Profile of hypertensive patients: biosocial characteristics, knowledge, and treatment compliance*

Perfil de um grupo de hipertensos: aspectos biossociais, conhecimentos e adesão ao tratamento

Perfil de un grupo de hipertensos: aspectos biosociales, conocimientos y adhesión al tratamiento

Elaine dos Santos Jesus[1], Monica Aparecida de Oliveira Augusto[1], Josiane Gusmão[2], Décio Mion Júnior[3], Kátia Ortega[4], Angela Maria Geraldo Pierin[5]

ABSTRACT

Objective: To characterize a group of hypertensive patients in relation to beliefs, knowledge, attitudes and factors that could affect treatment compliance. **Methods:** The data were collected by interviewing hypertensive outpatients. **Results:** A total of 511 hypertensive patients were studied: most were women, white, with elementary education, and 53±11 years old. The patients had high levels of knowledge about hypertension and treatments. However, they interrupted the treatment due to the expensive medicines and the lack of instructions. Furthermore, they believed they had to take medicines only when they felt unwell, and they did not attend their medical appointment usually due to forgetfulness and personal problems. Regarding the attitudes against the antihypertensive treatment, hypertensive patients forgot to take the medicines, took the medication at different hours, stopped taking the medication on their own account, did not follow instructions, and did not exercise regularly. **Conclusion:** The profile of the hypertensive patients identified aspects that can hamper treatment compliance.
Keywords: Hypertension/prevention & control; Hypertension/therapy; Knowledge, attitudes and health practice; Psychosocial disease effects

RESUMO

Objetivo: Caracterizar um grupo de hipertensos em relação a crenças, conhecimentos, atitudes e fatores que podem interferir na adesão ao tratamento. **Métodos:** Os dados foram coletados através de entrevista com hipertensos em seguimento ambulatorial. **Resultados:** Foram estudados 511 hipertensos: a maioria mulheres, brancas, com escolaridade de nível fundamental, 53,0 ±11,0 anos. Foram verificados índices elevados de conhecimento sobre a doença e tratamento. Porém, o tratamento foi interrompido devido a remédios muito caros e falta de orientação e acreditavam que devem tomar os medicamentos somente quando se sentem mal, além de faltarem à consulta médica, principalmente por esquecimento e problemas particulares. Em relação às atitudes frente ao tratamento, observou-se que esquecem de tomar os remédios, não tomam no mesmo horário, deixam de tomar por conta própria, não seguem as orientações e não praticam exercícios físicos regularmente. **Conclusão:** A caracterização dos hipertensos identificou aspectos que podem dificultar a adesão ao tratamento.
Descritores: Hipertensão/prevenção & controle; Hipertensão/terapia; Conhecimentos, atitudes e prática em saúde; Efeitos psicossociais da doença

RESUMEN

Objetivo: Caracterizar a un grupo de hipertensos en relación a las creencias, conocimientos, actitudes y factores que pueden interferir en la adhesión al tratamiento. **Métodos:** Los datos fueron recolectados a través de una entrevista a hipertensos con seguimiento en consulta externa. **Resultados:** Participaron 511 hipertensos: la mayoría mujeres, blancas, con un nivel de escolaridad primario y edad de 53,0 ±11,0 años. Fueron verificados índices elevados de conocimiento sobre la enfermedad y el tratamiento. Sin embargo, el tratamiento fue interrumpido debido a medicamentos muy caros y falta de orientación, considerando que deben tomar los medicamentos solamente cuando se sienten mal, además se identificó falta a la consulta médica, principalmente por olvido y problemas particulares. En relación a las actitudes frente al tratamiento, se observó que olvidan de tomar los remedios, no lo hacen en el mismo horario, dejan de tomar por cuenta propia, no siguen las orientaciones y no practican ejercicios físicos regularmente. **Conclusión:** la caracterización de los hipertensos permitió identificar aspectos que pueden dificultar la adhesión al tratamiento.
Descriptores: Hipertensión/prevención & control; Hipertensión/terapia; Conocimientos, actitudes y práctica en salud; Costo de enfermedad

* *This study was performed at an outpatient health service (Liga de Hipertensão - Hypertension League) of a teaching hospital in the city of São Paulo.*

