Research

Demographic determinants of risky sexual behaviours among senior high school students in the Hohoe Municipality, Ghana

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Abstract

Introduction: Senior High School (SHS) students fall within the age group (15-24 years) hardest hit by HIV/AIDS. Since about 90% of HIV transmission in sub-Saharan Africa (SSA) is through heterosexual intercourse, it is assumed that these students engage in risky sexual behaviours. Hohoe municipality has one of the highest HIV prevalence in Ghana (3.4%). The current study investigated the demographic determinants of risky sexual behaviours among senior high school students in the Hohoe Municipality, Ghana. **Methods:** a descriptive cross-sectional design was employed in the study. A pretested structured questionnaire was used to collect data from a multistage sample of 270 SHS students who consented to participate in January 2019. Descriptive and inferential statistics were performed using Stata version 14.0 software program at the 0.05 level of significance. **Results:** of 270 respondents, 112 (41.5%) were engaged in risky sexual behaviours. Single students were 82% less likely to engage in risky sexual behaviours than their married counterparts (p=0.032) and muslims were 89% less likely to engage in risky sexual behaviours than christians (p=0.032). **Conclusion:** religion and marital status were the two socio-demographic characteristics that were significantly associated with risky sexual behaviour. Health promotion interventions to curb risky sexual behaviours among the SHS students should target the christian and married students.

Introduction

HIV/AIDS still remains a serious public health challenge among young people aged 15-24 in sub-Saharan Africa (SSA). Sub-Saharan Africa houses two-thirds of all the people living with HIV (PLHIV) worldwide [1]. Of the 36.9 million PLHIV globally, young people aged 15-24 years account for 42% of new HIV infections [2] and in SSA, 37% of new HIV infections are among young people aged 15-24 years [3]. The risk of acquiring HIV infection is increased by unprotected sexual behaviours [4]. Adolescents and young adults aged 15-24 have been at the center of unprotected sexual practices and thus continue to suffer from negative consequences of such practices [5]. Therefore, monitoring the sexual behaviours of this vulnerable age group is necessary to control the HIV/AIDS pandemic. Risky sexual behaviours include engaging in unprotected sexual intercourse, early sexual debut, multiple sexual partners and forced sex [6]. These risky sexual behaviours are influenced by factors such as the lack of accurate information on the modes of transmission of HIV/AIDS, economic status, gender, living place, religion, age and level of education [7-9]. Some research has been conducted on sexual behaviours among Senior High School students in Ghana [10,11], but none has been done in Hohoe, which has one of the highest HIV prevalence in Ghana (3.4%) [12]. Due to the high prevalence of HIV in Hohoe, and the fact that young people aged 15-24 years account for about 42% of new HIV infections, there is, therefore, a high likelihood of encountering a sexual partner who is HIV-positive among adolescents and young adults. The current study investigated the demographic determinants of risky sexual behaviours among senior high school students in Hohoe Municipality, Ghana so that interventions could be put in place to curb these risky sexual behaviours.

Methods

Study site description: the Hohoe Municipality is one of the twenty-five administrative districts/municipalities in the Volta Region. The municipal has a total land surface area of 1,172km^2 and consists of 102 communities with a population of 188,962 projected from the national population census population growth rate of dry 2.4%. The tribes that make up the population are Ewes, the Likpes, the Lolobis, the Akpafus and the Santrokofis. The most commonly spoken dialects are Hausa, Ewe and Twi. Their major occupations are farming (about 55%), trading (about 25%) and livestock rearing (about 15%). Farm commodities produced are mainly cocoa, maize, cassava, yam and various vegetables. There are educational institutions such as government and private schools (nursery, primary, junior high, secondary and tertiary). There are six (6) SHSs, which include four (4) public schools, two (2) technical schools. With regard to health services, the municipality has a total of 34 health institutions. The services provided are clinical care, reproductive health and child services [13].

Study population: the study population was students in SHSs in the Hohoe Municipality in the Volta region.

Inclusion and exclusion criteria: inclusion criteria: the study included all SHS students in the Hohoe Municipality who consented to participate in the study and who were present at the time of the study. Also, those below 18 years whose parents/guardians gave consent for them to participate were included in the study; exclusion criteria: the study excluded students who were absent from school on the day of data collection and those who were ill.

