happens a few days in a row, three days, then I don't have it for a week, it isn't regular [...] and at some moments during the day, during the 24 hours.* (Pearl)

On these occasions, women realize that their bodies are in transition, and that changes occur not only in their bodies, but also in psychosocial interactions. Among the participants, three women reported mood swings as one of the most annoying factors, along with the previously mentioned emotional lability.

> *Changes in mood, for me, are the worst. You feel okay, but after a while you do not have patience with anything, everything seems irritating. [...] But the mood changes are sudden and extreme. Very sharp, as if you don't have patience, you try to make people do everything quickly. Do you know? This is bad. [...] It changes a lot, the problem is mood, it changes a lot. [...] Among the changes in the climacteric, there were days that I was alright, there were days that I was in a really bad mood...* (Ruby)

Apart from the unpleasant signs and symptoms experienced by women during the climacteric, pains in general, alterations of the phaneros, dry skin and vaginal mucosa are also noteworthy:

> *Vaginal dryness bothers me a lot because I have libido, but it is uncomfortable during sex. This causes me so much trouble. My husband is a very understanding person, you know, but it really is what causes me more discomfort because sometimes I'm afraid of having sex, you know, I feel desire, I feel comfortable, my body is asking for it, but I freeze. Then it messes up everything, you know? That's my greatest problem nowadays.* (Sapphire)

> *Sometimes I was doing, let's say, going to do a certain thing, then I would go back because I could not remember what I was going to do. Aging is an art, because I'll tell you, I'd begun to realize I was getting older, you know?* (Ruby)

DISCUSSION

The climacteric is not a disease, but a natural step in a woman's life. As observed in the participants' speeches, many of them pass through it without complaint; however, throughout the interviews, we noticed that, although the participants denied the existence of symptoms, they reported some body changes. There are two possible reasons for not reporting such symptoms – that the signs and symptoms are so mild that the participants did not even notice them or were able to live harmoniously with them; or, as they are considered normal in the aging process, they would not be considered important. With the drop in estrogen levels in the climacteric, several changes may occur in women's bodies and minds, from physical and hormonal changes to psychological and social ones. However, this decrease may or may not manifest itself in signs and symptoms during this period[9]. For some women, the climacteric goes unnoticed, being overtaken by events, concerns and daily activities. Heavy workloads and double loads (as mother and as professional), are commonly experienced by women who work outside the home, allowing them less time for self-care and self-awareness. Regarding knowledge of this stage of life, we have found that there are differences between technical and graduate nurses, since the professionals with the higher level of education are more empowered in relation to the others. It was evident that the graduate nurses were able to identify the early changes caused by the climacteric, and seek ways to cope with the demands of these changes. With regard to the symptoms that mostly bother these women, irritability and emotional lability were most evident in the speeches of these 6 (66.6%) women. It is important to emphasise that there were some contradictions in the statements, due to differences in age among the participants. Some of them are at the beginning of the climacteric and the symptoms have not yet been noticed (or maybe they do not want to believe that they exist) and the others, because the symptoms are already evident, are unable to recognize body changes. Indeed, it is true that some

women go through the climacteric without complaint or need for medication, while other women report symptoms that vary in intensity and diversity[5]. In general, the symptoms reported by some of the participants are characterized by metabolic and hormonal alterations, which may also bring about changes involving the psychosocial context. It is well-known that estrogens can play a moderating action with regard to neurotransmitters, especially serotonin, the one related to mood. There is also a relationship between the decrease in estrogen and the increase in cases of depression in more susceptible women[5]. Women who are going through the climacteric live a troubled life. Many face low self-esteem, feel more depressed, misunderstood and isolated, feelings that all women in particular experience at some point in life. Some of these healthcare professionals face exhausting workloads and a physically and psychologically strenuous routine, which makes them irritable and depressed, intensifying their emotional lability. Adding to this idea, some studies have shown that the workplace is no longer just a place for executing tasks. It is now regarded as a place that can cause illness, pleasure and affect the quality of life, mainly because these women do not feel as attractive and active as before[18,19]. It is necessary to go back to this issue in order to think of ways to promote quality of life in the workplace to neutralize stress at work[17]. Returning to the issues surrounding the symptoms, the "heat waves" (hot flushes) and intense sweating were identified as the most annoying symptoms on the part of the interviewees. According to them, this symptom is characterized by an increase in body temperature of no pre-determined time and duration. It may occur from one to several times a day, on consecutive days or be absent for days. In the periclimacteric period, more than half of the women experienced vasomotor or classic neurovegetative symptoms such as hot flushes, with or without sweating, and a variety of neuropsychiatric symptoms. Hot flushes or "heat waves" "…manifested as a transient sudden and intense feeling of heat in the skin, especially on the trunk, neck and face, which may show hyperemia, most often accompanied by sweating"[5:34]. Heat waves are

