

## Social factors associated to the multiple risk behaviors among high school students: A case study of Hanoi high school students, Vietnam

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### ABSTRACT

**Background:** Young people who engaged in different risk behaviors attracted concern nowadays. Noticeably, the concurrent multiple risk behaviors generate adverse effect to health and their future life.

**Aims:** The objectives of this study were to investigate the prevalence of the concurrent multiple risk behaviors and to evaluate the association between social factors and the concurrent multiple risk behaviors among the high school students in Hanoi, Vietnam.

**Methods:** A quantitative survey with a cross sectional design was applied involving a total of 1,333 Hanoi high school students. The survey was conducted in the end of 2016. The multivariate linear regression models were applied to examine the social factors associated with the concurrent multiple risk behaviors of Hanoi high school students. Eighteen different risk behaviors had been selected for constructing a composite variable of the total risk behaviors that students have engaged in.

**Results:** On average, the high school students have been reported involving in 4.88 behaviors of the 18 selected observed risk behaviors. The multivariate linear regression models with demographic factors and different social connections of high school students could explain for about 37.6% of the difference in composite variable of the total risk behaviors. This present study reveals several factors that increase the number of risk behaviors the students may engage, including the connection to the family's members or friends, duration in social media, and the number of friends in the online network. In the contrast, strong family connection has been demonstrated to provide a "safe haven" for protecting the high school students from involving in increasing multiple different risk behaviors.

**Conclusion:** The research findings strongly recommend early prevention strategies should be conducted among the high school students. The identified concurrent risk behaviors should be targeted as prevention actions rather than focusing on controlling individual risk behaviors. In addition, the involvement of their parents and friends are suggested to be the target audience together with students in concurrent risk behaviors controlling and preventing programs among the high school students and young generation.

## INTRODUCTION

Risk behaviors involvement by adolescents is a noticeable issue all over the world as it relates to the physical, mental health as well as the future's prospect of the of the young generation. Many evidences from social studies showed that adolescent is now facing with the risk of involving in many different risk behaviors [1]. It also poses a threat to their future with many different diverse health consequences and then challenges the socio economic development and the social burden [1, 2, 3, 4, 5]. According to the World Health Organization (WHO), there were about 2.6 million young people from 10 - 24 years old, die each year and most of these deaths due to the preventable causes such as violence, suicide, sexually transmitted diseases, traffic accidents, and drug abuse. According to the report, there were about 16 million adolescent girls give birth and about three million girls aged 15- 19 undergo unsafe abortions every year. In terms of the HIV infection, young people from 15 to 24 were accounted for 40% new HIV infections among adults. About 150 million young people use tobacco and high number die every day due to the road traffic injuries and interpersonal violence [6]

Notice about the importance of the issue, many studies focus on different risk behaviors of adolescent in both developed and developing countries. The evidences also showed that there were many common risk behaviors among young people such as: violence, unsafe sex, alcohol and tobacco and drugs use, unsafe traffic behaviors, and suicide intention [3, 4, 5, 7, 8]. Noticeably, high school students in many countries also have already engaged in multiple risk behaviors and it would be a new crisis of the young generation nowadays [5, 8, 9]. It was showed from the high school students' study in 42 states of US that more than 50% of all high school students had at least 2 risky behaviors and there was about 15% of all had 5 risky behaviors or more than 5 [3]. The similar result was also demonstrated in the study of Sychareun in Laos with the noticeable proportion of students had 2, 3, 4 or more concurrent risk behaviors. [4]. The evidence from some studies showed that adolescents tend to take a cluster of risk behaviors when they have already engaged in one risk behaviors and the concurrent of health risk behaviors was evaluated to be a very *risk issue* of young people nowadays [5,8,9].

Adolescents are accounted for about 30% all population in Vietnam and they are believed to be a gold labor resource for Vietnam in the next few

years. Findings from SAVY2 (Survey Assessment of Vietnamese Youth Round 2) with the respondents from 15 to 24 years old showed the prevalence of the different risk behaviors including: tobacco smoking, alcohol drinking, drugs using, violent behaviors, unsafe sex. In addition, traffic accidents and injuries were demonstrated to be the burden of the population from 15 years old. [10, 11, 12, 13, 14]. The prevalence of each individual risk behavior in Vietnam had been clearly explored by SAVY2 and many other studies. For example, 10.6 % of young people reported to have injury due to the traffic accidents in 12 months before the survey, 7.6% of them did suffer violent behaviors from people outside their family [10, 11, 12, 13, 14]. However, the status of acquiring concurrent risk behaviors of young people is still a question in Vietnam and it need to be investigated comprehensively. The involvement in concurrent risk behaviors could be seen as the risk of facing with higher risk that threatening their lives and their future.