Study design: this is a descriptive cross-sectional study, with quantitative data collection methods in January 2019.

Sample size determination: using the formula by Degu and Tessema [14], with the prevalence of 21.3% of higher risk sexual intercourse in female adolescents between the ages of 15-19 years in Ghana based on the 2008 Ghana Demographic and Health Survey [13] and assuming z-statistic for 95% level of confidence and a 5% margin of error, the sample minimum size was estimated as follows :

$$n = \frac{Z(\alpha/2)^2 p(1-p)}{e^2}$$

where n= sample size; Z$\propto$/2 = Z score of 1.96 at 95% confidence interval (C.I); P= Prevalence of higher risk sexual intercourse in adolescents between the ages of 15-19 years females in Ghana, e= margin of error,

$$n = \frac{(1.96^2)*0.213*(1-0.213)}{0.05^2}$$

n= 257.6, n= 258. Adjusting for a non-response rate of 5%, a total sample size of 270 was used.

Sampling method: a multistage sampling technique was employed in the current study. Firstly, three schools were selected randomly by writing the names of all the six senior high schools on pieces of paper which were folded, mixed in a box and three schools selected at random with non-replacement. Based on the size of each school, the number of respondents enrolled in the study for each school was allocated proportionately. Secondly, a stratified sampling technique was employed to divide the students in each of the selected schools into 3 strata namely SHS 1, SHS 2, SHS 3. Calculation of the number of respondents in each stratum was based on the proportion of the students in that stratum. Then using the sample size determined for each stratum, the number of respondents per stratum was computed. The total number in each stratum depended on the size. This was then

computed to achieve the total sample size of 270. The number of respondents in each class was calculated proportionately based on the class population in relation to the determined sample size for each selected school. Then using the sample size determined for each class, the number of respondents in each arm of the class was obtained based on the population of student in that form or class. Finally, the student register for each class was used as the sampling frame to randomly select the required number of respondents; this was done with non-replacement. Where a person selected was absent, the next person of the same sex on the register was selected to replace such a person. The proportionate method was used to ensure fair representation at all levels and between the sexes.

Data collection procedure: data were collected from participants who had consented to participate in the study. Staff teachers at the various schools were trained to assist in data collection. A pretested structured questionnaire was used to collect data on socio-demographic characteristics and sexual behaviours. Students who consented to participate were asked to sign a consent form and made to sit apart during the normal class hour and the questionnaires were distributed to them by the principal investigator and the trained staff teachers without interaction among the participants to ensure an accurate response. After gathering of the completed questionnaires, the participants were thanked for their participation in the study.

Data analysis: data were analysed using Stata version 14. Microsoft Excel 2016 was used to show the findings in frequencies, tables, graphs and percentages. Chi-square analysis was performed to test the association between categorical variables, while bivariate and multivariate logistic regressions were used to determine the strength of the relationship between the dependent variable (risky sexual behaviours) and the independent variables (demographic factors) at a significance level of 0.05. All variables statistically significant at bivariate analyses were subsequently added in

the multivariate models. In the multivariate logistic model, odds were adjusted using the backward selection method.

Measures: dependent variable (risky sexual behaviours): risky sexual behaviours was determined based on seven items namely: ever had sex, number of sexual partners in past one year, number of current sexual partners, condom use during first sex, condom use during most recent sex, frequency of condom use and ever used condom. These items were used to generate an overall risky sexual behaviours score using a composite scoring. A score of 1 was assigned to a response of "Yes" and zero (0) to a response of "No". The highest possible score was 7 and the lowest was 0. Respondents who had a score of 0 were classified as not involved in risky sexual behaviours whereas those with a score of 1 and above were classified as being involved in risky sexual behaviours. A Cronbach´s alpha of 0.63 for sexual behaviours was obtained. This implies that the combination of the items used for measuring sexual behaviour had moderate acceptable reliability based on Taber´s interpretation [15]. However, it is important to note that according to Polit and Beck [16], the following characteristics of the measurement situation can affect the value of the Cronbach´s alpha obtained: the coefficient alpha does not provide a very good estimate when the items making up the measurement scale are heterogeneous in their relationship to each other or when their number is small. The more items the instrument contains the more accurate the alpha coefficient; the Cronbach´s alpha increases with the spread of variance of scores. Low reliability coefficient may also be due to the homogeneity of the sample. The more homogeneous the sample is, the lower is the Cronbach´s alpha coefficient; the alpha coefficient is a function of test length. The longer the test the higher the level of alpha. The Cronbach´s alpha is lower when a response with two possible answers was used. The coefficient is improved when a Likert scale response option is used. Lower reliability coefficient observed for sexual behaviour could be due to these characteristics. Therefore, the Cronbach´s alpha showed

