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Assessment of Knowledge and Self Management Behaviors for Patients with Essential Hypertension

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Abstract

Essential hypertension stills a chief modifiable reason of morbidity and death. **The aim of the study;** was to evaluate patient's knowledge and self-management behaviors concerning essential hypertension. **Setting;** the internal medicine department and outpatient clinics at Assiut University Hospital. **Study design;** to perform this study a descriptive research design was used. **Sample;** sixty adult patients of both sexes. **Tools;** patients' assessment sheet, Hypertension Knowledge-Level Scale (HK-LS) and Hypertension Self-Management Behavior Questionnaire (HSMBQ)". **Results;** (75 %) of the patients were female , (83.33%) were married, (63.33%) illiterate, (73.33%) house wife, (55%) have unsatisfactory knowledge, and (56.67%) have negative behaviors about hypertension. **Conclusion;** knowledge and self management behaviors were unsatisfactory. **Recommendations;** educational programs are needed to improve patients' knowledge and self management behaviors about hypertension.

Keywords: *Assessment, Essential hypertension, Knowledge, Self management Behaviors.*

Introduction

Cardiovascular disease (CVD) is a vital health problem. The incidence of CVD is growing, both in industrialized and in developing countries, and causes suffering and a decreased quality of life for millions of people wide-reaching (Toss, 2011). One of the chief risk factors leading to the CVD trouble is hypertension (HTN), as it is a major contributor to CVD related morbidity and mortality (Babu & Grace, 2015).

Hypertension is defined as a permanence elevation in blood pressure (BP) more than the normal value of 120/80 mmHg or if BP is persistently at or more than 140/90 mmHg. The incidence of hypertension increases among elderly. (Wikipedia, 2015).

Hypertension is a global health problem (Runge & Greganti, 2010) It is responsible for 7.5 million deaths, about 12.8% of the total of all deaths. Coronary heart disease and hemorrhagic in addition to ischemic stroke are common complications of HTN (World Health Organization, 2015). More than 26% of adult Egyptians and more than 50% of persons older than 60 years are hypertensive (Ibrahim & Albertino, 2012).

There're two major types of HTN: essential (primary; idiopathic) and secondary. Essential hypertension is persistent high BP due to non specific cause. Secondary hypertension is due to known cause. Risk factors for hypertension include obesity, smoking, lack of physical activity, excessive alcohol consumption, and unsuccessful stress management (Timby & Smith, 2010).

Severe hypertension has numerous of symptoms such as angina, dizziness, irregular heartbeat, fatigue, and difficult breathing result from the increased workload of the heart or the effects on blood vessels in the organs and tissues (Lewis et al., 2013). Atherosclerosis, heart failure (HF), stroke, coronary artery disease, renal or eye damage, and hypertrophy are common complications of HTN (Williams & Hopper, 2007).

Patients can avoid long-term complications of hypertension through improving their knowledge (Abd El-Hay & El Mezayen, 2015) Self-management of chronic disease is that people contribute successfully in managing their own health care on a continuing basis. Optimal self management requires that the person understands the disease and manages their care, including taking medications and participating in decision-making with their health providers regarding their illness. Also, people have to manage the impact of the chronic disease on their daily life, maintain their general health and stay away from risk factors for other diseases, for example, eating a healthy food and participating in daily exercise (Gallagher et al., 2008).

Hypertension self-management behaviors involving self-blood monitoring, medication adherence and lifestyle modifications including diet, tobacco, and exercise are significant elements of recommended hypertension management and have been associated with significant improvements in hypertension control (Flynn et al., 2013).

Self-management education improve self care knowledge about hypertension, compliance with healthcare schedules and self-care behaviors, improve adherence to exercise and medication and reduce healthcare use in community-dwelling older adults with hypertension (Xue et al, 2008).

Significance of the study

The effective management of hypertension requires an individual to be knowledgeable about the disease, adhere to prescribed medications, and have the confidence to execute the behaviors necessary to manage the disease. So, this study assessed the knowledge and self management behaviors and concluded that educational programs are needed to improve patients' knowledge and self management behaviors regarding hypertension.

Aim of the study

To evaluate patient's knowledge and self-management behaviors regarding essential hypertension.

Research question

What is the level of knowledge and self management behaviors among patients with essential hypertension in Assiut university hospital?

Subjects & Methods

Research design: A descriptive research design was used in this study.