very common during the climacteric and make it very inconvenient and unpleasant for women. Women in that period undergo many social and personal constraints, e.g., vaginal dryness, weight gain, irritability and hot flushes, all of which greatly intensify their usual discomfort[19]. It is also important to note the alterations to the phaneros, skin and vaginal mucosa. It seems that such physical/ physiological changes may impact directly on their family, social and professional relationships[21]. Considering the assumptions of the Comprehensive Health Care for Women Program, it is necessary to value the lives of professionals going through this period, promote self-awareness and self-care, and also observe their limitations and even the new skills acquired in this new stage of life. The increase in the population's life expectancy, in particular that of Brazilian women, which is about ten years more than that of men, should be considered, especially in the workplace. However, our society tends to overrate standardized beauty and directly associates success with youth. This ultimately promotes tension and interferes with women's self-esteem, reflecting on their physical, mental and emotional condition, which consequently interferes with their family, social and professional relationships[5].

CONCLUSION

Through the participants' reports, this study has identified the following body changes: hot flushes, sweating, irritability, emotional lability, mood swings, general pain, alterations of the phaneros, dry skin and vaginal mucosa, and a perception of the aging process. These data correspond to those reported in the relevant literature. Nevertheless, they are often hidden, denied or overlooked by women. Body changes resulting from the climacteric affect women's lives on many levels: interpersonal relationships; development of social roles, both mother-wife and professional; discomfort with the aforementioned body changes; representation of body image in terms of social standards; cultural context; and especially the way they understand the aging process. However,

considering that the climacteric is a physiological period in the life of every woman, it is possible to say that body changes vary according to the individuality of each woman. The vast majority of participants have reported no body or psychosocial modifications or changes during the first stage of the interview. It is reasonable to argue that the negative answers relating to the changes might be an attempt to deny the aging process. It might be difficult for them to admit that the changes may be due to aging since they are active professional women. In this sense, the relationship between the symptoms and the climacteric becomes far-fetched. Thus, it seems more reasonable to say that the changes experienced during this period are due to a transition in life's pace or changes in habit rather than due to the climacteric. This is, for some women, a period of exacerbation of some psychological problems, unpleasant feelings and body sensations. Awareness of the aging process makes them look at their lives in retrospect, and this can lead to psychological reactions; the mere thought of getting old can be a cause of depression. Despite being just another stage of life, not all women are prepared to experience it. The participants in this study, although aware of the possible body changes, did not place much importance on such sensations, possibly because they cannot find time to take care of themselves. Therefore, it is essential to have healthcare professionals duly prepared in order to provide proper assistance to these women, focusing on a holistic approach. Departments of healthcare should offer opportunities for discussion on issues related to the climacteric, when women would be able to expose their problems and ways to deal with the changes in order to create a support network among professionals. In this way, as soon as these women notice body alterations, they will be able to seek treatment, especially non-allopathic, to help them deal with these changes. Another suggestion is that Nursing Schools, which receive mostly female students, should try to include this discussion in the areas and sub-areas of the curriculum so as to prepare the students, who are in their late teens and early adulthood, to take care of their own bodies and understand the transformations that the body

undergoes and why. Thus, such actions could help women cope with a period which is full of changes, and seek quality of life in order to overcome the limitations experienced during this life stage.