that the combination of the questions and items for measuring sexual behaviours had acceptable reliability based on Taber´s interpretation [15]; independent variables (demographic factors): the independent variables in the current study were the demographic variables (Table 1).

Ethical issues: ethical approval to conduct this study was obtained from the Research Ethics Committee of the University of Health and Allied Sciences (UHAS-REC A.4 [137] 18-19). This study was conducted following all accepted principles on the ethics of this REC. Permission was sought from the Headmaster/headmistress of the schools that participated in the study. Informed consent was obtained from each participant on a standard consent form before their inclusion in the study. While for those below the age of 18 years, permission was sought from their parents or guardians before conducting the study. Participants were assured of confidentiality and anonymity, that under no circumstances will their identity or other details be revealed to anyone during the processes of data analyses and dissemination of findings. The benefits and potential risks of the study were also explained to the participants. However, the participants were not compensated for participating in the study, but their time spent in completing the questionnaire was appreciated. The objectives and rationale of this study were duly explained to participants to ensure their voluntary participation and that they could withdraw from the study at any time.

Results

Socio-demographic characteristics of students: all the 270 questionnaires were administered and returned giving a response rate of 100%. Table 1 shows a mean age of 17.4±2.9. Most of the students, 141 (52.2%) were aged 15-17 years; majority were males 193 (71.5%); most of their fathers 86 (31.8%) had attained a tertiary level of education; 70 (25.9%)

of their mothers had attained just a J.H.S level of education; 250 (92.6%) were christians; 174 (64.4%) were Ewes; 260 (96.3%) were single and 216 (80%) were boarders.

Sexual behaviours of students: Table 2 describes the sexual behaviours of the students. The majority of the students, 159 (58.9%) had never had sexual intercourse. Of the 111 (41.1%) who had experienced sexual intercourse, majority 65 (58.6%) were between the ages of 15 and 17 years; 16 (14.4%) reported their first sexual experience was forced; 32 (11.8%) had multiple sexual partners in the past one year before the current study; 22 (8.2%) were having multiple sexual partners during the period of the study; 55(49.6%) had never used condom during sexual intercourse; majority 77 (69.4) did not use condom during their first sexual encounter; 68 (61.3%) did not use condom during their most recent sexual encounter and only 27 (24.6%) used condom always during sexual intercourse. Up to 112 (41.5%) of the respondents practised risky sexual behaviours.

Socio-demographic determinants of risky sexual behaviours: Table 3 illustrates the various socio-demographic determinants of risky sexual behaviours among the SHS students. Students who were single were 82% less likely to engage in risky sexual behaviours than those who were married [AOR=0.18 (95% CI= 0.04; 0.82; p= 0.032)] and muslims were 89% less likely to engage in risky sexual behaviours than Christians [>AOR=0.11 (95% CI= 0.01; 0.82; p= 0.032)].

Discussion

The majority (58.9%) had never experienced sexual intercourse before (Table 2), which is consistent with the results of descriptive cross-sectional survey among senior high school students in the Cape Coast Metropolis, Ghana, which also reported that 86.2% of the respondents had never experienced

sexual intercourse [17]; that of a cross-sectional study conducted among SHS students in Sekodi-Takoradi metropolis, which reported that 73.8% of the respondents had never experienced sexual intercourse [11]; that of a study cross-sectional study conducted in Universidade de Pernambuco in Brazil, which also revealed that majority of the youth reported not being sexually active [18]; that of a cross-sectional study conducted in Swaziland among school youth which reported that 58.5% of their respondents had never had sexual intercourse [19] and also with another in Ethiopia which reported 50.1% having had sexual intercourse [20]. The finding that the majority had never experienced sexual intercourse could be due to the fact that the majority of the students in the current study (54.8%) were less than 18 years of age and as such might not have been exposed to sexual experimentation. However, the 41.1% that had experienced sexual intercourse may be at risk of contracting HIV through risky sexual practices. Therefore, health promotion strategies should be put in place to protect those who have experienced sexual intercourse from acquiring HIV and those who have not experienced it, to remain abstinent.

