

Awareness of Hypertension among Secondary School Children in Bangladesh

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ABSTRACT

Background: Hypertension is an increasing problem in Southeast Asia, particularly in Bangladesh. Hypertension often goes unnoticed until a complication occurs. Adolescence is an age of transition and clearly recognized for its vulnerability to adoption of behavior predisposing to hypertension development. **Objective:** The aim of the study was to examine the awareness about hypertension among secondary school children. **Methods:** A descriptive study design was conducted. 141 participants were recruited conveniently for this study. This study was approved from the IRB of NIANER and BSMMU. Data was collected by using a self-report structured questionnaire consisting of two parts: (1) The demographic data questionnaire and (2) Awareness of Hypertension Related Questionnaire. Correlation (r), t -test and ANOVA were used for the data analysis. **Results:** The mean age of the participants was 14.94 years (± 0.947). The majority (62.4%) were girls. Most of them (83.0%) were Muslim. The total average awareness of hypertension 3.86($SD=0.472$). There was a statistically significant relationship between age and awareness ($r = 0.35$, $p = <.001$); family income and awareness ($r = 0.26$, $p = .002$). There was a significant difference among class of education ($p = <.001$), sources of knowledge, and awareness of hypertension ($p = .012$). There was a positive relationship between physical activity and awareness ($r = 0.23$, $p = 0.006$). **Conclusion:** The adolescent perceived high level of awareness about hypertension. The findings of the study will provide information for the nurses who may help to the people. Better awareness of hypertension of adolescent adapted healthy life style and practiced primary level of prevention of hypertension.

Keywords: Hypertension, Awareness, Adolescents, Blood Pressure.

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I. Introduction

Bangladesh is one of the poorest countries in the Asia region. A study recommends that non-communicable diseases are accountable for half of annual mortality (51%), and near about half (41%) of the burden of disease (Bleich, Tracy, Rashid, Peters, & Anderson, 2011). Out of all non-communicable diseases hypertension is most important non-communicable disease problem that is affecting a quarter of adult population (Chowdhury, Uddin, Haque, & Ibrahim, 2016). According to the Bangladesh non-communicable disease risk factor survey (2010), prevalence of hypertension is 17.9% in general, 18.5% in men, 17.3% in women (World Health Organization, 2010) and 19.9% in urban and 15.9% in rural areas among the aged 25 years and above (WHO, 2011), 13.5% of the risk is for developing cardiovascular and kidney diseases (Hoang, Dao, Nguyen, & Wall, 2007).

Regarding the prevalence of hypertension in the population of Bangladesh, representative data are limited. One meta-analysis and a population-based survey found that the prevalence is 11.3% and 18.6% respectively (Zaman, Choudhury, Numan, Parvin, & Islam, 2007) In recent years, rapid urbanization, increased life expectancy, unhealthy diet, and lifestyle changes are more responsible to increase the rate of cardiovascular disease including hypertension in Bangladesh (Olaitan, Oyerinde, Obiyemi, & Kayode, 2010).

Globally, Hypertension is a common disease associated with high morbidity and mortality and it is a silent threat to the health of the population (Sundar et al., 2013). Hypertension is the notable cause for non-communicable disease such as cardiovascular diseases, heart failure, stroke, cancer etc. and a leading risk factor

for fetal and maternal deaths in pregnancy, dementia and renal failure (Kearney et al., 2005). The prevalence of hypertension is increasing and is predicted to affect more than 500 million people by 2025 (Kearney et al., 2005), 7.6 million die premature deaths, about 12.8% of all deaths annually and 3.7% for disability adjusted life years (WHO, 2016) and 6% of the global burden of disease are attributable to hypertension (Lawes, Vander Hoorn, & Rodgers, 2008).

