Sources of information and level of knowledge on Hypertension among entry level university students in Ajman, UAE

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Abstract

Context: Hypertension is one of the leading causes of death, even in developed country like UAE, but awareness about it is lagging behind.

Aims: To assess the common sources of information for and level of knowledge on hypertension among entry year undergraduate health science students.

Materials and Methods: A cross sectional study was conducted among students enrolled in the first year, in the four academic programs in one medical university in the UAE. Content validated, self-administered questionnaire on different domains of hypertension such as general knowledge, symptoms, complications, risk factors, treatment and management as well as sources of information was used to collect relevant information. Each statement was given a score of one if it was answered correctly and zero for a wrong answer. Out of a total score, a score of fifty percent and above was considered as good knowledge and a score less than fifty percent considered poor knowledge. The data was analyzed using SPSS 20. Chi square and Fisher exact test were done to assess the association between variables.

Results: Out of 161 participants, 130 were ≤19 years, 94 (72.3%) were females and 67 (51.5%) were Arabs. The contributory role of various sources of information are television and internet (82.6%), books/magazines and journals (59%), scientific forms such as health professionals/talks and seminars (72%), friends & family members (81.4%) respectively. -

Conclusions: The study concluded that the sources of information such as television and radio, books/magazines and journals, health professionals/talks and seminars, and friends and family members contributed to more than 95% among participants with knowledge score greater than 25 respectively.

Keywords: Sources of information, level of knowledge, hypertension, entry year students

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Introduction

Hypertension is a colossal problem experienced by one in three adults, leading to 1,000 deaths in a day. Hypertension contributing about 13% to global mortality is one of the common preventable risk factors for other diseases as well. In a study conducted among entry year medical students, knowledge regarding risk factors of hypertension such as tobacco use, high cholesterol, reduced physical activity and obesity were 71.8%, 73.6%, 47.3% and 73.6% respectively.It was also noted that knowledge was very less concerning some of the risk factors of hypertension among the medical students of gulf region[1]. Study done in Riyadh, Saudi Arabia assessed knowledge of primary health care physicians and identified that currently working physicians had pitiable amount of knowledge especially one third of doctors knew even the definition of hypertension[2]. Study done in Pakistan among hypertensive patients concluded that knowledge about hypertension in hypertensive patients was not adequate and in patients with uncontrolled hypertension, it was alarmingly poor due to lack of awareness and control[3]. It is also pointed that the lack of knowledge among patients is due to improper health education system through media, and several other factors. In South Korea, insufficient knowledge of hypertension has been implicated to non-adherence to medication prescribed to hypertensives.[4]

The prevalence of hypertension showed tremendous increase with increasing age, countrified areas and in areas with low literacy levels. In the Greek EPIC study, awareness and control of hypertension were more among the middle aged group, geriatric age group and those with good literacy levels. The study also showed that awareness and control of hypertension was lower in Greece than in other Western countries and with regard to control, it was prominently among urban population, with females being more aware than males[5]. Study done in Uganda showed that hypertension was a common disease in that country and with hypertensive participants awareness was less than optimal and as observed elsewhere females were found to be more aware as compared to males[6]. According to National Centre for Health Statistics, even though there is no significant change in awareness, treatment or control among adults with hypertension from 2009-2010, an increased level of awareness has increased the treatment and control of hypertension from 48.8% to 53.3% over the past two years[7], In a study related to knowledge about hypertension on risk factors, treatments, diagnosis and prognosis done on Hispanic subjects, very few participants (28%) were aware of the correct definition of hypertension[8]. In most of the above studies, the source of information is not explained to upgrade their knowledge level and for further prevention.

Studies recommend that information on awareness and control of hypertension is needed for planning effective control strategies and for recourse mobilization[9-10]. This information is usually available from media, blogs, personal experience, books/journals/magazines, expert opinions, web pages or others where the type information will change depending on the research question which is be answered. So the source of information and mode of accessibility is very important as we are in need of updated knowledge. In one study to assess

the level of hypertension, basic knowledge, management of hypertension and CV risk factors done in rural south Western Nigeria identified the commonest source of medical information as the family/friends/opinion leaders and the second most common was media such as radio/public programs/newspapers followed by a smaller proportion of respondents reporting doctor/nurse/health worker as their source of information[11].