Technical design

Setting

This research was conducted in the internal medicine department which situated in the eighth and ninth floor with total capacity of 80 bed and outpatient clinics which situated in the first floor in the main hospital of Assiut hospitals university.

Subjects

A convenience sample of 60 adult males and females their age between (38-60) years and oriented with a medical diagnosis of essential hypertension who admitted to the internal medicine department and medical outpatient clinics during the period of the study from September 2016- February 2017.

Tools:

Tool I: Questionnaire assessment sheet: the researcher developed and utilized this tool based on review of literature to assess patients with essential hypertension. This tool includes the subsequent parts:-

Part (1): Personal data sheet including: age, marital status, sex, level of education and occupation).

Part (2): Medical data sheet including: vital signs, symptoms of hypertension, family history of HTN, duration of illness, smoking, and obesity or overweight.

Tool II: Hypertension Knowledge-Level Scale (HK-LS): It was developed by (Erkoc and colleagues, 2012). This questionnaire sheet was used to assess the knowledge of patients regarding hypertension.

This tool including 22 items: definition of hypertension (2 items), drug compliance (4 items), medical treatment (4 items), diet (2 items), lifestyle (5 items), and complications (5) items. 22 grades was the total score for this tool, this score was converted into a percent score, the results of patient were classified into two categories (<50%) was unsatisfactory knowledge, and (≥ 50) was satisfactory level of knowledge.

Tool III: Hypertension Self-management Behavior Questionnaire (HSMBQ) Sheet: It was developed by Akhter, 2010. It consists of 40 items addressing different aspects of self-management for illness. These include: self-regulation (9 items); interaction with health professionals and significant others (9 items); self-monitoring (4 items); self-integration (13 items); and adherence to recommended regimen (5 items). It has five levels for the questions; 1= never (I have never performed the behavior), 2= rarely, 3=sometimes, 4= always, and N/A = not applicable. According to range of total scores which lie between (0 – 160), patient were classified as: positive behavior and negative behavior. Positive behavior if their total score was ≥ 50 % and negative behavior if their total score was < 50%.

Methods

- An official permission was obtained from the head of medical department and out patient clinics.
- After literature review the study tools were developed.
- 5 expertises in medical and nursing field do the content validity (1 Professor of medical field and 1 professor, 1 assistant professor, 2 lecturers in nursing field).
- A Pilot study was conducted on 6 from 60 patients (10%) to examine the feasibility of the study and clarity of the tools. There was no necessary modifications were done so pilot study subjects included in the actual study.
- The reliability of assessment tools were tested using Cronbach's alpha ($r = 0.834, 0.731$ & 0.843).
- The researcher met with each patient individually and oral agreement for voluntary participation in the study was taken from the patients after the study and its aims were explained.
- The data was filled in and completed by the researcher through interview method using tools I, II and III.
- Sampling was started and completed within 6 months, from September 2016- February 2017.

Administrative steps

Before starting data collection, an official letter was issued from the Dean of the Faculty of Nursing, Assiut University to the director of the internal medicine department & out patients clinics, with explaining the aim of the study to them to obtain their permission and cooperation in conducting the study.

Ethical considerations

Research proposal was approved from ethical committee in the faculty of nursing, there was no risk for study subjects during application of the research, the study followed common ethical principles in clinical research, and oral consent was obtained from patients or guidance who were willing to participate in the study, after explaining the nature and purpose

of the study, confidentiality and anonymity were assured, study subject had the right to refuse to participate and/or withdraw from the study without any rational at any time, and study subject privacy was considered during collection of data.

Statistical analysis

Data entry was done using compatible personal computer by researcher. The statistical analysis was done using SPSS- statistical software package Excel for figures. The content of each tool was analyzed, categorized and then coded by the researcher. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. P-value considered statistically significant when P value <0.05.

Results**Table (1): Distribution of the sample as regard personal characteristics (n= 60).**

Items	N.	%
1- Gender:		
Male	15	25
Female	45	75
2- Age:		
38 – 45	8	13.33
46 – 55	23	38.33
56 – 60	29	48.33
3- Marital status:		
Single	3	5
Married	50	83.33
Widowed	7	11.67
4- Level of education:		
University	4	6.67
Secondary education	7	11.67
Basic education	9	15
Read and write	2	3.33
Illiterate	38	63.33
5- Occupation:		
Employee	7	11.67
Unemployed	5	8.33
Retired	4	6.67
House wife	44	73.33

Table (2): Distribution of the sample as regard symptoms of hypertension and risk factors (n= 60).