Hypertension and its complications account for an estimated 9.4 million deaths every year (Lim et al., 2012), about 45% due to heart disease, 51% due to stroke (WHO, 2013). Hypertension is a significant public health challenge and has a major impact on healthcare costs, contributing to nearly 10% of total healthcare expenses globally (Lawes et al., 2008), and a thoughtful economic burden with an estimated costs as high as \$93.5 billion (Karan, Engelgau, & Mahal, 2014; Heidenreich et al., 2011). The foundation of hypertension in a person is laid in childhood and adolescence (Rosner, Cook, Daniels, & Falkner, 2013). The Children with primary hypertension, 40% have complications with organ damage (Darnton-Hill, Nishida, & James, 2004). Puberty, overweight, and some other metabolic disorders often cause primary hypertension among adolescents (Kilis-Pstrusinska, & Zwolinska, 2007).

A study state that lack of awareness about hypertension among people often leads to lethal consequences due to hypertension and related morbidities, in poor health seeking behavior and unwillingness in acceptance of healthy life style.(Anchala et al., 2014). Relatively lower level of literacy, poor socio-economic status are considering to the probability of much lower level of awareness about hypertension among population. It is projected that the prevalence of hypertension is to be high while the level of awareness is quite low. (Misra, Mini, & Thankappan, 2014).

Awareness regarding diseases is one of the key factors which determine health seeking behavior and effect of disease or health associated events. Better awareness can help in shifting unhealthy lifestyle to healthy one and improvement in early health seeking behavior of people (Kumar, Sagar, Kumar, & Kiran, 2016). In the context of Bangladesh, several studies were found on hypertension. Most of the studies were conducted with different culture. There are few of studies related to awareness of hypertension among the high school students. In addition, the findings from the study may provide clues for the health care provider that can help to prevent and decrease the rate of risk factors of hypertension in Bangladesh. That is why the researcher decided to conduct this study.

Objectives

The aims of this study were (1) to describe the sociodemographic characteristics of the participants. (2) to describe the awareness about hypertension. (3) to examine the relationship between sociodemographic characteristics and awareness of hypertension of the participants.

II. Material And Methods

Study Design

A descriptive exploratory study design was used to examine the awareness of hypertension among secondary school children in Bangladesh, and to explore the relationship between the awareness of hypertension and hypertension related characteristics of the participants.

Study Participants

The study participants were the students who studied at Roghupur high school in Dinajpur district in Bangladesh. The total students of this school was 1000, out of them 190 students were in class nine and class ten had 175 students. The sample size was calculated by using a G-Power analysis software for correlation analysis at the level of significance and (α) 0.05, power .80, and medium effect size 0.3 and two tail (s). It is suggested that 128 subjects were required. By considering the rate of attrition as 10%, the total number of participants was 141 students (Cohen, 1988). Convenience sampling technique was used to recruit eligible subjects. **Inclusion criteria:** The inclusion criteria were (1) Students enrolled from class nine and class ten, (2) Aged between 13 to 17 years, (3) Both girls and boys and (4) understand and speak Bengali language.

Instruments

A self-report structured questionnaire was developed by the researcher based on literature review. It consists of two questionnaires including (1) the Demographic Data Questionnaire and (2) Awareness of Hypertension related questionnaire. Demographic Data Questionnaire: The Demographic Data Questionnaire consists of 14 items including age, sex, religion, class of education, fathers' and mothers' education, fathers' and mothers' occupation, family history of high blood pressure, sources of knowledge about hypertension, monthly family income, physical activity, smoking, Present blood pressure to identify the Sociodemographic characteristic of this study participants. Awareness of Hypertension Related Questionnaire: Awareness of Hypertension Related Questionnaire was developed based on literature review by the researcher. It consists of

18 items regarding basic knowledge of hypertension including normal blood pressure, cause, symptoms, risk factors, complication, prevention etc. Each item included a 5 point likert scale response format from 1 = strongly disagree to 5 = Strongly Agree to explore the actual data from participants. The higher score indicated the higher level of awareness. The instruments were validated by three panels of experts: 2 (faculty, RN, PhD) from NIANER and a pediatrician. The reliability of the questionnaire was tested for internal consistency by cronbach’s alpha coefficient at 0.71. The original instruments of this study were developed in English version and were translated into a Bengali version and then the back translated into English based on back translation process.

