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臺灣大學生之中小學時期霸凌相關經驗與其健康相關生活品質之關連性探討

Exploring the Associations between School Bullying-Related Experiences and Health-Related Quality of Life (HRQOL) among College Students in Taiwan

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本論文係陳昱穎君（R00848003）在國立臺灣大學健康政策與管理研究所完成之碩士學位論文，於民國 102 年 07 月 31 日承下列考試委員審查通過及口試及格，特此證明

口試委員：黃俊豪

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中文摘要

研究背景與目標：霸凌乃一常發於青少年族群之問題行為，並可導致長期之健康影響。據所知，關於大學生之中小學霸凌相關經驗，對其健康相關生活品質 (health-related quality of life, HRQOL) 影響之研究相對鮮為人探究。是故，本研究欲藉實證方式，瞭解臺灣大學生之中小學霸凌相關經驗盛行率，及其與 HRQOL 之關聯性。

研究方法：自陳式調查資料於 2013 年 3 月，以等比例分層集束抽樣方式取自 1,452 名大學生（回應率=90.8%）。來自大學前或大學時期，各種型態（如：肢體、言語、關係及網路）之霸凌經驗均被測量；而 HRQOL 則以世界衛生組織生活品質問卷（臺灣簡明版）測量。此外，研究者於多元迴歸分析中，納入研究參與者之背景特性、健康狀態（憂鬱、醫師診斷之生理與心理疾病）及健康危險行為，以控制其可能之干擾效果。

研究結果：多元迴歸之結果顯示，在生理健康方面，具大學前被網路霸凌經驗 (β=.060) 之大學生，自陳顯著較高之 HRQOL；然而，未發現任何霸凌相關經驗與心理之 HRQOL 顯著相關。至於社會關係方面，大學前與大學兩時期皆被言語 (β=-.086) 或關係 (β=-.056) 霸凌者，具顯著較低之 HRQOL；然大學前與大學兩時期皆言語 (β=.130) 或關係 (β=.072) 霸凌他人者，自陳顯著較高之 HRQOL。最後在環境方面，具大學時期被網路霸凌經驗 (β=.068) 之大學生，自陳顯著較高之 HRQOL。

研究結論：不同霸凌相關經驗與不同面向之 HRQOL 顯著相關；特別當被霸凌經驗同時發生自大學前與大學時期，社會關係面向之 HRQOL 將顯著受影響。此外，憂鬱症可能於被霸凌經驗與 HRQOL 之關係間，表現中介效果，顯示被霸凌經驗可能藉憂鬱症表現其對 HRQOL 之負面效果。簡言之，本研究結果強調了關注青少年霸凌相關經驗之重要性，且尚需更多相關研究，以探討校園政策與衛生教育之倡議對霸凌危害之改善。

關鍵詞：霸凌、健康相關生活品質、世界衛生組織生活品質問卷（臺灣簡明版）、憂鬱症、大學生、臺灣

ABSTRACT

Background and objectives: Bullying is a commonly occurring problem behavior among adolescents and youths, which could lead to long-term health effects. To our knowledge, the effects of school bullying-related experiences on health-related quality of life (HRQOL) among college students have been relatively underexplored. Thus, the current study aimed to empirically examine the prevalence of school bullying-related experiences and their associations with HRQOL among college students in Taiwan.

Methods: Self-administered survey data (response rate=90.8%) were collected from a total of 1,452 college students within March, 2013, using the proportional stratified cluster sampling method. Different types of bullying-related experiences (i.e., physical, verbal, relational, and cyber) before and in college, for bullies and victims, were measured. HRQOL was assessed by the World Health Organization Quality of Life (WHOQOL-BREF) Taiwan version. To adjust for potential confounding effects, the multivariate linear regression analyses also accounted for participants' background characteristics, health conditions (depression, diagnosed physical and mental disorders), and health risk behaviors.

Results: College students with cyber bullied experiences before college (β=.060) reported significantly higher HRQOL in physical health. However, none of the bullying-related experiences was significantly associated with HRQOL in the psychological domain. Regarding social relationships, those with verbally (β=-.086) and relationally (β=-.056) bullied experiences, both before and in college, reported significantly lower HRQOL, whereas those with verbal (β=.130) and relational (β=.072) bullying experiences in both periods reported significantly higher HRQOL. Lastly, students with cyber bullied experiences in college (β=.068) reported higher HRQOL in the environment domain.