Items	N.	%
II-Symptoms of hypertension (complaints):		
1- Headache	56	93.33
2- Fatigue	43	71.67
3- Vision problems	26	43.33
4- Difficult breathing	34	56.67
5- Irregular heart beat	43	71.67
6- Dizziness	45	75

Items	N.	%
7- Chest pain	9	15
8- Tinnitus	6	10
9- Nausea	11	18.33
II-Risk factors	N.	%
1- Family history:		
Yes	34	56.67
No	26	43.33
2- Smoking:		
Yes	17	28.33
No	43	71.67
3- Obesity and overweight		
Yes	41	68.33
No	19	31.67
4- High salt in diet		
Yes	23	38.33
No	37	61.67

Table (3): Assessment of patients' knowledge and self management behaviors (n= 60).

Variables	Correct		Incorrect		Don't know			
	N.	%	N.	%	N.	%		
I- Hypertension knowledge – level scale :-								
1- Definition	0	0.0	5	8.33	55	91.67		
2- Medical management	35	58.33	20	33.33	5	8.33		
3- Drug compliance	23	38.33	30	50	7	11.67		
4- Lifestyle	26	43.33	10	16.67	24	40		
5- Diet	27	45	27	45	6	10		
6- Complications	30	50	6	10	24	40		
II- Hypertension self management behaviors	never		rarely		sometimes		always	
	N.	%	N.	%	N.	%	N.	%
1- Self – integration.	19	31.67	17	28.33	17	28.33	7	11.67
2- Self – regulation.	5	8.33	32	53.33	16	26.67	7	11.67
3- Interaction with health professionals.	14	63.33	24	40	17	28.33	5	8.33
4- Self – monitoring.	2	3.33	33	55	22	36.67	3	5
5- Adherence to recommended regimen.	1	1.67	31	51.67	20	33.33	8	13.33

Table (4): Total score of patients' knowledge and self management behaviors (n=60).

Items	N.	%
I- Patient's knowledge:-		
- Satisfactory	27	45
- Unsatisfactory	33	55
Total	60	100
II- Patient's self management behaviors :-		
- Positive behaviors	26	43.33
- Negative behaviors	34	56.67
Total	60	100

Table (5): Relation between personal characteristics and level of knowledge (n= 60).

Variables	Knowledge				P. value
	Unsatisfactory		Satisfactory		
	No.	%	No.	%	
1- Age groups :					0.63 ns
18- 45 years	4	6.7	4	6.7	
46-55 years	15	25.0	9	15	
56- 65 years	14	23.3	14	23.3	
2- Gender:					0.000***
Male	2	3.3	13	21.7	
Female	31	51.7	14	23.3	
3- Marital status:					0.062 ns
Single	3	5	0	0.0	
Married	28	46.7	22	36.7	
Divorced	0	0.0	0	0.0	
Widowed	2	3.3	5	8.3	
4- Level of education:					0.000***
University	0	0.0	4	6.7	
Secondary education	0	0.0	7	11.7	
Basic education	2	3.3	7	11.7	
Read and write	0	0.0	2	3.3	
Illiterate	31	51.7	7	11.7	
5- Occupation:					0.000***
Employee	0	0.0	7	11.7	
Unemployed	2	3.3	3	5	
Retired	0	0.0	4	6.7	
House wife	31	51.7	13	21.7	

*** Statistical significant differences ($p < 0.001$)

Table (1): Reveals that, three quarters (75%) of the sample were female. Looking at age; near half (48.33%) of patients their age between 56 - 65 years. As regard marital status; more than three quarters (83.33%) were married. In addition, the study revealed that the highest percentage was house wives and illiterate.

Table (2): Shows that, headache was the main presenting symptoms for hypertensive patients (93.33%) followed by dizziness and fatigue. As regard risk factors, more than two thirds (68.33 %) were overweight and obese.

Table (3): Clears that, the highest percentage (91.67%) didn't know the definition of hypertension while more than half of the patients (53.33%, 55%, 51.67%) respectively were rarely performed the following self management behaviors (self regulation, self monitoring, adherence to recommended regimen)

Table (4): Reflects that, more than half (55%) of the sample have unsatisfactory knowledge regarding hypertension and more than two quarters (56.67 %) of the sample have negative self management behaviors about hypertension.

Table (5): Demonstrates that; a statistical significant relation was found between gender, level of education, occupation, and knowledge level while there was non significant relation between age, marital status and knowledge level.