REFERENCES

1. Ministério da Saúde (BR). Assistência integral à saúde da mulher: bases da ação programática. Brasília: Ministério da Saúde; 1984.
2. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Ações Programáticas Estratégicas. Política Nacional de Atenção Integral à Saúde da Mulher - Princípios e Diretrizes. Brasília: Ministério da Saúde; 2004.
3. Penna LHG, Clos AC. Editorial. Rev Enf UERJ. 2009 jan; 17(1):7.
4. Instituto Brasileiro de Geografia e Estatística [Homepage in the internet]. 2009 [cited 2009 oct 05]. Available from: http://www.ibge.gov.br/paisesat/main.php.
5. Ministério da Saúde (BR). Manual de Atenção à Mulher no Climatério/Menopausa. Brasília: Ministério da Saúde; 2008.
6. Trancoso E, Leone PB. A mulher na recuperação recente do mercado de trabalho brasileiro. Rev Bras Est Pop. 2008 jul; 25(2): 233-49.
7. Almeida LHRB, Luz MHBA, Monteiro CFS. Ser mulher no climatério: uma análise compreensiva pela enfermagem. Rev Enf UERJ. 2007 jul; 15(3):370-5.
8. Federação Brasileira das Sociedades de Ginecologia e Obstetrícia. Climatério: Manual de Orientação; 1995.
9. Zampieri MFM, Tavares CMS, Hames MLC, Falcon GS, Silva AL, Gonçalves LT. O processo de viver e ser saudável das mulheres no climatério. Esc Anna Nery Rev Enferm. 2009 abr; 13(2):305-12.
10. Mendonça EAP. Representações médicas e de gênero na promoção da saúde no climatério/menopausa. Ciênc saúde coletiva. 2004**;** 9(1):155-66.
11. Freitas GL, Vasconcelos CTM, Moura ERF, Pinheiro AKBP. Discutindo a política de atenção à saúde da mulher no contexto da promoção da saúde. Rev Eletr Enf. [serial in the internet]. 2009 [cited 2010 sep 29]; 11(2):424-8. Available from: http://www.fen.ufg.br/revista/v11/n2/pdf/v11n2a26.pdf.
12. Kantoviski ALL, Vargens OMC. O cuidado à mulher que vivencia a menopausa sob a perspectiva da desmedicalização. Rev Eletr Enf [serial in the Internet]. 2010 [cited 2012 set 10]; 12(3): 567-70. Available from: http://www.fen.ufg.br/revista/v12/n3/v12n3a22.htm.
13. Berni NIO, Luz MH, Kohlrausch SC. Conhecimento, percepções e assistência à saúde da mulher no climatério. Rev Bras Enferm. 2007; 60(3):299-306.
14. Guimarães LAM, Grubits S. Saúde mental e trabalho. São Paulo: Casa do Psicólogo; 1999.
15. Pitta A. Hospital – dor e morte como ofício. 3ª ed. São Paulo: Hucitec; 1994.
16. Ministério da Saúde (BR). Conselho Nacional de Saúde. Resolução 196/96, de 10 de outubro de 1996. Estabelece as Diretrizes e Normas Regulamentadoras de Pesquisas envolvendo Seres Humanos. Diário Oficial da União 16 out 1996.
17. Mininel VA. Promotion of nursing workers quality of life (QOL): managerial responsibility of nurses. Online braz j nurs [serial in the internet]. 2008. [cited 2010 jun 10]; 7(3). Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/j.1676-4285.2008.1866/417

18. Oliveira DM, Jesus MCP, Merighi MAB. Climatério e sexualidade: a compreensão dessa interface por mulheres assistidas em grupo. Texto & Contexto Enferm. 2008; 17 (3):519-26.
19. Reis LM, Moura AL, Haddad MCL, Vannuchi MTO, Smanioto FN. Influência do climatério no processo de trabalho de profissionais de um hospital universitário público. Cogitare Enferm. 2011 Abr; 16(2):232-9.

Participation of each author in the study:
Conception of the idea: Mariana N. Giron, Thamyres C. Fonsêca, Lina Márcia M. Berardinelli and Lucia Helena G. Penna
Data Collection: Mariana N. Giron and Thamyres C. Fonsêca
Interview Transcriptions: Mariana N. Giron and Thamyres C. Fonsêca
Content Analysis: Mariana N. Giron, Thamyres C. Fonsêca, Lina Márcia M. Berardinelli and Lucia Helena G. Penna
Revision: Lina Márcia M. Berardinelli and Lucia Helena G. Penna

Received: 29/03/2012
Approved: 20/09/2012