[1] *Nursing Undergraduate. Universidade de São Paulo (USP) at the School of Nursing - São Paulo (SP), Brazil. Holder of a PIBIC, CNPq Grant.*
[2] *Nurse PhD,Program Nursing in Adult Health, School of Nursing Universidade de ão Paulo - USP - São Paulo (SP), Brazil.*
[3] *Associated Professor, School of Medicine, Universidade de ão Paulo - USP - São Paulo (SP), Brazil.*
[4] *Physician, School of Medicine, Universidade de ão Paulo - USP - São Paulo (SP), Brazil.*
[5] *Full Professor. Universidade de São Paulo (USP) at the School of Nursing - São Paulo (SP), Brazil.*

Corresponding Author: **Angela Maria Geraldo Pierin**
R. Heitor Penteado, 250 - Apto 63 - São Paulo - SP
CEP. 05403-800 E-mail: pierin@usp.br

Received article **09/04/2007** and accepted **18/05/2007**

INTRODUCTION

The main purpose of an antihypertensive treatment is to reduce the morbidity and mortality of cardiovascular diseases[1]. Although arterial hypertension can be controlled by drug and non-drug treatments, the disease-control rates remain low. Studies have shown that only about one third of hypertensive patients have their blood pressure under control[2-3]. This unsatisfactory control by hypertensive patients is considered to be in straight connection with poor treatment compliance.

Compliance can be characterized as the extent to which the individual's behavior agrees with the health treatment, in terms of taking the medication, following the diet, performing changes in lifestyle, and attending the medical appointments[4]. Many factors can interfere in the compliance process and may be related to the patient's profile, such as biosocial characteristics, health beliefs, life habits, and cultural aspects; in addition to the characteristics associated with the disease and treatment[5].

Therefore, hypertensive patient attitudes, such as attending appointments and interrupting treatment on their own account, may be used as parameters to assess the degree of treatment compliance[6].

Psychosocial factors are agents that may also interfere in treatment compliance within the context of chronic diseases. A review article about the barriers for participating in heart rehabilitation programs includes the feeling of well-being as an element linked to treatment compliance[7].

The lack of treatment compliance is a hindrance to reaching therapy objectives and may become a source of frustration for health professionals. The nurse is a key element in the process of delivering health care to hypertensive patients. Therefore, nurses should know their patients' profile and real needs. Thus, from these needs, strategies should be implemented with a view to achieve a higher degree of treatment compliance and further control of blood pressure levels. Hence, the purpose of the present study was to: characterize a group of hypertensive patients in term of their biopsychosocial variables, beliefs, knowledge about the disease and its treatment, and attitudes such as interrupting the treatment and missing appointments.

METHODS

It is a quantitativ study using a descriptive and cross-sectional approach. Data were collected by interviewing hypertensive patients in their first visit, using a specific form from the service where the study was performed[8]. Biosocial and life habits were assessed to identify hypertensive patients, and women were also interviewed about the presence of hypertension during pregnancy and menopause. The anthropometric assessment consisted of measuring the abdominal circumference, weight and height to calculate the body mass index [weight (Kg)/height $(m)^2$]. Beliefs and knowledge on hypertension and its treatment were assessed by means of 'yes or no' questions about the effect of age and heredity on hypertension, its "cure" and symptoms, and blood pressure values that indicate abnormalities. Attitudes towards the drug treatment were investigated with questions about forgetfulness and medicine intake schedule, if he/she takes the medicine when traveling, if he/she gets a refill before running out of medicine, and if he/she takes the medicine even when the blood pressure is under control. Participants were also asked if they had ever interrupted the treatment on their own account and if they missed any appointments over the past year; if so, they were asked what the reasons were. As an attempt to assess the hypertensive patient's feeling towards his/her life, the Andrews Scale was used. This scale consists of a visual interspaced scale of 7 points[9], with stylized faces, referring to the predominant mood concerning the following question 'Which of these faces better represents your life as a whole?'.

The study was performed at an outpatient service (The Hypertension League - Liga de Hipertensão) of a teaching hospital in São Paulo, after being approved by the Research Ethics Committee. The inclusion criteria were: hypertensive adults, of both genders, of any color, and willing to provide written consent. A convenience sample was established, consisting of 511 hypertensive patients, with minimum refusal to participate in the study.

In order to be considered hypertensive, the participants should have at least one of the following criteria: a hypertension diagnosis in the medical record, use of antihypertensive therapy, and blood pressure levels equal to or higher than 140/90 mm Hg. The blood pressure was measured three consecutive times, in a calm environment, with a validated automatic device. The device was worn on the left arm. Participants remained seated and with the arm supported at the height of the heart. Measurements were taken after 5-10 minutes of rest, and before performing the interview for data collection. The classificatory variables are presented in detail in tables containing absolute and relative frequencies.