A single-center randomized controlled trial found that traditional mass media (Television, radio, newspapers and magazines) were the most popular sources of information for hypertension knowledge and second most popular source was family/relatives as an effective method to disperse accurate medical information[12]. A study done in older age group in China confirmed the need for more public education about hypertension as they were unaware of even correct definition of hypertension in spite of advantages of internet and its widespread access in China. This education through proper source of information will serve the purpose of hypertension control by giving information on adverse consequences of hypertension, and cost –effective in hypertension management[13]. A study from the Seychelles Islands (Indian Ocean) reported that the major source of information among hypertensive patients were doctors who were more amenable as a part of consultation for hypertension related education from medical or media sources[14].

A study conducted among those in childbearing age reported that most of the participants had their information on high blood pressure from health care workers such as physicians, midwifes, public health and community nurses as the leading reliable source of information. A few (7%) obtained information from pharmacy, relatives, friends and others when compared to health care providers since they used to utilize the opportunity to the fullest in educating the public by giving awareness on possible life style changes[15]. In another study done in Tanzania, sources of information categorized as peer, media and formal education where the greatest source of information on hypertension was from peer groups. It also grouped the sources of information as doctors, nurses and pharmacists who gave information regarding symptoms of hypertension, life style changes, use of ARV drugs, use of antihypertensive drugs consequences of untreated hypertension, caution side effects of ARVs, and antihypertensive medicines. This study projects that doctors were the most frequent source of information on hypertension and ARVs compared to Pharmacists[16].

Awareness on different aspect of hypertension is important for prevention and compliance. Before complications of hypertension arise among younger generation, they need to be aware of various aspects of hypertension, especially of risk factors which may be modified. This will assist in bringing necessary changes in lifestyle behaviors. Most studies are on knowledge of hypertension and its risk factors among adults and geriatric age group, there is a paucity of such data among youth, and among budding health care providers. It is also essential to know from where they have acquired the knowledge. Thereby we will know what source plays major role in this age group and which source is deficient in disseminating information. This may guide the health providers in utilizing the right sources for dissemination of information in this regard. Hence, the most common sources of information and level of awareness regarding hypertension are assessed.

Materials and Methods

It was a cross sectional study among health science students in a Medical University, Ajman, United Arab Emirates (UAE). The university has four colleges, namely, College of Medicine,

College of Dentistry, College of Allied Health Sciences and College of Pharmacy, with multinational students. For the academic year 2013–2014 it had an annual intake of 185 students (70 in MBBS, 50 in DMD, 40 in Pharm. D and 25 in BPT) in the four programs, out of which 161 students who were present on the day of data collection participated in the study with a response rate of 89.4%.

The study was approved by the Ethics Committee of the Medical University. The data was collected using a pre-tested, structured, self-administered questionnaire. The questionnaire included socio-demographic variables like age, gender, nationality, parental profession, background education and questions on the knowledge regarding general knowledge (definition, communicability, classification, prevention, curability and age of presentation), symptoms (severe headache, problems of vision, redness of skin, fatigue, diarrhea, bleeding from nose, difficulty in breathing), organs affected/conditions (eyes, kidney, heart, brain, diabetes mellitus), risk factors (age, gender, family history, lifestyle factors, conditions), treatment and management (medication, exercise, weight control, diet, adherence to treatment, regular medical checkups). Sources of information was also assessed as to which is most common each factor/statement was given a score of one if it was answered correctly and zero for a wrong answer. Out of a total score, a score of fifty percent and above was considered as good knowledge and a score less than fifty percent considered less knowledge. This was validated by two subject experts. Later on, pilot study was conducted on 10 students so as to finalize the questions and to get their feedback about questionnaire whether it was clear, understandable, and comfortable to answer questions. Questionnaire was developed in English language.

The investigators explained to the respective class regarding purpose of the study and sought written informed consent before distributing the questionnaires. Anyone was permitted to opt out of the study; however, all present in the classroom participated. When collecting back, the researchers checked and ensured the completeness of the questionnaires. Data was analyzed using SPSS 20. Chi Square test was used to find association between knowledge of various domains and sources of information Fisher exact test was also performed.

Results

The study was conducted among 161 preclinical students to find the common sources of information and its association with level of knowledge regarding hypertension and its symptoms, risk factors, complications and treatment. The results are presented as tables, figures and text with respect to the objectives of the study.

Of the 161 participants, majority 113 (70.2%) were females and the remaining males. Among the males, 36 (75.0%) were in the age group less than or equal to 19 years and the remaining 12 (25.0%) were in the age group greater than 19 years. Among females participants, 94 (83.2%) were in the age group less than or equal to 19 years and the remaining 19 (16.8%) were in the age group greater than 19 years.