More than half of the sexually active respondents (58.6%) had their first sexual experience between the ages of 15 and 17 years, which is very similar to what was obtained in Cameroon with age of sexual debut at 15.6 years [21]. A significant proportion of the respondents in the current study (14.4%) reported that their first sexual experience was forced (Table 2), which is similar to a cross-sectional descriptive study conducted in Cameroon which recorded 20.4% for coerced sex. The current study also reported that 11.8% of the students had multiple sexual partners in the past one year, a finding which is lower than that of a study in Cameroon, which obtained 32.0% for multiple sexual partners [21] and a study in Sekondi-Takoradi metropolis, which reported 54.5% for multiple sexual partners [11]. This discrepancy could be due to the cultural differences between the two countries concerning sexual activity. The culture of Cameroon as compared to

Ghana may have more liberal norms that allow for risky sexual behaviours such as polygamy. The higher prevalence of multiple sexual partners among SHS students in Sekondi-Takoradi compared to the current study may be explained by the fact that Sekondi-Takoradi is an economic hub in Ghana and as such the socioeconomic environment favors sexual promiscuity among youths compared to Hohoe which is more or less a rural area. The current study also reported that 49.6% had never used a condom during sexual intercourse. This result disagrees with that of a cross-sectional descriptive study carried out in Cameroon among high school female learners which reported a relatively higher percentage (79.5%) of unprotected sex [21].

This inconsistency again could be due to the difference in cultural practices with regards to sexual activity between the two countries. The culture of Cameroon as compared to Ghana may have more liberal norms that favors risky sexual behaviours. Majority of the sexually active respondents in the current study (69.4%) did not use a condom during their first sexual encounters (Table 2), which is similar to that of a cross-sectional study conducted among SHS students in Sekondi-Takoradi metropolis (51.9%) [11], but much higher than the findings of a cross-sectional study among secondary school youth in East Ethiopia [20] and a cross-sectional study among American adolescents and young adults [22], which recorded 34.3% and 22.9% for condom nonuse respectively. This disparity could be due to relative cultural differences with relation to sexual activities existing among these countries where these countries may have norms permitting risky sexual activities than that found in Ghana. The current study also demonstrated that 61.3% used a condom during their most recent sex (Table 2), which is similar to that of a cross-sectional study conducted among SHS students in Sekondi-Takoradi metropolis (50.6%) [11], but higher than the 34.3% that was recorded in East Ethiopia, in a descriptive cross-sectional survey conducted among youth in Haramaya secondary and preparatory school students [20]. This inconsistency might be due to a difference in cultural values between Ghana and Ethiopia with relation to sexual activities.

The culture of East Ethiopia as compared to Ghana may have more liberal norms that allow for risky sexual behaviours. The results of the study showed that out of those who had ever used condom, 24.3% (Table 2) used it consistently during sexual intercourse. This result is similar to that obtained in a cross-sectional descriptive study by Tarkang among high school female learners in Mbonge, Cameroon, 29.6% [21]. The overall prevalence of risky sexual behaviour among high school students in the current study was 41.5% (Table 2). This finding contradicts that of a study conducted among SHS students in Sekondi-Takoradi (79.1%) [11], and that of another cross-sectional study among secondary and preparatory school pupils in East Ethiopia that pooled lower prevalence of 25.3% [20]. The higher prevalence of risky sexual behaviour in the current study compared to the Ethiopian study could be due to the different participants in both studies. Our study focused on senior high school students with a mean age of 17.4 years, which is the age that is linked to sexual experimentation; while the Ethiopian study focused on secondary and preparatory students whose mean age is lower than those of the current study and as a result, many of them might not be engaging in risky sexual behaviours. The difference between the prevalence in the current study and that of Sekondi-Takoradi could be due to the high level of socio-economic activities in Sekondi-Takoradi, which favours sexual promiscuity compared to that of Hohoe, which is a rural town. The study aimed at identifying the socio-demographic determinants of risky sexual behaviours among high school students in the Hohoe municipality.