Conclusions: Different types of bullying-related experiences were significantly associated with HRQOL in different domains. In particular, if the bullied experiences occurred both before and in college, HRQOL in social relationships could be affected significantly. In addition, we found a possible mediating effect of depression on the relationships between bullied experiences and HRQOL, suggesting the possible pathway from bullied experiences to decreased HRQOL through manifestations of depression. In brief, findings from this study underscore the importance of attending to bullying-related experiences among adolescents and youths, and more research is urgently needed to explore school policies and health education initiatives that may help ameliorate the impact of bullying in school.

Keywords: bullying, health-related quality of life (HRQOL), WHOQOL-BREF, depression, college students, Taiwan

CONTENTS

LIST OF TABLES

Chapter 1. Introduction

Bullying in Youths

To date, school bullying has remained an unresolved serious issue on campuses. Owing to the broad impact of bullying, concerns have been echoed among educators, physicians, and health scientists worldwide, calling for more efforts [1-3]. According to a World Health Organization collaborative cross-national survey, 9-13% of young people aged 11-15 years reported being bullied in the past couple of months [4]. In addition, a recently published book on bullying prevention by the American Public Health Association reported that over 3.2 million students in the U.S. are bullied each year and 160,000 students skip school every day for fear of bullying, indicating the enormities of bullying in youths [5].

While the terms and meanings of bullying may vary slightly across cultures [6], the definition of bullying adopted in previous research usually include three core elements as coined by Dan Olweus: *repeated hurtful actions* occurring between individuals of the *same age group* and with a *power imbalance* [7, 8]. Further, the roles of bullying can be classified into bullies and victims [9], and the types can include physical, verbal, relational, and cyber bullying [10]. Prior research has also identified factors associated with school bullying victimization, including younger age, lower economic status, learning difficulties, depressive symptoms and anxiety, physical and motor impairments, and chronic illnesses [11-13].

Previous studies have reported varying prevalence of school bullying across nations and cultures. A cross-national study in 11 European countries found that the prevalence of bullying victimization among students aged 8-18 ranged from 11.7% (France) to 29.6% (the United Kingdom) [11]. In India, around 60% of school students

reported experiences of being bullied [14]. According to the American Academy of Child and Adolescent Psychiatry, 50% of middle and high school students in the U.S. had been bullied, and one in five of these victims had been regularly bullied in the past 6 months [15]; besides, 19.3% of 6^{th}-10^{th}-graders reported bullying others and 16.9% reported being bullied during the school term [16]. By contrast, there is a relative paucity of literature on school bullying in Taiwan. One study found that 9.9% of 4^{th}-6^{th}-graders had been bullied in the past 2 months in 2007, and 3 years later the rate rose to 16.1% [17]. Another study reported that more than half of the 8^{th}-graders in Taiwan had bullied experiences [18]. On the other hand, 68% of junior high school students had reportedly taken violent actions against others during the past year [19]. Clearly, as indicated by the empirical research reviewed above, bullying behavior was prevalent in many countries, and it may have been worsening in Taiwan.

The Impact of Bullying on Health

In addition to its rampant occurrence, bullying has caused great concerns due to its associated negative health consequences. As demonstrated in prior research, bullied victims have shown an elevated risk of both physical and psychological symptoms, such as poor appetites, physical injuries, headaches, depressive symptoms and anxiety, and sleeping problems [12, 14]. Notably, depression has been consistently documented as a common concomitant of bullying victimization. For example, a study in Ireland found bullying victimization significantly associated with depression among adolescents [20]. Similarly, high school students with previous bullied experiences were more likely to remain depressed [21]. Besides the proximate health impact, studies have also shown that bullying can have long-term health effects. In Denmark, researchers found that exposure to bullying at school might contribute to the development of depression in adulthood [22]. A growing body of evidence also indicated that bullying victimization

may escalate the risk of subsequent suicidal ideation or attempts [23]. Moreover, a Finnish longitudinal study reported that frequent bullying victimization predicted future anxiety disorder [24]. According to these studies, bullying victimization could have long-term health effects later in adulthood.