Data Collection

Data was collected after obtaining permission from Institutional Review Board (IRB) at National Institute of Advanced Nursing Education and Research (NIANER)/Exp.-NIA-S-2018-28, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh and from the authority of respective high school at Dinajpur, Bangladesh. The written and verbal consent was obtained from each participant after explaining the nature and purpose of the study prior to data collection. Before starting data collection, the researcher prepared the research assistant by providing short training on how to collect data accurately. Data was collected from the school during classes by a self-report structured questionnaire and the questionnaires were distributed among the total sample 141 students who were studied in Roghupur High School at Dinajpur, Bangladesh, and requested them to return the questionnaires within 40 minutes. Data was collected from December 2018 to January 2019. The participants were informed by the researcher that they have right to withdraw themselves from this study anytime and strict confidentiality was maintained.

Data Analysis

Data was analyzed by using the computer program named Statistical Package for Social Sciences (SPSS). The descriptive statistics such as frequency, percentage, mean and standard deviation were used for analyzing the demographic characteristics of the participants. Inferential statistics including t- test, ANOVA and Pearson product-moment correlation coefficient were used to examine the relationship between sociodemographic characteristics and hypertension related characteristics with awareness of hypertension.

III. Results

Table 1 shows the socio-demographic characteristics of the secondary school children. In this study the participants mean age was 14.94 SD .947. Majority of them 88 (62.4%) were girls rest of them 53(37.6%) were boys. The participants were mostly 117 (83.0%) Muslim and few of them 24 (17.0%) were Hindu. Most of them 78 (55.3%) were from class nine and 63 (44.7%) from class ten. Majority of the father of the participants 125 (88.7%) were educated where as 16 (11.3%) were no education and most of the mother 126(89.4%) were education whereas few of them 15 (10.6%) had no education. Majority of participants father 68 (48.2%) were daily labor, 33 (23.4%) were farmer, and 40 (28.4%) were from others occupations (businessman, service holders) and most of the mother were 137 (97.2%) housewife, only 4(2.8%) were from others occupations (Service, daily labor). The average monthly family incomes mean was 10680.85 SD 6038.648 Taka ranged from 3000 to 40000 taka

The family history of participants showed that 115 (81.6%) had no history of high blood pressure (BP) where as 26 (18.4%) had no history of high blood pressure (BP). It was found that higher source of knowledge about hypertension of the participants 38 (27.0%) who got information from school, 37 (26.2%) from health personnel, 34 (24.1%) from family and 32 (22.7%) from Mass Media. Physical activity performance mean was 258.51SD139.217 (approximately 4.308hours). Majority of the participants 138 (97.9%) had no smoking and rest of 3 (2.1%) had smoking. The average systolic and diastolic blood pressure was respectively 104.57 SD 13.168 and 69.79 SD 9.371.

Table1. Distribution of Socio-Demographic Characteristics of the Participants (N=141)

Variables	n	%	M(SD)
Age (years)			14.94(0.947)
Sex			
Boys	53	37.6	
Girls	88	62.4	
Religion			
Muslim	117	83.0	
Hindu	24	17.0	
Class of education			
Class nine	78	55.3	
Class ten	63	44.7	

Awareness of Hypertension among Secondary School Children in Bangladesh

Variables	n	%	M(SD)
Father's Education			
No schooling	16	11.3	
Primary school	53	37.6	
Secondary school	44	31.2	
Others(Higher secondary, diploma)	28	19.9	
Mother's Education			
No schooling	15	10.6	
Primary school	50	35.5	
Secondary school	53	37.6	
Others(Higher secondary, diploma)	23	16.3	
Occupation of Father			
Farmer	33	23.4	
Daily labor	68	48.2	
Others(Business, Service holder)	40	28.4	
Occupation of Mother			
Housewife	137	97.2	
Others (Service holder, daily labor)	4	2.8	
Family income (In Taka/month)			10680.85(6038.65)
Family History of High Blood Pressure			
Yes	26	18.4	
No	115	81.6	
Sources of Knowledge about Hypertension			
School	38	27.0	
Health personnel	37	26.2	
Family	34	24.1	
Mass media /Radio/Television/newspapers)	32	22.7	
Physical activity (minutes/week)			258.51(139.22)
Smoking			
Yes	3	2.1	
No	138	97.9	
Present Blood Pressure			
Systolic.....mmHg			104.57(13.17)
Diastolic.....mmHg			69.79(9.37)