The current study reports that religion and marital status were the significant demographic determinants of risky sexual behaviours. Muslims were 82% less likely to engage in risky sexual behavior than christians (Table 3). This finding is similar to that of a descriptive cross-sectional study conducted

among high school female learners in Mbonge in Cameroon [21] and that of a study conducted among SHS students in Sekondi-Takoradi metropolis of Ghana [11]. This finding of muslims being less likely to engage in risky sexual behaviours than christians may be due to the repressive nature of the Islamic religion with regard to sexual behaviours compared to christianity. Also, christian churches such as the Roman Catholic church, oppose condom use in favor of "direct contact". This could have serious implications with regard to risky sexual behaviours of senior high school students in the Hohoe Municipality. Christian students in the current study may, therefore, be at a higher risk of contracting HIV than their muslim counterparts. Notwithstanding the sensitivity of sex and sexuality matters from a religious point of view, every effort should be made to involve religious leaders in sexuality education. However, caution should be exercised to maintain the scientific facts surrounding HIV/AIDS and to separate these from value-laden and emotive nuance provided by religion. The findings of this study show that single students were 89% less likely to engage in risky sexual behaviours than those who were married (Table 3).

This finding supports that of a demographic health survey conducted in Malawi among the youth, which observed that condom use among single youth is higher than in married youth, clearly indicating that single youth are more likely to practice healthy sexual behaviours than the married [23], but contradicts that of a cross-sectional study among SHS students in Sekondi-Takoradi, which reports that single students were more likely to engage in risky sexual behaviours than married students [11]. The finding in Sekondi-Takoradi that single students are more likely to engage in risky sexual behaviours may be attributed to the socio-economic environment in the metropolis, which could favor illicit sexual activities among the single students for financial gains. Marital status is one of the demographic variables which predispose one to take preventive action against HIV/AIDS infection due to repeated exposure to unprotected sexual intercourse

among unmarried adolescents, which increases their risk of HIV/AIDS infection. The fact that marital status predisposes one to take preventive action against HIV/AIDS infection and the fact that senior high school students are mostly unmarried and of an age in which sexual experimentation is rife, these students need pertinent sexuality education. In the current study, since married students were more likely to engage in risky sexual behaviours than single students, they might be of a higher risk of contracting HIV than the singles. Therefore, the principles of faithfulness and keeping to a single partner generally advocated by marriage should also be inculcated in health promotion programmes at the senior high school level in the Hohoe Municipality.

Limitations: the study used a self-reporting instrument that has the potential of introducing social desirability bias and there was no way of validating what the participants reported. The participants were asked to recollect their past sexual behaviours and it is possible that the participants might report inaccuracies in their past sexual behaviour. This study was restricted to only three schools in the Volta region. This, therefore, limits the generalizability of the study findings to other regions.

Conclusion

The current study reported a high prevalence of risky sexual behaviours among SHS students. Religion and marital status were the two socio-demographic determinants of risky sexual behaviours. Health promotion interventions to curb risky sexual behaviours among the SHS students should target Christian and married students.

What is known about the topic

- Senior High School (SHS) students fall within the age group (15-24 years) hardest hit by HIV/AIDS;

- About 90% of HIV transmission in sub-Saharan Africa (SSA) is through heterosexual intercourse;
- Hohoe municipality has one of the highest HIV prevalence (3.4%) in Ghana.

What this study adds

- There is a high prevalence of risky sexual behaviours among senior high school students in Hohoe, Ghana;
- Muslims students were less likely to engage in risky sexual behaviours than christians;
- Single students were 89% less likely to engage in risky sexual behaviours than those who were married.

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article. The authors declare no competing interests.

Authors' contributions

LW and EET conceived and designed the study and analysed the data; LW collected the data; EET led the writing of the manuscript and critically reviewed the manuscript. All the authors have read and agreed to the final manuscript.