Bullying and Health-Related Quality of Life

As reviewed above, most studies attempted to ascertain the relationships between bullying-related experiences and specific health problems. Alternatively, some focused on examining the health impact of bullying in a more comprehensive and systematic fashion. In this line of investigation, the concept of health-related quality of life (HRQOL) was commonly used to assess health of individuals in a holistic approach [25]. According to the World Health Organization (WHO), health is defined as a complete state of physical, mental, and social well-being [26]. In consistence with this definition, measures of HRQOL, such as WHOQOL-BREF, have been developed and increasingly used to assess perceived health status in health research [27, 28]. In the case of bullying, Australian researchers had employed the Short Form Health Survey (SF-36), another instrument to measure HRQOL, and found worsened physical and psychological health among adults with school bullying victimization experiences [29]. However, this study did not take depression into account. Considering that depressive symptoms may develop, following traumatic bullying victimization [12, 21, 30], and that depression may lead to decreased HRQOL [31-33], the relationships between school bullying-related experiences and subsequent HRQOL after accounting for the effects of depression require further investigations.

The Current Study

In sum, school bullying may have both acute and long-term health effects. Although bullying in college appeared to be less prevalent (e.g., below 7% in the U.S. [34]) than in primary and secondary schools, considering the close temporal proximity of college years to pre-college years, school bullying-related experiences in high school or earlier years may still have residual effects on college students' health. However, little is known about whether and what aspects of their health may be affected. Also, there is a scarcity of empirical evidence concerning the impact of school bullying on HRQOL among college students in Taiwan using validated measures. To our knowledge, the current study was among the first few to explore this topic. This study aimed to examine the prevalence of school bullying-related experiences and their associations with HRQOL among college students in Taiwan, in hopes of raising awareness of bullying-related health issues and providing empirical evidence to inform school policies and health education initiatives that may help ameliorate the impact of bullying in youths.

Chapter 2. Methods

Participants

Survey data were collected from college students aged 18 years or older from two comprehensive universities, one public and one private, which are comparable in school size, geographical location, and diversity of disciplines. A random sample was drawn from each university employing the proportional stratified cluster sampling strategy. To ensure the representativeness of the diversity, disciplines of the university were used as strata and departmental required courses as clusters for sampling. Based on the sample size of 800 students from each university, 1-2 classes (i.e., clusters) were randomly selected from each discipline. A total of 1,452 responses were received with a response rate of 90.8% (1,452/1,600). After removing responses of students who accidentally skipped one or more pages of the questionnaire, data from 1,439 (99.1% of 1,452) students were included in the final analyses.

Measures

Health-Related Quality of Life

Developed in diverse cultural settings for international comparisons, the World Health Organization Quality of Life assessment (WHOQOL) is one of the most widely used HRQOL instruments [27, 35]. In this study, HRQOL was measured by WHOQOL-BREF Taiwan Version, the short version of the validated WHOQOL-100 Taiwan Version [36], which has been demonstrated to have good psychometric properties [37]. Notably, this questionnaire includes assessment in the social relationships domain, which was relatively underexplored in previous bullying-related health research. It

consists of 26 items (including 2 items of cultural relevance to Taiwan), to evaluate HRQOL in four domains: Physical Health (7 items), Psychological (6 items), Social Relationships (4 items), and Environment (9 items). Each domain score ranges from 4 to 20, with internal consistency (Cronbach's α) between 0.70-0.77 and test-retest reliability (correlation coefficient) between 0.76-0.80 [37].

Bullying-Related Experiences

Questions regarding bullying-related experiences included 2 roles of bullying (bullies and victims) and 4 types of bullying (physical, verbal, relational, and cyber). For each type of bullying, the time periods of bullying occurrence included: never, pre-college, in-college, and in both periods (i.e., both before and in college). Pre-college bullying-related experiences, which occurred in primary and secondary school, were also referred to as school bullying-related experiences in this study.

Bullying-related questions were based on the definition of school bullying by Olweus [8] as shown below. Specific time periods and various types and roles of bullying were presented as response items following the Chinese translation of this statement: "*We say a student is BEING BULLIED when another student, or a group of students, say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she doesn't like. But it is NOT BULLYING when two students of about the same strength quarrel or fight* [8, 29]." These bullying-related questions were validated in consultation with experts and also pilot-tested among 30 college students, including a test-retest reliability assessment (average correlation coefficient of items=.832).