Table 2 shows the awareness of hypertension among secondary school children. The total mean score on awareness of hypertension was (3.86 ±.48). The majority of the participants had high score of awareness of hypertension. The total item was 18 out of total score 90. Majority of the participants (47.5%) strongly agreed on “stroke is the major complication of “hypertension” with the mean score of (4.10±1.10), (46.1%) about the item on “mental stress contributes to develop high blood pressure “the mean score was (4.12±1.09), (45.4%) about the item on “regular measuring blood pressure is important to a person who has high blood pressure” the mean score was (4.08±1.12). About (42.6%) participants agreed regarding the item on “smoking and alcohol drinking increases risk for having high blood pressure” with the mean score of (4.04±1.13), and (42.6%) about the item regarding on “hypertension causes the complication of many vital organs” the mean score was (3.99±1.16). (41.8%) participants agreed regarding the item on “different type of junk food (Fatty diet, fast food, beverage and soft drinks) may contribute to high blood pressure” with mean score was (3.87±1.27).

Table 2. Distribution of Awareness of Hypertension of the Participants (N=141)

Items	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	M(SD)
	n(%)	n(%)	n(%)	n(%)	n(%)	
1. Hypertension is a non-communicable disease	23(16.3)	11(7.8)	15(10.6)	36(25.5)	56(39.7)	3.65(1.75)
2. The range of normal blood pressure is 120-80 mmHg.	13(9.2)	8(5.7)	53(37.6)	9(6.4)	58(41.1)	3.65(1.32)
3. Now a day, the prevalence of high blood pressure is increasing in Bangladesh.	4(2.8)	8(5.7)	10(7.1)	64(45.4)	55(39.0)	4.12(.97)
4. Mental stress contributes to develop high blood pressure	8(5.7)	3(2.1)	18(12.8)	47(33.3)	65(46.1)	4.12(1.09)
5. Hypertension is a controllable disease.	6(4.3)	16(11.3)	19(13.5)	53(37.6)	47(33.3)	3.84(1.14)
6. Smoking and alcohol drinking increases risk for having high blood pressure.	7(5)	11(7.8)	11(7.8)	52(36.9)	60(42.6)	4.04(1.18)
7. Family history contributes to hypertension.	14(9.9)	15(10.6)	39(27.7)	40(28.4)	33(23.4)	3.45(1.24)
8. Common symptom of hypertension is headache.	9(6.4)	9(6.4)	51(36.2)	36(25.5)	36(25.5)	3.57(1.13)
9. Less intake of vegetables may contribute to hypertension.	8(5.7)	9(6.4)	27(19.1)	53(32.6)	44(31.2)	3.82(1.12)