RESULTS

The studied hypertensive patients were most women,

white, married, with a low educational level. Regarding their occupation, most were homemakers, performed household services, or had retired, and had a low income. Regarding age, most were in their fifties. The body mass index was borderline overweight; 39.1% were overweight and 43.2% were obese. Regarding waist measure, 33% men presented a waistline above 102 cm, and 74% women above 88 cm, which are the highest limits allowed. There was a predominance of blood pressure over 140/90 mmHg, and 85% of men and 74% of women had no control over their blood pressure. Almost half the women reported having hypertension during pregnancy; more than half were in menopause, and only 13% reported being on a hormone replacement therapy. Regarding life habits, most said they never smoked, drank alcoholic beverages, or exercised on a regular basis. (Table 1).

Table 1 - Biosocial features of hypertensive patients

Variables	ANSWERS	
	n	%
Gender		
Female	347	67,9
Male	164	32,1
Ethnic Group		
White	288	56,4
Non White	223	43,6
Marital Status		
With partner	342	66,9
Without partner	169	33,1
Education		
Illiterate/ Read and write	109	21,3
First Grade	296	57,9
Second Grade	80	15,7
Third Grade	26	5,1
Occupation		
Housewife	111	21,7
Household services	110	21,5
Retired	101	19,8
General and burocratic services	68	13,3
Specific functions	39	7,6
Autonomous	24	4,7
Work service/maintenance	22	4,3
Others*	36	7,0
Family income (Minimum wage)		
< 5	286	56,0
5 to10	123	24,0
10 to 20	92	18,0
< 20	10	2,0
Hipertension during pregnancy	151	46,7
Menopause	225	64,8
Hormone replacing treatment	45	13,0
Smoking	68	13,4
Alcoholism	44	8,6
Physical activity	115	22,6
Age (average±DP, years)	53,0±11,0	
Waist (cm, average±DP)	97,7±12,2	
Body Mass Index (kg/m²average±DP)	29,04±4,35	
Systolic Pressure (mmHg, mean±DP)	151,3±20,5	
Diastolic Pressure (mmHg, mean±DP)	91,8±15,5	

Others*: university degree, technical degree, unemployed, on illness leave.

Regarding beliefs and knowledge about arterial hypertension, Table 2 shows that less than half mentioned that hypertension is a life-long issue like diabetes, or that it is as serious as cancer. An expressive percentage mentioned that the treatment would last for life (84.1%) and that the disease does not have a cure (67.5%). The data still show that over a third believed that there was nothing they could do to avoid arterial hypertension; most (77.1%) mentioned knowing about the influence of heredity, and 13.5% agreed that younger people have arterial hypertension. It was also found that less than half believed that hypertension does not have symptoms (44.2%) and most believed that "high pressure means values above 140x90 mmHg".

Table 3 shows that over a third of the interviewees reported having interrupted the treatment, for various reasons, including: the medicine is expensive; they were not instructed about the need to take the medicines; they believed they needed to take medicine only if they felt unwell; and others. Data also showed that less than a fourth of patients did not attend the medical appointment, for reasons such as forgetfulness, personal or family problems, being out of town, and to avoid missing work.

Table 2 - Beliefs and knowledge on arterial hypertension and its treatment

VARIABLES	n	%
High pressure is		
For life, like diabetes	237	46,5
As serious as cancer	220	43,1
Temporary, like a cold	53	10,4
High pressure treatment length		
The entire life	430	84,1
< 1 year	44	8,6
1 to 5 years	37	7,2
High pressure has a cure		
No	345	67,5
Yes	166	32,5
Hypertension treatment may avoid:		
Infarction	483	94,5
Stroke	492	96,3
Renal problems	417	81,6
Impotence	329	64,4
Do you agree with the following statements?		
There is nothing I can do to avoid high blood pressure.		
Yes	177	34,6
No	334	65,4
If my father has high blood pressure I may have it too.		
Yes	394	77,1
No	117	22,9
Young people do not have high blood pressure.		
Yes	69	13,5
No	442	86,5
High blood pressure does not have symptoms.		
Yes	226	44,2
No	285	55,8
Blood pressure is high if above 140x90 mmHg.		
Yes	438	85,7
No	73	14,3

Table 3 - Reasons for interrupting treatment and missing appointments, reported by the hypertensive patients