With the aim of exploring the status of having multiple risk behaviors as well as to investigate the different social factors associated with the risk of having multiple risk behaviors, the study was conducted with the sample of more than 130 high school from Hanoi. The findings from this study would contribute to the better understand about risk behaviors among adolescent in general and to identify the different social factors which could be the protectors or the risk factors for identifying further effective intervention programs.

## METHODS

### *Study design, data collection and sampling method*

A cross sectional study design was selected to investigate the status of the concurrent risk behaviors and the social factors associated with the status of engaging in multiple different risk behaviors of high school students in Hanoi, Vietnam. A quantitative method with prepared questionnaire was conducted with a sample size of more than 1,330 students. Among 12 districts, there were about 80 high schools including both public and private schools and about 72,000 high students estimated by Hanoi education department in 2015 [15]. Participants were selected from 6 Hanoi's high schools and the survey was conducted in December 2016. The sampling process was divided into different phases for randomly selection on districts, schools, classes and then the respondents. Of 12 districts in Hanoi, 3 districts were randomly selected for population selection. From each

district, the list of all public schools and the nonpublic schools had been established, then 3 private schools and 3 public schools had been randomly selected from each list. All international schools or specialized schools were excluded from the selection list, therefore the conclusion of this study is not applied for the students study with international curriculum.

At each selected school, two classes of each grade [10, 11, 12] were selected randomly, therefore six classes of each school had been selected. All students from these selected classes were invited to do the survey after receiving full information about the goals and the anonymity of this survey. In total, 1,333 respondents from 36 classes of six high schools had completed the survey. The proportion of the students from public school and private schools were 55% and 45% respectively. There was 33% of all respondents from 10<sup>th</sup> grade and the students from 11<sup>th</sup> and 12<sup>th</sup> class accounted for 32% and 35% respectively.

#### ***The dependent variables***

The study focused on exploring the risk of having concurrent multiple risk behaviors among the selected 18 risk behaviors, including tobacco smoking; alcohol drinking (had ever drunk by wine or beer); shisha smoking; drugs uses; hallucinogenic substances uses; three (3) violent behaviors (physical violent behaviors, face to face bullying, indirect bullying (by Facebook or cell phone)); self-violent behaviors (self-inflicted injury); suicide intention; suicide attempt; and seven (7) unsafe traffic behaviors (travelling by motorbike without helmet; actively violate the common traffic regulations including speeding/crossing during the red light/ traveling on the wrong lane; Driving and carrying passengers by motorcycles of 50 cm<sup>3</sup> or less; traveling on motorbike carrying more than 2 persons; hard traffic law violation; to be penalized by the polices; motorbike racing). The value of the composite variables of the total risk behaviors was scored from 0 to 18 and the value is interpreted as the total number of different risk behaviors each student had engaged in. The risk behaviors that students had engaged in were assumed to be occurred not too far from the time the data was collected, and students still can clearly remember and recall about their involvement.

#### ***The independent or explaining variables***

The study involved vary social connections as the independent variables. Family connection status was evaluated through 3 indicators: parents marriage status (living together or seperation/ divorce); the strength of family connection; and connection with family's

members engaging in different risk behaviors. The school connection status includes the connection's status with schools, teachers and friends that may involve in different multiple risk behaviors. Social media networks connection was interpreted as the volume of engaging in social media networks (average time spending for social media networks per day and the estimation of online friends). Other social connections such as the participation in different social activities (involve in after-school clubs; volunteer or charity's activites; doing part time jobs) were also considered affecting the risk behaviors.

#### ***Ethical considerations***

The data of this article is a part of the Doctor Thesis study of the author, which was reviewed and approved by Ho Chi Minh National Political Academy in terms of the ethical and scientific aspects. The author has successfully completed the doctoral dissertation and been awarded to be a doctor of sociology.

#### ***Data analysis***

The multivariate linear regression models were applied to examine the social factors associated with the concurrent multiple risk behaviors of Hanoi high school students. Eighteen different risk behaviors were selected for constructing composite variable of the total risk behaviors that students have engaged in.