Awareness of Hypertension among Secondary School Children in Bangladesh

Items	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	M(SD)
	n(%)	n(%)	n(%)	n(%)	n(%)	
10. Extra salt contributes to hypertension	8(5.7)	17(12.1)	27(19.1)	46(32.6)	43(30.5)	3.70(1.19)
11. Decreasing physical activity contributes to hypertension	10(7.1)	13(9.2)	39(27.7)	33(23.4)	46(32.6)	3.65(1.23)
12. Overweight is a major cause of hypertension.	9(6.4)	13(9.2)	23(16.3)	51(36.2)	45(31.9)	3.78(1.18)
13. Hypertension causes the complication of many vital organs (heard, kidney, eye) of human body.	7(5.0)	12(8.5)	17(12.1)	45(31.9)	60(42.6)	3.99(1.16)
14. Stroke is the major complication of HTN	5(3.5)	11(7.8)	16(11.3)	42(29.8)	67(47.5)	4.10(1.10)
15. Green leafy vegetable and fruits are good for a person who living with hypertension.	3(2.1)	16(11.3)	12(8.5)	52(36.9)	58(41.1)	4.04(1.07)
16. Different type of junk food (Fatty diet, fast food, beverage and soft drinks) may contributes to high blood pressure	12(8.5)	10(7.1)	21(14.9)	39(27.7)	59(41.8)	3.87(1.27)
17. Healthy lifestyle is important to prevent risk of high blood pressure.	4(2.8)	11(7.8)	22(15.6)	52(36.9)	52(36.9)	3.97(1.05)
18. Regular measuring blood pressure is important to a person who has high blood pressure.	8(5.7)	5(3.5)	19(13.5)	45(31.9)	64(45.4)	4.08(1.12)
Total mean(SD)						3.86(.48)

Table 3. Shows that analysis was performed by using T-tests, ANOVA and Correlation test between demographic characteristics and awareness of hypertension of the participants. This table shows that there was statistically strong significant relationship between awareness of hypertension with age ($r=-.355$, $p<0.001$), and the awareness of hypertension and monthly family income of participants had significant positive correlation ($r=.257$, $p=0.002$). There was a significant relationship between awareness of hypertension with class of education ($t=7.655$, $p<0.001$). Whereas $M= 4.14(\pm.465)$ class ten' was high level awareness compare to class nine $M= 3.63(\pm.333)$. There was a significant relationship among participants source of knowledge about hypertension and knowledge from health personnel was higher compared with other source of knowledge ($F=3.799$, $p=0.012$) as well as physical activity of participants had significantly positive correlation ($r=.230$, $p=0.006$) and the table also shows that there was the awareness of hypertension and diastolic blood pressure had significant positive correlation ($r=.239$, $p=0.004$). It was found that there were no significant relationship between awareness of hypertension with sex, religion, father' and mother' education, occupation, family history of high blood pressure and smoking.

Table 3. Relationship between Demographic Characteristics and Awareness of Hypertension of the Participants (N=141)

Variables	M±SD	t/F/r	(p)
Age (years)		.355	(<0.001)
Sex			
Boys	3.94±0.51	1.556	(0.12)
Girls	3.81±0.45		
Religion			
Muslim	3.86±0.49	-.091	(.928)
Hindu	3.87±0.43		
Class of education			
Class nine	3.63±0.33	7.655	(<0.001)
Class ten	4.14±0.47		
Father's Education			
No schooling	3.95±0.55		
Primary school	3.79±0.43	0.60	(.614)
Secondary school	3.88±0.47		
Others(Higher secondary, diploma)	3.89±0.52		
Mother's Education			
No schooling	3.76±0.54		
Primary school	3.82±0.47	0.990	(.399)
Secondary school	3.94±0.45		
Others(Higher secondary, diploma)	3.82±0.48		
Occupation of Father			
Farmer	3.9(±0.51)		
Daily labor	3.78±0.45	2.123	(.124)

Variables	M±SD	t/F/r	(p)
Others(Business, Service holder)	3.96±0.45		
Occupation of Mother			
Housewife	3.86±0.48	-0.19	(.847)
Others(Service holder, daily labor, business)	3.90±0.38		
Family income (In Taka/month)		0.26	(.002)
Family History of High Blood Pressure			
Yes	4.00±0.44	1.660	(.099)
No	3.83±0.48		
Sources of Knowledge about Hypertension			
School	3.89±0.47		
Health personnel	4.01±0.46	3.799	(.012)
Family	3.65±0.37		b>a, c, d
Mass Media (Radio/Television/newspapers)	3.87±0.52		
Physical activity (minutes/week)		.230	(.006)
Smoking			
Yes	3.65±0.33	-.776	(.439)
No	3.86±0.47		

IV. Discussion

Adolescents' awareness on hypertension keeps a dynamic role to prevent and control hypertension because this age groups' vulnerability and susceptibility to adapt life style to influencing to non-communicable disease with hypertension (Shivalli, 2012). This chapter discussed the demographic characteristic and awareness of hypertension among secondary school children.