Among the participants, 94 (72.3%) were less than or equal to 19 years and 19 (61.3%) were in the age group greater than 19 years. A female predominance was observed in both the age

groups. The mean age was 18.5 ± 1.32 years. The mean age for male participants was 18.6±1.57 and female participants 18.4±1.20

Out of 161 participants, highest number of students were from MBBS followed by DMD, Pharm.D and BPT. With regard to MBBS program, 36 (56.2%) were females and the remaining males. Among the participants from DMD program 37 (78.7%) were females and males were 10 (21.3%). Of the total participants from Pharm. D, 26 (78.8%) were females and the remaining males. Among the respondents from BPT program, 14 (82.4%) were females and the remaining 3 (17.6%) were males. In all the academic programs number of females were higher than males.

Among male participants, 28 (58.3%) were from MBBS program followed by 10 (20.8%) from DMD program, 7 (14.6%) from Pharm.D program, and 3 (6.3%) from the BPT program respectively. With regard to female participants, 36 (31.9%) were from MBBS program, 37 (32.7%) from DMD program, 26 (23.0%) from Pharm. D program, and 14 (12.4%) were from BPT program respectively.

Table 1: Sources of information on hypertension among participants (N=161)

Source of Information	Groups	No.	%
Friends	Yes	68	42.2
	No	93	57.8
Family members	Yes	110	68.3
	No	51	31.7
Relatives	Yes	92	57.1
	No	69	42.9
Books, magazines and/or journal	Yes	95	59.0
	No	66	41.0
Television and/radio	Yes	93	57.8
	No	68	42.2
Health professionals	Yes	97	60.2
	No	64	39.8
Talks and seminars	Yes	66	41.0
	No	95	59.0
Internet and World Wide Web	Yes	120	74.5
	No	41	25.5

Table 1 shows sources of information on hypertension among participants. It was seen that internet and World Wide Web was the common source of information for the study participants with 74.5%. 2nd important contributor to source was family members (68.3%), followed by health professionals (60.2%). Books, magazines and journals were contributed 59% and talks/seminars contributed to 41% as a source. Television and radio had also contributed as source by 57.8% that was at last followed by relatives (57.1%).

Table 2: Distribution of Knowledge on Hypertension with sources of information (N=161)

Source of Information and Knowledge on Hypertension	Groups	Score ≥3		Score <3	
		No.	%	No.	%
Friends & Family members	Yes	125	95.4	6	4.6
	No	30	100.0	0	0.0
Books, magazines and/or journal	Yes	91	95.8	4	4.2
	No	64	97.0	2	3.0
Television / Internet	Yes	128	96.2	5	3.8
	No	27	96.4	1	3.6
Health professionals / Talks and seminars	Yes	111	95.7	5	4.3
	No	44	97.8	1	2.2

Table 2 shows distribution knowledge on Hypertension according to each sources of information. Among those who had satisfactory/good level of knowledge on hypertension, the order of contribution as a source of information was Television (96.2%), books/magazines and journals (95.8%), Health professionals/talks and seminars (95.7%), friends and family members (95.4%) respectively.

Table 3: Distribution of Knowledge on Symptoms with sources of information (N=161)

Source of Information and Knowledge on Symptoms	Groups	Score ≥4		Score <4	
		No.	%	No.	%
Friends & Family members	Yes	105	80.2	26	19.8
	No	27	90.0	3	10.0
Books, magazines and/or journal	Yes	73	76.8	22	23.2
	No	59	89.4	7	10.6
Television / Internet	Yes	109	82.0	24	18.0
	No	23	82.1	5	17.9
Health professionals / Talks and seminars	Yes	97	83.6	19	16.4
	No	35	77.8	10	22.2

Table 3 shows distribution of knowledge on symptoms with respect to various sources of information. Among those who had satisfactory level of knowledge on symptoms of hypertension, the order of source of information was Health professionals/talks and seminars (83.6%). Meanwhile mass media contributed to 82% of the knowledge. It was followed by friends and family members (80.2%). Lastly books, magazines and journals contributed to about 76.8% of the knowledge.