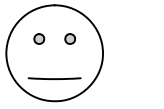
Variables	n	%
Treatment interruption	193	37,8
Reasons:		
Expensive medicine	50	23,9
Did not receive instructions	31	14,8
Should take medicine only when feeling unwell	26	12,4
Difficulty in following treatment	19	9,1
Thinks he/she is cured	14	6,7
Forgetfulness	11	5,3
Undesired side effects	10	4,8
Not availavle at the hospital pharmacy or no free	8	3,8
Got tired of taking the medicine	6	2,9
Does not feel the need for treatment	6	2,9
Moved to another neighborhood, state; or was tra	6	2,9
Does not feel anything	5	2,4
Medical indication, high	5	2,4
Believes hypertension is not so serious	4	1,9
Stopped to get some exams done	4	1,9
Others*	4	1,9
Missing medical appointment	117	22,9
Reasons:		
Forgetfulness	25	20,5
Personal/family problems	25	20,5
Trip	17	13,9
Not to be absent at work	15	12,3
No money for transportation	10	8,2
Surgery, disease, exams	9	7,4
Bus strike	6	4,9
Treatment was not necessary	5	4,1
Office hours	4	3,3
Others**	6	4,9

* Others: Stopped near medical return / awaited for a new appointment; took medicine by him/herself; afraid of making the blood pressure go too low.
**Others: distance, waiting time, barely informed about returning, lack of time.

Table 4 - Hypertensive patients' attitudes towards treatment and disease

Attitudes	Never		Rarely/ sometimes		Always	
	n	%	n	%	n	%
Forgets to take the medicine	323	63,2	164	32,1	24	4,7
Takes medicine at the same hours	35	6,8	138	27,0	338	66,1
Takes medicine when traveling	17	3,3	17	3,3	477	93,3
Buys medicine before running out	28	5,5	82	16,1	401	78,5
Takes medicine when blood pressure is under contol	61	11,9	43	8,4	407	79,6
Does not take medicine by on own account	380	74,4	97	18,9	34	6,7
Does not attend appointment	427	83,6	84	16,4	-	-
Arrives late to to appointment	440	86,1	70	13,7	1	0,2
Follows diet recommendations	33	6,5	58	11,4	420	82,2
Exercises regularly	325	63,6	90	17,6	96	18,8

Table 5 - Assessment about hypertensive patients' feelings towards life. São Paulo, 2006

Which of these faces best represents your life as a whole?		n	%
1		70	13,7
2		158	30,9
3		103	20,2
4		63	12,3
5		65	12,7
6		29	5,7
7		23	4,5

Regarding attitudes toward the hypertension treatment, over a third of hypertensive patients mentioned they rarely, sometimes, or always forgot to take the medicine; however, a higher percentage reported they always take the medicines at the same hour (66.1%), and they always take them when they travel (93.3%). Around 20% answered that they do not get a refill or purchase more medicine before they run out, and never or rarely take medicine when their blood pressure is under control. Participants also reported they stopped taking the medicine on their own account, missed or arrived late to medical appointments, and never or rarely follow instructions about their eating habits and exercising regularly (Table 4).

The hypertensive patients were asked chose from to a sequence of seven faces, and to point to the one that best represented his/her feeling about life as a whole. Most of them chose faces 1, 2, and 3, showing a higher degree of satisfaction (13.7%, 30.9%, and 20.2%, respectively) (Table 5).

DISCUSSION

Data from this study showed important aspects within the hypertensive patients' profile that should be considered when assessing their compliance to the treatment. Quantifying treatment compliance is no easy task. Literature shows that it can be done directly or indirectly. In the direct method there is the patient's report, physician's opinion, patient's diary, pill counting, getting refills, clinical response, and electronic medication control. The indirect method consists of biological analysis and analyzing the tracing compound derived from the medicine[10]. In clinical practice, attending medical appointments and controlling blood pressure levels are used as indicators.

The present study findings revealed a significant percentage of non-controlled hypertensive patients, above the rates reported in literature. One possible explanation is that the patients were interviewed when they were being first seen at the hypertensive outpatient clinic and most of them had been forwarded from another service. Furthermore, almost 38% reported treatment interruption and 23% did not attend medical appointments. The most common reason reported for interrupting the treatment was the price of the medicine, which is categorized as an institutional aspect resulting from unsatisfactory free access to the drug treatment. On the other hand, the reasons reported for not attending the appointments were forgetfulness and personal and family issues. Forgetfulness was also mentioned as a reason for not taking the medicine. This is a negative attitude that may show lack of involvement with his/her health disease, despite having identified the hypertensive patients' knowledge about: chronicity and the severity of the disease; need of treatment for life; complications caused by hypertension when not treated; lack of specific symptoms and blood pressure values that characterize hypertension.