Demographic Characteristics of the Participants

The findings of this study showed that the average school children mean age was 14.94 (SD=.947) years with age ranged from 13-17 years. Majority (62.4%) of the participants were girls. A similar study in Nigeria found that the average school children mean age was 15.67 (SD=1.25) years. In the context of Bangladesh, the secondary school children age is 11 to 15 years (Education System in Bangladesh, 2018) and according to the international educational statistics (2005) this age was 12 to 17. Due to the fact the mean age was similar to other study and the majority of them were female (Omisore et al., 2014). Most of the participants (83.0%) were Muslim and few of them were Hindu. In the context of Bangladesh, most of the populations (89.1%) were Muslim (Bangladesh Demographics Profile, 2018). In this study majority of the participants were Muslim. Near about half of the participants fathers were daily labor. A related study in Ghana found that half of the participants' fathers were in trading (Solomon et al., 2017). In this study, majority of the population around the school were poor and had no higher education. They worked in other people's land. In the present study, the participants' monthly family income mean was 10680.85(SD=6038.65).

In the context of Bangladesh, the average monthly family income was 13258.00 (Bangladesh Wages, 2019). This study finding showed less average monthly family income of people in Bangladesh. In this study, majority of the participants' had no history of high blood pressure (BP) where as less than quarter of the participants' had the history of high blood pressure (BP). Studies of Solomon et al. (2017) and Qaddumi et al. (2016) showed the similar findings. May be the reason of it was that they lived in rural area, take more fresh vegetables than rich food and majority were poor and they did more physical activity for their agriculture. There was found higher source of knowledge about hypertension of the participants from health personnel in this study. This finding was consistent with the study of Kofi (2012).Whereas, another study found that there was mass media (newspapers, television, and radio) the higher source of knowledge about hypertension (Wijayathunge & Hettiaratchi, 2017) in Sri Lanka. Due to the fact, in the school different health education programs were conducted by health personnel from different Non-Government Organization (NGO) & company.

Majority of the participants were non-smokers and rest of them were smokers which were similar to the study conducted in Palestine (Qaddumi et al., 2016). Although the number of smokers was less compared with previous studies, efforts are still needed to reduce or eliminate these numbers by health education program in school. The average blood pressure of the students was systolic blood pressure M=104.57 SD=13.168 and diastolic blood pressure M=69.79, SD=9.371 however, The present study showed that there were three students with high blood pressure out of 141 students respectively 130/90mmHg, 140/90mmHg, 150/90mmHg based on world health organization (2015).

Awareness of Hypertension among Secondary School Children

There was a significant relationship between demographic characteristic (Age, family income, class of education, sources of knowledge about hypertension, physical activity) and awareness of hypertension among

secondary school children. This finding was consistent with others studies (Grad et al., & Kiliš-Pstrusińska, 2015; Kumar et al., 2015; Htun, Win, Naung, & Soe, 2016; Abdalla et al., 2016).

In this study, the average awareness level of secondary school children about hypertension was in high level 3.86 (SD .48). These finding congruence with the study conducted in Nijeria (Omisore et al., 2014) and Poland (Grand et al., 2015).

The present study found that there was a statistically significant positive relationship between age and awareness of hypertension ($p < 0.001$). These finding was similar to the study of Kumar et al. (2015) conducted in India. This finding was inconsistent with the study of Grad, et al. (2015) that found there was not significant relationship between the age and awareness of hypertension. It means participants whose age was high their awareness regarding hypertension was high. Such a tendency in accordance with a commonly known concept claiming that children's awareness expands along with increasing their age.

The findings of the study showed that there was a statistically significant relationship between awareness of hypertension with class of education ($p < 0.001$). The study of Grad et al. (2015) found slightly below statistical significance of relationship between the awareness of hypertension and the level of education ($p = 0.08$). It was noted that the higher the school grade, the higher the percentage of participants with better awareness about hypertension. Due to the fact that the participants who read in class ten might have high possibility to contact the information regarding hypertension.