Discussion

Hypertension self-management behaviors including medication adherence, self- monitoring, and lifestyle modifications are vital parts of recommended hypertension treatment (Neminqani et al., 2014).

In the present study, findings regarding patients' characteristics revealed that, three quarters of the sample were female. This finding was supported by (Sanne et al., 2008) who revealed that the majority of the sample were female. This result in contrast with (Beigi et al., 2014) who revealed that near two thirds of the patients was male. This result may be attributed to the effect of premenopausal hormones in protection against cardiovascular diseases. Also, it may be related to the presence of modifiable risk factors as obesity, stressful life situation which have more influence females rather than males.

In this study; findings regarding marital status showed that the majority of patients were married. This finding in line with (Jarelnape, 2016); who revealed that more than half of the participants were married and (Eshah & Al-daken, 2015) who stated that more than three quarters of the participants were married. This may be attributed to that married persons face more stress and responsibilities than single ones which prone them to be hypertensive.

Concerning age of studied sample; this study result showed that the incidence of hypertension was higher among age group 56 – 60 years. This finding agrees with (Sherlock et al., 2014) who revealed that hypertension was more common among age group 55- 64 years. This result in contrast with (Duboz et al., 2016); who stated that more than half of the participants were aged < 40 years. This may be attributed to that the age related changes in arterial stiffness and decreased elasticity.

As regard occupation and level of education, this study result revealed that hypertension was more prevalent among house wives and illiterate. These results in line with (Sailaja and Chukka, 2015); who stated that more than two thirds of the patients were illiterate and also with (Shayesteh et al., 2016) who reorted that most participants were female. These findings also disagree with (Awoke et al., 2012 and Helelo et al., 2014) who reported that near half of the participants had primary and secondary level of education. In addition these results disagree with (Bani, 2011) who stated that near half of the participants were employees.

As regard hypertension symptoms; this study result demonstrated that headache was the most common symptom among patients which in line with (Al-Wehedy et al., 2014) who mentioned that more than three quarters of the participants had headache. This result also disagrees with (Middeke et al., 2008) who stated that dizziness was the most common symptom among the participants.

As regard risk factors of hypertension; this study stated that the highest percentages of participants were obese or overweight and had family history of hypertension .Also, this results agree with (Dzudie et al., 2012) that revealed that waist circumference, elevated body mass index (BMI) and parental history of hypertension were the significant predictors of hypertension. These results disagree with (Shaikh et al., 2012) who reported that smoking was the most prevalent risk factor among hypertensive patients. In addition (Sailaja & Chukka, 2015) who mentioned that; one quarter of the sample had family history of hypertension. This result may be attributed to that primary hypertension run in families and may have genetic link.

In this study; the knowledge about hypertension was poor. This result in line with (Abd El-Hay and El Mezayen, 2015; Kilic et al., 2016); who stated that knowledge regarding hypertension was inadequate. This result inconsistent with (Parmar et al., 2014); who mentioned that the responders had good knowledge. This may be attributed to the majority of the studied subjects were illiterate and not subjected to any type of educational programs regarding the disease.

In this study, patients' self management behaviors were unsatisfactory. This result in line with (Dasgupta et al., 2018) who stated that; study participants suffering from hypertension had unfavorable self-care practices. In addition this finding disagrees with (Anh et al., 2017) who mentioned that self-management behaviors were high. Also, this may be attributed to the majority of the studied subjects wee illiterate and have poor knowledge level so they can't manage their disease well.

The present study showed that, a statistically significant relation was found between gender, level of education, occupation and knowledge and there was no relation between age, marital status and knowledge. This result disagree with (Parmar et al., 2014) who reported that male gender and younger age were associated with lack of knowledge and also (Sanne et al., 2008) revealed that low hypertension knowledge was associated with age > or = 60 years. In the same line (Akoko et al., 2017) stated that higher level of education was one factor which positively affect knowledge of hypertension significantly. This may be attributed to the majority of the study subjects were female who are illiterate and have limited knowledge regarding the disease.

Conclusion

Knowledge and self management behaviors among the subjects were unsatisfactory.

Recommendations

Educational programs are needed to improve patients' knowledge and self management behaviors regarding hypertension.

References

1. Abd El-Hay, S., & El Mezayen, S., (2015): Knowledge and Perceptions Related to Hypertension, Lifestyle Behavior Modifications and Challenges That Facing Hypertensive Patients. Journal of Nursing and Health Science. 4(6):15:26.
2. Akhter, N., (2010): Self management among patients with hypertension in Bangladesh.