Patient knowledge about the disease and its treatment is a variable to be considered within the context of treatment compliance. Studies[2-3, 11-12] have shown that, in general, hypertensive patients have the information about his/her problem, however they are not properly controlled. The discrepancy between having information about the disease and its treatment and being able to control blood pressure shows the essential difference between knowledge and compliance. While knowledge is rational, compliance is a complex process that involves biosocial and emotional factors, and concrete practical and logistical barriers.

Regarding the studied patients' biosocial characteristics, the gender variable requires especial attention. A study[13] performed in our environment showed that young, nonwhite men did not have knowledge about hypertension and its treatment. A research [14] on the prevalence of the referred arterial hypertension, perception of its origin, and control measures in the metropolitan area of São Paulo, showed that women sought health care more often than men did. Moreover, the study also assumes women have a more precise perception of their health condition and develop greater relations with health services due to their characteristics and reproductive role.

Age also merits notice because systolic blood pressure tends to increase with age and diastolic blood pressure increases until the age of 50 in men, and 60 in women[1], which is the age average found for the hypertensive patients studied. Another important fact to be stated is that most women in the study were in menopause, a period that can lead to heart diseases due to the loss of hormonal protection. Coronary arterial disease appears, in average, 10 years later in women than in men, due to the protective effect of estrogens, and the prognostic of acute myocardial infarction is worse in women[15]. The hypertensive patients presented a higher body mass index and borderline abdominal circumference measure, which are important factors that contribute for elevating blood pressure and heart disease rates.

Habits and life styles are also variables that should be assessed when characterizing the hypertensive patients, due to their association with non-drug treatment measures. The adoption of healthy life styles, like restricting alcoholic beverage intake, quit smoking, following a low-salt and low-calorie diet, managing stressful situations, and exercising regularly should be part of the care delivered to hypertensive patients.

Regarding life habits, the failure to keep a regular exercise program calls attention, because sedentary hypertensive patients achieve clinically significant reductions in blood pressure with a modest increase in physical exercises, above sedentary levels[16]. The importance of changing the life habits of a population by means of educational programs that provide the necessary information and tools should be part of health programs and receive special attention from the nurses.

The relation between personality traits and treatment compliance is controversial. However, variables like feelings of well being, socialization, and the capacity of being equal to others are elements of personality measures and may be associated with treatment compliance and consequent disease control[7-16]. In the

attempt to assess how patients felt about their lives as a whole, the present research observed that most of the studied hypertensive patients reported they were satisfied, which is a positive datum and may be an ally to promote treatment compliance. Another study performed in our environment found a significant association between hypertension control ($p<0.05$) and the statements of controlled and non-controlled hypertensive patients about how they felt towards life as a whole. In the non-controlled hypertensive group[17], faces 5, 6, and 7 were chosen more often, indicating more sadness. British and American researchers use various subjective research methods to analyze people's well-being, also called life satisfaction measures. Some studies use images, others use words, but every question essentially addresses how people feel about their lives. Different techniques bring similar results. Although happiness is hard to measure with material circumstances, it seems consistent for the ones who do not have any. A study about aging with 5,000 adults showed that happier people in 1973 remained happy for another decade, despite changes in work, residence and family status[18] Myers DG, Diener E. The pursuit of happiness. Sci Am. 1996; 274(5): 70-2.

Although this study is not compared to blood pressure levels, it is well known that stress and emotional factors affect pressure levels. Hence, making an effort to handle stressful situations and circumstances leading to sadness may contribute to reduce blood pressure levels.

CONCLUSIONS

The results showed that despite having knowledge about the disease and treatment, and showing satisfactory degrees of well being, a considerable number of hypertensive patients present biosocial characteristics and adverse attitudes against the disease in addition to failure in controlling blood pressure levels. Therefore, it is inferred that this population's treatment compliance, in the moment of data collection, is inadequate. The lack of compliance to the antihypertensive treatment is an undeniable fact and should be recognized by nurses in clinical practice. A strong effort should be made to enhance resources and strategies to minimize or avoid this frequent problem. Multiple approaches should be adopted in order to integrate hypertensive patients, treatment, and health team. Thus, nurses should plan their actions with the hypertensive population considering these clients' profiles so that health care is expanded so as to meet their real needs.