The study of Grad et al., (2015) found statistically significant positive relationship between family history of hypertension and awareness of hypertension ($p < 0.001$). In present study, finding showed contrary that there was not revealed any significant relationship between the awareness about hypertension and family history of hypertension ($p = 0.09$). If there was no significance yet, though the participant, who has high blood pressure history in their family, can assume knowledge from their family about the cause, prevention and treatment of high blood pressure and they might have high awareness level.

In this study, it was found that the monthly family income and awareness of hypertension positively correlated ($r = 0.257$, $p = 0.002$) which was significant. This finding was similar to the study on (Htun et al., 2016) in Myanmar. However, the result showed that participants', who had higher monthly income, had higher awareness level. In the context of Bangladesh, the average monthly family income was 13258.00 (Bangladesh Wages, 2019). In this study, the average monthly family income was less than the context of Bangladesh average monthly family income. If their income level was average or high, their awareness level may also be higher.

The research found that there was a significant relationship between sources of Knowledge about Hypertension and awareness of hypertension ($F = 3.799$, $p = 0.012$). Health personnel were higher source of knowledge than other sources. The comparable study showed that the similar finding ($p < 0.001$) (Grad et al., 2015). Due to the fact, in the school different health education program was conducted by health personnel from different Non-Government Organization (NGO) & company. Whereas another study found that there was mass media (newspapers, television, and radio) the higher source of knowledge about hypertension (Wijayathunge & Hettiaratchi, 2017) in Sri Lanka. There were regular media advertisements. It was very important for school children to know the risk factors, prevention, unhealthy lifestyle about non-communicable diseases and they can determine health seeking behavior and disease outcome.

In the study there was a significant association between the physical activity of the participants and awareness of hypertension ($r = .230$, $p = 0.006$). A consistent study was conducted by Abdalla et al. (2016). It reflects that spending more time in physical activities plays an important role in preventing and delaying the onset of hypertension.

In the present study it was found that there was no significant different between sex, religion, father and mothers' education and occupation, family history of hypertension and smoking with awareness of hypertension. As for other authors, their observations in this field are varied (Vanhecke et al., 2006; Grad et al., 2015).

Limitations of the Study

The conducted study has some limitations. Firstly, the study was based on a convenience sampling; there might have been a selection bias. Data were collected using self-reported questionnaires developed by the researcher which need to further test of validity and reliability. In addition, the study participants were selected from only one secondary rural school, therefore the study findings may not be generalized for the whole population.

V. Conclusion And Recommendations

Conclusion

The study was a descriptive exploratory study design carried out from July 2018 to June 2019 at Raghupur high school in Dinajpur, Bangladesh. The aim of the study was to determine the awareness about hypertension among secondary school children in Bangladesh. The total sample included 141 secondary school children from the respective school.

In this study, the average awareness level of secondary school children about hypertension was high (mean 3.86; SD .48). The awareness of hypertension and the study subjects showed a significantly association with Age, family income, class of education, sources of knowledge about hypertension and physical activity. The adolescent perceived high level of awareness about hypertension. The findings of the study will provide information for the nurses who may help to the people. Awareness about a disease plays an essential role in its future development, early prevention and detection. Better awareness of hypertension of adolescents adapted healthy life style and practiced primary level of prevention of hypertension. In the present study, there were low awareness level of some participants on basic concept of hypertension, risk factors and prevention of hypertension. Therefore, future study and educational program regarding risk factors, symptoms and prevention practice of hypertension may be necessary for this type of population.

Recommendation

The health care system needs to be focused to increase adolescents' knowledge and awareness on hypertension. Therefore, future study and educational program may be necessary. Further research is also needed to conduct at a broad level to identify the factors related to awareness of hypertension among secondary school children in Bangladesh. Intervention study also emerged to increase the awareness about hypertension among school children which may help to decrease non-communicable diseases.

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