Table 4: Distribution of Knowledge on complications related to organs with sources of information (N=161)

Source of Information and Knowledge on complications related to organs	Groups	Score ≥3		Score <3	
		No.	%	No.	%
Friends & Family members	Yes	87	66.4	44	33.6
	No	21	70.0	9	30.0
Books, magazines and/or journal	Yes	65	68.4	30	31.6
	No	43	65.2	23	34.8
Television / Internet	Yes	88	66.2	45	33.8
	No	20	71.4	8	28.6
Health professionals / Talks and seminars	Yes	74	63.8	42	36.2
	No	34	75.6	11	24.4

Table 4 shows distribution of knowledge on complications related to organs with sources of information. Among those who had satisfactory level of knowledge on complications of hypertension, books/magazines and journals played a major role in providing information with 68.4%. The other respective sources were friends and family members (66.4%), mass media (66.2%), health professionals/talks and seminars (63.8%).

Table 5: **Distribution of Knowledge on Risk factors with sources of information (N=161)**

Source of Information and Knowledge on Risk factors	Groups	Score ≥10		Score <10	
		No.	%	No.	%
Friends & Family members	Yes	113	86.3	18	13.7
	No	27	90.0	3	10.0
Books, magazines and/or journal	Yes	82	86.3	13	13.7
	No	58	87.9	8	12.1
Television / Internet	Yes	118	88.7	15	11.3
	No	22	78.6	6	21.4
Health professionals /Talks and seminars	Yes	103	88.8	13	11.2
	No	37	82.2	8	17.8

Table 5 shows distribution of Knowledge on risk factors in relation to source of information. Among those who had good level of knowledge on risk factors of hypertension, the major contribution of information was health professionals/talks and seminars (88.8%) followed by Television/internet (88.7%). Friends and family members, books/magazines/journals contributed equally as a strong source of information for the participants with 86.3%.

Table 6: Distribution of Knowledge on treatments with sources of information (N=161)

Source of Information and Knowledge on treatments	Groups	Score ≥6		Score <6	
		No.	%	No.	%
Friends & Family members	Yes	130	99.2	1	0.8
	No	30	100.0	--	--
Books, magazines and/or journal	Yes	94	98.9	1	1.1
	No	66	100.0	--	--
Television / Internet	Yes	132	99.2	1	0.8
	No	28	100.0	--	--
Health professionals / Talks and seminars	Yes	115	99.1	1	0.9
	No	45	100.0	--	--

Table 6 shows distribution of Knowledge on treatment for each sources of information. Among those who had adequate level of knowledge on treatments, the sources of information were equally contributed by television/internet and friends as well as family members (99.2%). Meanwhile Health professionals/talks/seminars supported for 99.1% of the knowledge whereas books/ magazines/journals contributed to about 98.9%.

Table 7: Distribution of total knowledge score on Hypertension with sources of information (N=161)

Source of Information and Total knowledge score on Knowledge	Groups	Score >25		Score ≤25	
		No.	%	No.	%
Friends & Family members	Yes	125	95.4	6	4.6
	No	29	96.7	1	3.3
Books, magazines and/or journal	Yes	91	95.8	4	4.2
	No	63	95.5	3	4.5
Television / Internet	Yes	128	96.2	5	3.8
	No	26	92.9	2	7.1
Health professionals /Talks and seminars	Yes	110	94.8	6	5.2
	No	44	97.8	1	2.2

Table 7 shows distribution of total Knowledge score on Hypertension along with each sources of information. Among those who had satisfactory/good level of knowledge on hypertension, the order of sources of information was Television/internet (96.2%), Books, magazines and journals (95.8%), Friends and family members (95.4%) and Health professionals/talks/seminars (94.8%) respectively. As a whole, reliable or common source

of information is again mass media, mainly television and internet even other sources occupied a related influence on acquiring knowledge regarding hypertension.

Discussion

The present study assessed the sources that contributed to knowledge of hypertension and its domains such as symptoms, complications, risk factors and management of hypertension among entry year undergraduate health science students in medical university.

The present study related socio-demographic characteristics of participants along with different aspects of knowledge on hypertension. This study also examined the association of each sources of information with the knowledge of hypertension.

Participants aged ≤19 years (96.2%) in general had much knowledge than those aged >19 years (93.5%). The reason could be the small numbers of participants aged greater than 19 years. Same results are observed when considering gender since females are more than males. The percentage in females with 19 years and less was 97.9% compared with males which were only 91.7%. Similarly, for females above 19 years who accounts for 94.7% and males 91.7%. [10]

As an example, immediate admission to colleges after high school accounted 75% in case of females as compared to 25% in males. 50% men only enrolled in institutions that provided 4 years course. 80% of females actually browsed through social media compared with 60% males before enrolling into a college for knowing the requirements; Representatives of colleges were also consulted for the enrollment requirements and in this case also females exceeded men[11].