## **RESULTS**

### ***The concurrent multiple risk behaviors among Hanoi high school students***

Tabel 1 presents the detail proportion of each risk behaviors among Hanoi high school students. With 1,333 respondents, 52% of all were males and 48% of all were females, while the 55% students were from public schools and 45% from private schools. The proportion of students from class 10, 11 and 12 were: 33%, 32% and 35% respectively. It was clear from the result that high school students had involved in different risk behaviors at the noticeable proportions, since the high school students had been facing the very high risk of alcohol drinking, unsafe traffic activities, and vary violent behaviors. The potential high risk behaviors such as: drugs and hallucinogenic substance uses, traffic accidents causes, and suicide attempt, were also found with noticeable high proportion among Hanoi high school students: drug uses (6.9%), hallucinogenic drug taking (6.8%); physical violent behaviors (24%), suicide attempt (4.8%), and motorbike races (7%).

**Table 1.** The frequency of different single risk behaviors of high school students

Risk behaviors	Number	%
<b>Smoking, alcohol drinking and drugs uses</b>		
Smoking (have ever smoked)	280	21
Alcohol drinking (drunk)	846	63.5
Have ever smoked shisha	291	21.8
Drugs uses	92	6.9
Hallucinogenic drug uses	91	6.8
<b>Using/ involving in violent behaviors</b>		
Physical violent behaviors	320	24
Direct bullying	259	19.4
Indirect bullying (through social media networks or cell phone)	167	12.5
Have at least one of the three violent behaviors	460	34.5
<b>Self-injury, suicide intention or suicide attempt</b>		
Self inflicted injury	272	20.4
Suicide intention	244	18.3
Suicide attempt	64	4.8
<b>Unsafe traffic behaviors</b>		
Travelling by motorbike without helmet	792	59.4
Actively violate the common traffic regulations	689	51.7
Driving motorcycles of 50 cm <sup>3</sup> or less but carry passengers	670	50.3
Traveling by motorbike carrying more than 2 persons	608	45.6
Traffic accidents causing	483	36.2
Hard traffic law violation and was penalized by the police	288	21.6
Racing	93	7
Having at least one unsafe traffic behavior	1165	87.4

In addition to the high prevalence of multiple risk behaviors, Table 2 shows high proportion of students engaging in more than 2 different risk behaviors. On average, the students were reported to have 4.88 risk behaviors, and 84.3% of all respondents had 2 or more risk behaviors. The proportion of students having from 5 risk behaviors or more was more than 45% of all. Noticeably, there was nearly 14% of all respondents said that they had ever had 8 or more risk

behaviors among the 18 observed risks. In terms of the violent behaviors, 34.5% of all students were reported to be involved in at least 1 of the three selected violent behaviors and 15.6% of all reported to be involved in two or three violences (physical violent behaviors, direct or indirect bullying). With 7 different unsafe traffic behaviors, each student had involved in 2.7 of all on average and one third of all students had involved in 4 or more unsafe traffic behaviors

**Table 2.** The frequency of involving in different total number of risk behaviors

Number of risk behaviors students had involved in	Total number	%
0	72	5.4
1 -2	287	21.5
3 -4	336	25.2
5-6	261	19.6
7-8	189	14.2
9 and more	188	14.1
Total	1,333	100

**Table 3.** Multivariate linear regression models analyzing the association between social factors and the concurrent multiple risk behaviors among Hanoi high school students

Predictors	Model 1		Model 2		
	B	Stand. Beta	B	Stand. Beta	
<b>Socio-demographic factors and others</b>					
Sex	Male students (vs female ones)	.358***	.054	.347**	.053
Class	Grade 10 (vs grade 11 & 12)	-.965***	-.138	-.480***	-.069
Academic outcome	Excellent and good (vs average and week)	-.976***	-.124	-.573***	-.073
Parents' education	Parents' education level ( <i>higher score showed a better education outcome of both parents</i> )	-.396***	-.122	-.243***	-.075
Students' school	Public schools (vs non-public schools)	-.830***	-.135	-.234***	-.035
<b>R square = 9.1%; Sig = 0.000</b>					
<b>Social connections: Family connection's status</b>					
Parents relationship	Both parents (vs divorce/ separation)			-.414*	-.042
Family connection strength	Family is believed to be a sweet home and all members maintain good relationships. ( <i>measured by score: the higher score showed the better evaluation from respondents</i> )			-.100***	-.111
	Family can provide students the spiritual supports and they do not suffer the stress and high pressure from family ( <i>measured by score: the higher score showed the better evaluation from respondents</i> )			.063*	.048
Connecting to Family's members with different risk behaviors	The number of risk behavior types that family's members have involved in ( <i>the value of the variable is increased with the increasing number of risk behaviors that their family members have engaged in</i> )			.714***	.255
School connection strength	Close connection to the school ( <i>measured by score: the higher score showed the better evaluation from the respondents</i> )			-.060	-.042
	Close connection to the schools' friends ( <i>measured by score: the higher score showed the better evaluation from the respondents</i> )			.036	.026
	Close connection to the schools' teachers ( <i>Score scale measured: the higher score showed the better evaluation from the respondents</i> )			-.009	-.008
Connecting to friends involve in different risk behaviors	The number of different risk behavior that their close friends have engaged in ( <i>the value of the variable increased with the increasing number of the risk behaviors that their members have engaged in</i> )			.646***	.306