Tables

Table 1: demographic characteristics of students

Table 2: sexual behaviours of students

Table 3: socio-demographic determinants of risky sexual behavior

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Table 1: demographic characteristics of Students		
Variables	**Freq. [n=270]**	**Percent (%)**
Mean age (s.d)	17.4 (±2.9)	
Age (Years)		
<15	7	2.6
15-17	141	52.2
18-20	111	41.1
21+	11	4.1
Sex		
Male	193	71.5
Female	77	28.5
Father's educational background		
No formal education	53	19.6
Primary	15	5.6
JHS	47	17.4
SHS	69	25.6
University	86	31.8
Mother's educational background		
No formal educational	67	24.8
Primary	29	10.7
JHS	70	25.9
SHS	60	22.2
University	44	16.4
Religion		
Christianity	250	92.6
Islamic	14	5.2
Traditional	6	2.2
Ethnicity		
Ewe	174	64.4
Akan	19	7.0
Ahanta	6	2.2
Guan	20	7.4
Others	51	19.0
Marital Status		
Married	10	3.7
Single	260	96.3
Place of Residence		
Boarder	216	80.0
Day student	54	20.0
JHS: Junior High School; SHS: Senior High School		

Table 2: sexual behaviors of students		
Variable	Freq (n=270)	Percent (%)
Had sexual intercourse		
No	159	58.9
Yes	111	41.1
Age of first sexual intercourse	15.4 (±2.9)	
<15	27	24.3
15-17	65	58.6
18+	19	17.1
How first sex happened		
Was forced	16	14.4
Was planned	27	24.3
Was influenced by friends	22	19.8
It just happened	33	29.7
It was out curiosity	13	11.8
Number of sexual partners in past one year		
One or none	238	88.2
Two or more	32	11.8
Number sexual partners now		
One or none	247	91.8
Two or more	22	8.2
Ever used condom during sex		
Not used	55	49.6
Used	56	50.4
Condom use during first sex		
Not used	77	69.4
Used	34	30.6
Condom use during most recent sex		
Not used	68	61.3
Used	43	38.7
How often condom is used		
Always	27	24.3
Others	84	75.7
Prevalence of risky sexual behaviour		
Prevalent	112	41.5
Not prevalent	158	58.5

Variable	Risky sexual behavior		χ2	COR (95% CI) p value	AOR (95% CI) p value
	No n (%)	Yes n (%)	(p value)		

Table 3: socio-demographic determinants of risky sexual behavior

Variable	No n (%)	Yes n (%)	χ2 (p value)	COR (95% CI) p value	AOR (95% CI) p value
Age (Years)					
<15	6(3.8)	1(0.9)	5.10		
15-17	88(55.7)	53(47.3)	(0.164)		
18-20	59(37.3)	52(46.4)			
≥21	5(3.2)	6(5.4)			
Sex					
Male	110(70.1)	82(73.2)	0.32		
Female	47(29.9)	30(26.8)	(0.573)		
Father's educational background					
No formal education	36(22.8)	17(15.2)	7.82		
Primary	5(3.2)	10(8.9)	(0.099)		
JHS	29(18.4)	18(16.1)			
SHS	43(27.2)	26(23.2)			
University	45(28.5)	41(36.6)			
Mother's educational background					
No formal educational	46(29.1)	21(18.8)	5.75		
Primary	13(8.2)	16(14.3)	(0.219)		
JHS	41(26.0)	29(26.0)			
SHS	32(20.3)	28(25.0)			
University	26(16.5)	18(16.1)			
Religion					
Christianity	141(89.2)	109(97.3)	7.43	Ref.	Ref
Islamic	12(8.2)	1(1.0)	(0.024)	0.10 (0.01;0.80) 0.027	0.11 (0.01;0.82) 0.032
Traditional	4(2.5)	2(1.8)		0.65 (0.12;3.60) 0.619	0.69 (0.12;3.83) 0.670
Ethnicity					
Ewe	92(58.2)	82(73.2)	7.77		
Akan	14(8.9)	5(1.5)	(0.100)		
Ahanta	5(3.2)	1(1.0)			
Guan	12(7.6)	8(7.1)			
Others	35(22.2)	16(14.3)			
Marital Status					
Married	2(1.3)	8(7.1)	6.35	Ref.	Ref.
Single	156(98.7)	104(92.9)	(0.012)	0.17 (0.34;0.80) 0.025	0.18 (0.04;0.82) 0.032
Place of Residence					
Boarder	125(76.1)	91(81.3)	0.19		
Day student	33(20.9)	21(18.6)	(0.666)		
JHS: Junior High School; SHS: Senior High School					