Depression

Depression, a health condition associated with both bullying [20, 21] and HRQOL [31, 32], was assessed using the Chinese version of the Patient Health Questionnaire (PHQ-9), whose validity and reliability had been examined [38, 39] and also validated in Taiwan [40] (Cronbach's α=.82 in this study). A PHQ-9 total score greater than 5 and 10 indicates mild and moderate to severe depression, respectively.

Health Conditions and Health Risk Behaviors

Understandably, health conditions might affect HRQOL. Hence, participants were asked whether they had been diagnosed with any physical or mental disorders (excluding depression). Further, according to the adolescent problem behavior framework [41], young people often engage in a host of health risk behaviors such as drinking, smoking, and sexual-risk taking. Considering that these health risk behaviors might also affect HRQOL, participants were asked whether they had participated in unprotected sex, heavy episodic drinking, and smoking in the past year.

Background Characteristics

Certain characteristics, including younger age, lower household economic status, learning difficulties, and motor impairments, have been found to be associated with bullying victimization [11-13]; therefore, to control for their possible confounding effects, the following variables were accounted for in this study: year in university, monthly disposable income, grade point average, and long-term difficulty with activities of daily living. In addition, other background characteristics were also included: gender, sexual orientation, relationship status, religion status, region of origin, and type of university.

Procedure

The study protocol was reviewed and approved by the Research Ethics Committee of the National Taiwan University. The instructor of each sampled course was contacted in advance for permission to administer the questionnaire on a scheduled date 5-10 minutes before the class was dismissed. Trained researchers would explain the survey procedure and emphasize that the study was completely voluntary, each student's responses were anonymous and confidential, and voluntary completion of this survey constituted the informed consent to participate. As incentives, each participant would be offered a small gift and a chance to win a cash prize (worth around US$3.5 dollars) immediately after handing in the completed questionnaire. In addition, each participant would be entered into a drawing for two tickets for free admission to any movies. All data were collected in March of 2013.

SPSS 20.0 was used to perform all statistical analyses. First, characteristics of sampled college students and their associations with four HRQOL domain scores were examined using t-test or ANOVA. Various types of bullying-related experiences and time periods of occurrence were then evaluated across four HRQOL domains. Finally, multivariate linear regression modeling was performed to investigate the associations between four HRQOL domain scores and bullying-related experiences in various periods, controlling for depression, health conditions and health risk behaviors, and background characteristics.

Chapter 3. Results

Characteristics of Sampled College Students

Table 1 presents the characteristics of sampled college students, including their background information, health conditions, health risk behaviors, and four domain scores of HRQOL. A total of 1,439 participants were included in the analysis. There were more females (58.4%) than males in the sample, with 98.4% of the participants aged 18-24 years and 1.6% older than 24 (mean=20.51, SD=1.82). Approximately half of the students (50.5%) attended a private university, with slightly more juniors (30.2%) than seniors (24.0%), sophomores (23.0%), and freshmen (22.8%). Slightly more than half of the students (52.7%) reported a grade point average between top 21% and middle 60%. Most students (78.3%) were originally from the local area, 38% were in a stable relationship, and 4.2% reported long-term difficulty with activities of daily living.

Regarding health conditions, 41.7% and 16.6% of the students were classified as having mild and moderate to severe depression, respectively. More than one in five students (22.2%) reported having been diagnosed with physical disorders, as opposed to 1.3% with mental disorders excluding depression. These college students also reported the following health risk behaviors in the past year: unprotected sex (10.3%), heavy episodic drinking (17.4%), and smoking (3.6%). Lastly, the mean domain scores of HRQOL were 12.49 (physical health), 13.16 (psychological), 13.55 (social relationships), and 14.07 (environment).