Predictors	Model 1		Model 2	
	B	Stand. Beta	B	Stand. Beta
<b>Social connections: Others social connections and social media networks connections</b>				
Involving in volunteer/ charity	Yes (vs No)		.250	.030
Doing part time jobs	Yes (vs No)		.291	.027
Joining in After school clubs	Yes (vs No)		.289	.040
Average times spending for social media networks	From 3 hours or more (vs less than 3 hours) per day on average		.643***	.090
Estimation of student's online friends	From 1,000 online friends or more (vs less than 1000 online friends)		.736***	.106
R square = 37.6%; Sig = 0.000				

*Notes: Model 1: Social demographic factors. Model 2: More variables had been added: family connections, school connections and the other social connections. N (sample size) = 1,333; \* P < 0.05; \*\* P < 0.01; \*\*\* P < 0.001. The family connection strength and school connection strength: Different dimensions and aspects of each connection have been explored by multiple questions. Each question was measured through the 5 points scale: the higher score shows the better relationships or closer connection of each measured dimensions.*

Table 3 exhibits the association between the different social factors and the risk of having multiple risk behaviors among high school students, multivariate linear regression models have been applied to identify the protective factors and risk factors. Two multivariate linear regression models had been applied: the first model was built with the predictors of all social demographic factors and other students' individual factors. In the second model, all social connections factors had been added including: family connections, school connection and other social activities & social medial networks connections. The result showed that with only the demographic factors and other student's individual factors (academic outcome, school type), the statistic model can only explain for about 9.1% of the variation. However, when the model has been added with varied factors of the social connections (family connections, school connections and other social connections), the updated model had been improved and can explain for about 37.6% of the variation in composite variable of the total risk behaviors that students have engaged in.

In terms of the socio demographic factors and the other factors, the protective factors can help to reduce the risk of having increasing total number of the

multiple risk behaviors including: good academic outcome, the 10<sup>th</sup> grade students, students from public schools and students living with high educated parents. In the contrast, male students were at higher risk of engaging in multiple risk behaviors in comparison to female students.

In terms of the family and school connections, the noticeable protective factors for having additional risk behaviors including: student's family connection status (*parents living together and family is believed to be a sweet home and all members maintain good relationships*). The statistic also showed that the relationship between the strength of school connection and the risk of having increasingly number of risk behaviors was not significant. However, both having family's members or friends engaging in different risk behaviors have demonstrated to be the significant risk factors for engaging in increasing concurrent risk behaviors of high school students.

In terms of the other social connections, two other main social connections had been investigated: connection to social activities (Involving in volunteer/charity activities; doing part time jobs; joining in after school clubs) and the volume of students' connection to social media networks. It was showed that the

relationship between involving in different social activities and the risk of having increasing concurrent risk behaviors was not significant. However, close connection to social media networks, which was indicated in the long time spending on different social networks such as Facebook, Instagram (from 3 hours or more per day) or having too many online friends (from 1000 online friends and higher), both of these indicators had demonstrated to have a close relationship with the risk of having multiple concurrent risk behaviors.

## DISCUSSION

The purpose of this study was to investigate the prevalence of different risk behaviors among high school students and to examine the social factors explaining for the concurrent risk behaviors among high school students. The result showed that concurrent multiple risk behaviors was a noticeable issue among the participated high school students of Hanoi, Vietnam. This social issue was also labeled as the "*risk behavior syndrome*" occurring among adolescents in some other countries. For example, the study of concurrent multiple risk behaviors among America's high school students also showed that there was more than 50% of all had from 2 risk behaviors, and more than one third of all have from 3 risk behaviors or more [1]. A survey conducted in Luangnamtha province of Laos which focused on 7 very high risk behaviors (alcohol use, smoking, substance use, having sex, having the first sex before 15 years; two or more partners during the last six months, not using condoms for the last sexual intercourse), the proportion of students who had 1, 2, 3, 4 and 5 risk behaviors were: 39.3%, 8.1%, 4.2%, 1.2%, and 0.4% respectively [5]. It raises the needs to question what and how one or more specific risk behaviors could cause to have additional risk behaviors among young people.