- Published Master Thesis. Prince of Songkla University.
3. **Akoko, B., Fon, P., Ngu, R., & Ngu, K., (2017):** Knowledge of Hypertension and Compliance with Therapy among Hypertensive Patients in the Bamenda Health District of Cameroon: A Cross-sectional Study. *Cardiol Ther.* 6 (1):53–67.
 4. **Al-Wehedy, A., Abd El hameed, S., & Abd El hameed, D., (2014):** Effect of Lifestyle Intervention Program on Controlling Hypertension among Older Adults. *Journal of Education and Practice.* 5(5): 61-71.
 5. **Anh, D., Shih, Y., Miao, N., Liao, Y., Chuang, Y., Chang, H., Huang, H., & Tsai, H., (2017):** Differences of Self-Management in Controlling Blood Pressure between Patients with Hypertension and Healthy People in Vietnam. *POJ Nursing Practice & Research.*1 (1): 1-8.
 6. **Awoke, A., Awoke, T., Alemu, S., & Megabiaw, B., (2012):** Prevalence and associated factors of hypertension among adults in Gondar, Northwest Ethiopia: a community based cross-sectional study. *BMC Cardiovascular Disorders.*12:113.
 7. **Babu, A., & Grace, S., (2015):** Cardiac Rehabilitation for Hypertension Assessment and Control: Report From the International Council of Cardiovascular Prevention and Rehabilitation. *The Journal of Clinical Hypertension.* 17 (11): 831-836.
 8. **Bani, I., (2011):** Prevalence and related risk factors of Essential Hypertension in Jazan region, Saudi Arabia. *Sudanese Journal of public health.* 6 (2): 45-50.
 9. **Beigi, M., Zibaenezhad, M., Aghasadeghi, K., Jokar, A., Shekarforoush, S., & Khazraei, H., (2014):** The Effect of Educational Programs on Hypertension Management. *Int Cardiovasc Res J.*8 (3):94-98.
 10. **Dasgupta, A., Sembiah, S., Paul, B., Ghosh, A., Biswas, B., & Mallick, N., (2018):** Assessment of self-care practices among hypertensive patients: a clinic based study in rural area of Singur, West Bengal. *Int J Community Med Public Health.*5 (1):262-267.
 11. **Duboz, P., Boëtsch, G., Gueye, L., & Macia, E., (2016):** Hypertension in the Ferlo (Northern Senegal): prevalence, awareness, treatment and control. *Pan African Medical Journal.* 25:177
 12. **Dzudie, A., Kengne, A., Muna, W.F, Ba, H., Menanga, A., Kouam, C., Abah, J., Monkam, Y., Biholong, C., Mintom, P., Kamdem, F., Djomou, A., Ndjebet, J., Wambo, C., Luma, H., Ngu, K., & Kingue, S., (2012):** Prevalence, awareness, treatment and control of hypertension in a self selected sub-Saharan African urban population: a cross-sectional study. *British Medical Journal.* 2(4): 1-10.
 13. **Erkoc, S., Isikli, B., Metintas, S., & Kalyoncu, C., (2012):** Hypertension Knowledge-Level Scale (HK-LS): A Study on development, validity and reliability. *International Journal of Environmental Research. Public Health.* 9: 1018-1029
 14. **Eshah, N., & Al-daken, L., (2015):** Assessing Publics' Knowledge about Hypertension in a Community-Dwelling Sample. *Journal of Cardiovascular Nursing.*0 (0): 1-8.
 15. **Flynn, S., Ameling, J., Hill-Briggs, F., Wolff, J., Bone, L., Levine, D., Roter, D., Lewis-Boyer, L., Fisher, A., Purnell, L., Ephraim, P., Barbers, J., Fitzpatrick, S., Albert, M., Cooper, L., Fagan, P., Martin, D., Ramamurthi, H., & Boulware, L., (2013):** Facilitators and barriers to hypertension self-management in urban African Americans: perspectives of patients and family members. *Patient Preference and Adherence.* (7) :741–749.
 16. **Gallagher, R., Chenoweth, L., & Stein-Parbury, J., (2008):** Self-management in older patients with chronic illness. *International Journal of Nursing Practice.* 14: 373–382.
 17. **Helelo, T., Gelaw, Y., Adane, A., (2014):** Prevalence and Associated Factors of Hypertension among Adults in Durame Town, Southern Ethiopia. *PLoS ONE.* 9(11): e112790.
 18. **Ibrahim, M., & Albertino, D., (2012):** Hypertension in developing countries. *Lancet.* 380: 611 9.
 19. **Jarelnape, A., Abdullah, N., Yousif, K., & El-Rufai, E., (2016):** The Effect of Health Educational Program on Patients' Knowledge about Hypertension and Its' Management (In Sudan - White Nile State). *International Journal of Preventive Medicine Research.* 2(4): 17-22.
 20. **Kilic, M., Uzunçakmak, T., & Ede, H., (2016):** Review: The effect of knowledge about hypertension on the control of high blood pressure. *International Journal of the Cardiovascular Academy.* 2 (2016) 27–32.
 21. **Lewis, S., Heitkemper, M., Dirksen, S., Camera, L., & Bucher, I., (2013):** Medical-Surgical Nursing: Assessment and Management of Clinical Problems. ch33. 9th ED. USA: Mosby.Pp713.
 22. **Middeke, M., Lemmer, B., Schaaf, B., & Eckes, L., (2008):** ORIGINAL ARTICLE: Prevalence of hypertension-attributed symptoms in routine clinical practice: a general practitioners-based study. *Journal of Human Hypertension.* 22(4): 252–8.
 23. **Neminqani, D., El-Shereef, E., & AL Thubiany, M., (2015):** Hypertensive Patients:

- Self-Care Management Practices in Al-Taif, KSA. International Journal of Science and Research (IJSR).4(12): 1705-1714.
24. **Parmar, P., Rathod, G., Rathod, S., Goyal, R., Aggarwal, S., & Parikh, A., (2014):** Original Research Article: Study of knowledge, attitude and practice of general population of Gandhinagar towards hypertension. International journal of current microbiology and applied sciences.3 (8): 680-5.
25. **Runge M., & Greganti, M., (2010):** Netter's Internal Medicine: Ch 25.2nd Ed. USA: Chapel Hill. Pp 157.
26. **Sailaja, B., & Chukka, K., (2015):** Association of Hypertension with Risk factors and its Complications in tertiary care hospitals in South India. Journal of Dental and Medical Sciences.14 (10): 128-30.
27. **Sanne, S., Muntner, P., Kawasaki, L., Hyre, A., & DeSalvo, K., (2008):** Hypertension knowledge among patients from an urban clinic. Ethnicity & Disease. 18(1):42-7.
28. **Shaikh, M., Yakta, D., & Kumar, S., (2012):** Hypertension Knowledge, Attitude and Practice in Adult Hypertensive Patients at LUMHS. Journal of Liaquat University of Medical & Health Sciences.11(2):113-116.
29. **Shayesteh, H., Mirzaei, A., Sayehmiri, K., Qorbani, M., & Mansourian, M., (2016):** Effect of Education Intervention on Lifestyle of Patients with Hypertension among the Rural Population of Lorestan Province. Journal of lifestyle Medicine. 6(2): 58- 63.
30. **Sherlock, P., Beard, J., Minicuci, N., Ebrahim, S., & Chatterji, S., (2014):** Cardiovascular disease: Hypertension among older adults in low and middle-income countries: prevalence, awareness and control. International Journal of Epidemiology .43:116–128.
31. **Timby, B., & Smith, N., (2010):** Introductory Medical Surgical nursing .Ch27.10th Ed. Philadelphia: Wolters Kluwer Health | Lippincott Williams & Wilkins. Pp 384.
32. **Toss, F., (2011):** "Body fat distribution, inflammation and cardiovascular disease". PhD thesis. Umea University.
33. **Wikipedia (2015):** Hypertension. Retrieved from: https://en.wikipedia.org/wiki/Hypertension#cite_note-JNC8-1.
34. **Williams, L., & Hopper, P., (2007):** Understanding Medical Surgical Nursing. Chapter 21.3rd Ed. F. Philadelphia: A. Davis Company. Pp 381.
35. **World Health Organization (2015):** Global Health Observatory (GHO) data, Raised blood pressure. Retrieved from: http://www.who.int/gho/ncd/risk_factors/blood_pressure_prevalence_text/en/.
36. **Xue, F., Yao, W., & Lewin, R., (2008):** A randomised trial of a 5 week, manual based, self-management programme for hypertension delivered in a cardiac patient club in Shanghai. BMC Cardiovasc. Disord. 8: 10.