TABLE 1. Characteristics of sampled college students and their associations with four domain scores of WHOQOL-BREF (N=1,439)

			Domain Score of WHOQOL-BREF							
			Physical Health		Psychological		Social Relationships		Environment	
Variables	**N**	**(%)**	**Mean (SD)**	**P**	**Mean (SD)**	**P**	**Mean (SD)**	**P**	**Mean (SD)**	**P**
Gender				.700		.615		**< .001**		.649
Male	598	(41.6)	12.52 (1.86)		13.12 (2.54)		13.07 (2.38)		14.04 (2.02)	
Female	838	(58.4)	12.48 (1.73)		13.19 (2.29)		13.90 (2.03)		14.09 (1.91)	
Type of University				.725		.882		.270		**< .001**
Public	712	(49.5)	12.51 (1.88)		13.16 (2.37)		13.48 (2.19)		14.37 (1.92)	
Private	727	(50.5)	12.48 (1.69)		13.15 (2.41)		13.61 (2.25)		13.77 (1.96)	
Year in University				**.011**		**.007**		**< .001**		.146
1st	323	(22.8)	12.70 (1.74)		13.35 (2.41)		14.01 (2.19)		14.20 (1.92)	
2nd	325	(23.0)	12.61 (1.76)		13.26 (2.31)		13.64 (2.20)		13.96 (1.95)	
3rd	428	(30.2)	12.40 (1.79)		13.24 (2.40)		13.46 (2.17)		14.15 (1.98)	
4th	340	(24.0)	12.30 (1.83)		12.77 (2.41)		13.13 (2.21)		13.91 (1.97)	
Grade Point Average				**.027**		.144		**< .001**		.251
Top 20%	372	(26.1)	12.57 (1.81)		13.23 (2.39)		13.68 (2.20)		14.11 (1.98)	
Top 21-40%	319	(22.4)	12.63 (1.68)		13.33 (2.34)		13.66 (2.10)		14.15 (1.89)	
Middle 41-60%	432	(30.3)	12.50 (1.80)		13.12 (2.38)		13.69 (2.15)		14.10 (2.03)	
Bottom 61-100%	303	(21.2)	12.23 (1.81)		12.91 (2.46)		13.05 (2.23)		13.86 (1.92)	
Disposable Income (NT$/Month)				.111		**.015**		.292		**.025**
≤4,000[a]	163	(11.5)	12.29 (1.99)		12.74 (2.49)		13.32 (2.62)		13.85 (2.14)	
4,001-8,000	556	(39.2)	12.44 (1.79)		13.04 (2.43)		13.51 (2.15)		13.99 (1.92)	
8,001-12,000	496	(35.0)	12.64 (1.73)		13.33 (2.35)		13.59 (2.20)		14.28 (1.91)	
≥12,001	204	(14.4)	12.46 (1.75)		13.36 (2.31)		13.75 (2.22)		13.97 (2.03)	

TABLE 1. (Continued) Characteristics of sampled college students and their associations with four domain scores of WHOQOL-BREF (N=1,439)

Region of Origin			.768		.060		.696		.761
Local	1,123	(78.3)	12.49 (1.79)		13.10 (2.43)		13.54 (2.26)		14.07 (1.99)
Out of Town	311	(21.7)	12.52 (1.78)		13.39 (2.23)		13.59 (2.08)		14.03 (1.88)
In a Stable Relationship			.349		**< .001**		**< .001**		.391
No	885	(62.0)	12.46 (1.85)		12.99 (2.45)		13.29 (2.30)		14.10 (1.95)
Yes	543	(38.0)	12.56 (1.68)		13.44 (2.27)		13.98 (2.04)		14.01 (1.98)
Having a Religion			.798		.234		.189		.187
No	725	(50.8)	12.51 (1.85)		13.09 (2.36)		13.48 (2.27)		14.01 (1.91)
Yes	702	(48.8)	12.49 (1.71)		13.25 (2.43)		13.63 (2.17)		14.15 (2.01)
Sexual Orientation			.248		**.004**		.528		.080
Heterosexual	1,150	(81.9)	12.53 (1.78)		13.26 (2.38)		13.56 (2.22)		14.13 (1.95)
Non-Heterosexual	255	(18.1)	12.39 (1.77)		12.78 (2.37)		13.47 (2.20)		13.89 (1.96)
Long-Term Difficulty with Activities of Daily Living			**< .001**		**< .001**		**< .001**		**< .001**
No	1,376	(95.8)	12.55 (1.74)		13.25 (2.34)		13.64 (2.13)		14.12 (1.92)
Yes	61	(4.2)	11.17 (2.07)		11.07 (2.74)		11.51 (3.07)		12.90 (2.48)
Diagnosed Physical Disorder			**.010**		**.003**		**.032**		**.030**
No	1,105	(77.8)	12.56 (1.75)		13.26 (2.36)		13.62 (2.21)		14.14 (1.93)
Yes	315	(22.2)	12.27 (1.91)		12.81 (2.47)		13.32 (2.27)		13.87 (2.06)
Diagnosed Mental Disorder[b]			.114		**.002**		**.001**		.093
No	1,402	(98.7)	12.51 (1.78)		13.18 (2.39)		13.58 (2.21)		14.09 (1.95)
Yes	18	(1.3)	11.84 (2.27)		11.44 (2.48)		11.87 (2.38)		13.31 (2.84)
Severity of Depression			**< .001**		**< .001**		**< .001**		**< .001**
None	600	(41.7)	13.30 (1.55)		14.37 (2.01)		14.39 (1.98)		14.75 (1.69)
Mild	600	(41.7)	12.19 (1.56)		12.76 (2.07)		13.25 (2.01)		13.79 (1.86)
Moderate to severe	238	(16.6)	11.24 (1.87)		11.10 (2.30)		12.20 (2.44)		13.05 (2.23)