When different academic programs are taken, MBBS students (64, 39.8%) contributed more to the study than DMD (47, 29.2%), Pharm.D (33, 20.5%) and BPT (17, 10.6%). This is because number of students enrolled in this course is maximum followed by DMD, Pharm.D and BPT in a descending order. According to the college website the total intake in the courses were 70, 50, 40 and 25 respectively for MBBS, DMD, Pharm.D and BPT[12].

Non-Arabs were more in comparison to Arabs. However, non-Arab females constitute 65 (79.3%) out of 82 and Arabs constituted 48 (60.8 %) out of 79. In other words variability is seen among nationalities. According to National Bureau of statistics, which sharply revised the UAE population expats were nearly 7.316 i.e. 88.5 % of the total country's population[13].

Present study investigates the various sources that contributed to knowledge regarding hypertension and its symptoms, complications, risk factors and management. Regards to the general knowledge on Hypertension, mass media such as television/internet (96.2%) served as a major source of information. Health professionals/talks and seminars contributed by 83.6% for information on symptoms of hypertension. According to the level of knowledge on complications, books/magazines and journals contributed to the greatest proportion (68.4%). In the case of knowledge on risk factors with respect to each source of information, it was again greatly contributed by health professionals/talks and seminars (88.8%). Most important knowledge on treatment was equally through television/internet and friends as well as family members (99.2%). Finally for all levels of knowledge on hypertension, most of the information was provided by television/internet (96.2%).

One study among entry year medical students in the same university found knowledge poor regarding risk factors of hypertension such as tobacco use 71.8%, high cholesterol 73.6%, reduced physical activity 47.3%, obesity 73.6% respectively, whereas deficiencies in knowledge were noted in medical students concerning some of the risk factors of hypertension in gulf region[1]. In our study, knowledge regarding risk factors was smoking 21.7%, high cholesterol 83.2%, physical inactivity 77% and obesity 88.2%. In the present study, a major portion of participants (93.8%) correctly chose stress as a risk factor which increases the risk of hypertension.

In a community study done on Hispanic subjects regarding knowledge about hypertension on risk factors, treatment, diagnosis and prognosis showed that only 28% knew the correct definition of hypertension and 3% aware that etiology was unknown[8]. In our study, 89.4% correctly chose "hypertension is a condition of systolic blood pressure >140 mmHg and diastolic blood pressure >90 mmHg". 75.2% and 80.7% respectively are aware of the fact that hypertension is preventable and can occur at any age of life. It was also found that 35.4% were knowledgeable regarding lower curability of hypertension. As a whole, 96.3% of the study participants had adequate understanding on general knowledge related to Hypertension.

One study done in rural south Western Nigeria to assess the level of basic knowledge regarding hypertension, and knowledge on management and CV risk factors, identified the commonest and major source of medical information. It found that the family/friends/opinion leaders in (59.9%), media such as radio/public programs/newspapers in (24.6%) and doctor/nurse/health worker in 1 (9.1%) of the respondents[11]. In our study among all sources of information, it was found that participants' major source of information was Internet/world wide web (74.5%) as compared to other sources such as family members (68.3%), Health Professionals (60.2%), Books/Magazines/Journals (59%), TV/radio (57.8%), Relatives (57.1%), Friends (42.2%) and Talks/seminars 41%. When considering the source of information related to their knowledge, television and internet contributed to good knowledge on hypertension with 96.2%. A study from the Seychelles Islands (Indian Ocean) reported that the major source of information among hypertensive patients were doctors who are more amenable as a part of consultation for hypertension related education from medical or media sources[14].

In a single-center randomized controlled trial conducted from 2001-2002 found traditional mass media (Television, radio, newspapers and magazines) were the most popular sources of information for hypertension knowledge and pointed out that it should be taken into account for promoting public knowledge of hypertension. Second most popular sources of information regarding hypertension such as Family/relatives suggesting that gaining information from personal contacts were found to be the effective method of disperse accurate medical information[12].

In our study, the most popular source of information for adequate knowledge regarding hypertension was TV/Internet (96.2%) followed by an almost equal influence through books/magazines/Journal (95.8%), Friends/Family (95.4%) and Health professionals/Talks/Seminars (94.8%).

However our study was conducted only in one university and only science stream students opting for health science courses, so not representative of all university entry year students in the UAE.

Conclusion

This study concluded that various sources can contribute to knowledge regarding hypertension. Mass media and friends were the most common sources that contributed maximum to the knowledge on various aspects of hypertension among the entry year health science students.

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