REFERENCES

1. Sociedade Brasileira de Cardiologia/ Sociedade Brasileira de Hipertensão/ Sociedade Brasileira de Nefrologia. V Diretrizes Brasileiras de Hipertensão Arterial [texto na Internet]. São Paulo: 2006. [citado 2007 Jun 12]. Disponível em: http://publicacoes.cardiol.br/consenso/2006/VDiretriz-HA.pdf
2. Strelec MAAM, Pierin AMG, Mion Júnior D. A influência do conhecimento sobre a doença e a atitude frente à tomada de remédios no controle da hipertensão arterial. Arq Bras Cardiol. 2003; 81(4):349-54.
3. Sanchez CG, Pierin AMG, Mion Júnior D. Comparação dos perfis dos pacientes hipertensos atendidos em Pronto-Socorro e em tratamento ambulatorial. Rev Esc Enferm USP. 2004; 38(1):90-8.
4. Horwitz RI, Horwitz SM. Adherence to treatment and health outcomes. Arch Intern Med. 1993; 153(16):1863-8. Review.
5. Pierin AMG, Strelec MAAM, Mion Júnior D. O desafio do controle da hipertensão arterial e a adesão ao tratamento. In: Pierin AMG, coordenadora. Hipertensão arterial: uma proposta para o cuidar. Barueri: Manole; 2004. cap 16. p.275-89.
6. Coelho EB, Moysés Neto M, Palhares R, Cardoso MCM, Geleilete TJM, Nobre F. Relação entre a assiduidade às consultas ambulatoriais e o controle da pressão arterial em pacientes hipertensos. Arq Bras Cardiol. 2005; 85(3): 157-61.
7. Daly J, Sindone AP, Thompson DR, Hancock K, Chang E, Davidson P. Barriers to participation in and adherence to cardiac rehabilitation programs: a critical literature review. Prog Cardiovasc Nurs. 2002; 17(1):8-17.
8. Gusmão JL, Pierin AMG, Machado CA, Ortega K, Mion Júnior D. Papel das associações e ligas de hipertensão arterial: uma proposta de assistência. In: Pierin AMG, coordenadora. Hipertensão arterial: uma proposta para o cuidar. Barueri: Manole; 2004. p.335-66.
9. Andrews FM, Withey SB. Developing measures of perceived life quality: results from several national surveys. Soc Indic Res. 1974; 1(1):1-26.
10. Oigman W. Métodos de avaliação da adesão ao tratamento anti-hipertensivo. In: Nobre F, Pierin AMG, Mion Júnior D. Adesão ao tratamento: o grande desafio da hipertensão. São Paulo: Lemos; 2001. p.37-46.
11. Magro MCS, Silva EV, Riccio GMC, Guerra GM. Percepção do hipertenso não-aderente à terapêutica medicamentosa em relação à sua doença. Rev Soc Cardiol Estado de São Paulo. 1999; 9(1):1-10.
12. Mano GMP, Pierin AMG. Avaliação de pacientes hipertensos acompanhados pelo Programa Saúde da Família de um Centro de Saúde Escola. Acta Paul Enferm. 2005; 18(3):269-75.
13. Pierin AMG, Mion Júnior D, Fukushima JT, Pinto AR, Kaminaga MM. O perfil de um grupo de pessoas hipertensas de acordo com conhecimento e gravidade da doença. Rev Esc Enferm USP. 2001; 35(4):11-8.
14. Sousa A L. Educando a pessoa hipertensa. In: Pierin AMG, coordenadora. Hipertensão arterial: uma proposta para o cuidar. Barueri: Manole; 2004. p.165-84.
15. Lima JAC, Nussbacher A. O coração da mulher é diferente?

Rev Soc Cardiol Estado de São Paulo. 1996; 6(6):704-6.
16. Monteiro MF, Sobral Filho DC. Exercício físico e o controle da pressão arterial. Rev Bras Med Esporte. 2004; 10(6): 513-9.
17. Péres DS, Magna JM, Viana LA. Portador de hipertensão arterial: atitudes, crenças, percepções, pensamentos e práticas. Rev Saúde Pública = J Public Health. 2003; 37(5):635-42.
18. Marroni SN. Controle da hipertensão arterial em unidades básicas de saúde da região oeste da cidade de São Paulo [tese]. São Paulo: Escola de Enfermagem da Universidade de São Paulo; 2005.
19. Myers DG, Diener E. The pursuit of happiness. Sci Am. 1996; 274(5): 70-2.