The new contribution of this study was to identify and demonstrate the different social connections which can be the potential predictors of the concurrent multiple risk behaviors of young people. The importance of the family's role had been mentioned in Bowlby's theory which was highlighted the important of the "*family bond*" to be a "*safe haven*" for the children [16]. Moreover, this "*safe haven*" could help strengthening their capacity for their well engagement with the healthy relationships and social networks outside their families throughout their childhood and their adulthood. It was also the main contribution of

Berkman and her colleagues which highlighted the importance of the social attachment and social connection and the way it contributes for the human's positive health. The argument that social integration and social attachment can provide the spiritual and material supports for the participants, therefore, could contribute for improving their health status through different pathways: (1) providing of social support; (2) providing social influence; (3) strengthening social engagement and attachment; and (4) accessing to different resources and material goods [17].

This present study explains how in the traditional Vietnamese context, family connection was believed playing very strong role in how the adolescents involving to varied risk behaviors. Nowadays, with the intensive process of industrialization and modernization, parents in a big city like Hanoi usually are very busy with their work and their personal interests. Therefore, the time spending for their children after school is believed to be limited or being reduced. In addition, the number of high school student living in divorce families in Hanoi city is noticeable where 8.2% students from public school and especially 19% of students from private schools living in separated or one parent family (the statistic from this survey). Therefore, it could be predicted that the strength of family connection in the big city like Hanoi would be weaker in the future. In addition to the family connection, the strength of school connection is also being effected by the overpopulation in the big cities. As the school's system being heavily overloaded and each teacher has to be in charge of the increasing number of students of each class and it is very hard for them to keep the good relationship and strong connection to a large amount of students. [18]. The weaker family connection and school connection would be the risk factors contributing to the potential of having additional risk behaviors among high school students.

It was also the finding of the survey that not all the close and strong social connections can be the protectors of involving in multiple risk behaviors among high school students. Having a close connection to the social media networks, which is showed in the long time spending on the online networks and having too many online friends, had been demonstrated to be the risk factors of having concurrent risk behaviors. Social media networks and online connections are very new issues nowadays which have posed many concerns and advert consequences for young people. Joinning on the online networks space, adolescents as well as the adults

are now equally in accessing on any information and spaces. However, the problem is that the very young students and also the new members of social media network may not have enough experience and life skills to cope with the risk of informal information and different temptations from social media networks or from online friends. Therefore, unhealthy information from different social networks and unhealthy online friends could influence them, including encouraging them by direct or indirect ways to involve in different risk behaviors. This is a very new emerging issue that need to be investigated in more detail on the potential risk of social networks overusing and the way it influences on young generation in terms of engaging in concurrent risk behaviors.

The limitation of this study is that all 18 individual risk behaviors were treated equally, therefore, the composite variable of the total 18 risk behaviors was simply constructed by adding all risk behaviors among 18 mentioning behaviors. It could be claimed that some risk behaviors may be more dangerous than the others. However, there was no reference for justifying the volume of the risk of each behavior in terms of the "potential risk" to be converted to the "real life" suffering. This issue is also the question for the future investigations to provide more information and evidences on that.

## CONCLUSION

It was highlighted from the study that there are many different risk behaviors that come to be prevalent among high school students. In addition to the prevalence of the different single risk behaviors, many students have already engaged in multiple risk behaviors and this situation posed the high school students to the vary risks and disadvantages for their future as well as threatening their physical and mental health. It was found that good family relationships and strong family connection were the protective factors for engaging in additional multiple risk behaviors among high school students. In contrast, connecting with family's members or friends who involved in multiple risk behaviors as well as maintaining a strong connection with social media networks were demonstrated to be the risk factors of acquiring additional multiple risk behaviors.

The findings suggest the needs of policy implication to address concurrent multiple risk behaviors among young generation. Controlling and intervening concurrent multiple risk behaviors should be integrated on youth development strategy as a key

issue to be addressed. It was demonstrated from this study that the social factors, especially the different social connections have a strong influence on the risk of having concurrent different risk behaviors. Therefore, reducing multiple risk behaviors among young people should include the involvement of the family's members, teachers, schools, social workers and other different authorities. The risk behaviors' intervention and controlling programs should be delivered at early stage and should focus on multiple risk behaviors rather than the single risk ones. The high risk groups such as male students, students living in broken families or living in poor connection families, students who live with family's members or friends engaging in multiple risk behaviors, students addicted social media networks or spending too much time for online relationship and online activities, should be targeted in some specific and intensive intervention programs with the professional assistance from different experts.

## CONFLICT OF INTERESTS

This research is independent and have no conflict of interests.

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