TABLE 1. (Continued) Characteristics of sampled college students and their associations with four domain scores of WHOQOL-BREF (N=1,439)

Past-Year Unprotected Sex				.500		.091	**.028**	**.045**
No sexual activity in past year	1,172	(82.6)	12.48 (1.79)		13.11 (2.40)		13.48 (2.22)	14.10 (1.94)
No	101	(7.1)	12.69 (1.54)		13.66 (2.30)		13.90 (2.07)	14.30 (1.99)
Yes	146	(10.3)	12.51 (1.84)		13.17 (2.36)		13.88 (2.25)	13.73 (2.06)
Past-Year Heavy Episodic Drinking				.609		.535	.501	.090
No	1,186	(82.6)	12.51 (1.77)		13.14 (2.34)		13.57 (2.17)	14.11 (1.92)
Yes	250	(17.4)	12.44 (1.84)		13.25 (2.63)		13.46 (2.46)	13.88 (2.14)
Past-Year Smoking				.960		.557	.524	.734
No	1,377	(96.4)	12.49 (1.78)		13.16 (2.39)		13.54 (2.23)	14.07 (1.96)
Yes	52	(3.6)	12.51 (1.81)		13.36 (2.46)		13.73 (1.98)	14.16 (1.97)
Domain Score of WHOQOL-BREF	**Mean**	**(SD)**						
Physical health	12.49	(1.78)	--		--		--	--
Psychological	13.16	(2.39)	--		--		--	--
Social relationships	13.55	(2.22)	--		--		--	--
Environment	14.07	(1.96)	--		--		--	--

P values obtained from ANOVA or 2-sample t-test, as appropriate; sample sizes vary due to missing values.

[a]NT$4,000 is approximately US$135; €104; £89.

[b]Excludes depression.

Roles and Types of Bullying and HRQOL

Tables 2A and 2B present bullying and bullied experiences, respectively, by type of bullying and period of occurrence. In general, more pre-college than in-college bullying-related experiences were reported among these college students. Across four types of bullying, the prevalence of physical bullying (1.0%) and victimization (1.0%) during college was the lowest, whereas verbal bullying (11.4%) and victimization (10.7%) appeared to be the most common during college. With regard to pre-college bullying-related experiences, the prevalence of cyber bullying (5.6%) and victimization (5.3%) was the lowest, while verbal bullying (35.7%) and victimization (31.9%) were found the most common, followed by relational bullying (23.0%) and victimization (22.1%).

Tables 2A and 2B also show the mean HRQOL scores in each domain across various periods of occurrence, by type of bullying and bullied experience, respectively. College students who were relational bullying victims both before and during college reported the lowest HRQOL score in the physical health domain (mean=11.79). By contrast, those who reported physical bullying experiences during college appeared to have the highest HRQOL score in the social relationships domain (mean=15.41). Of all types of bullying, only physical bullying was significantly associated with HRQOL in the social relationships domain. However, physical, verbal, and relational bullying victimization were significantly associated with HRQOL in all domains except for physical bullying victimization in the environment domain.

TABLE 2A. Domain Scores of WHOQOL-BREF, by Type of Bullying Experience and Period of Occurrence (N=1,439)

		Physical Health		Psychological		Social Relationships		Environment	
Type/Period	**N (%)**	**Mean (SD)**	**P**	**Mean (SD)**	**P**	**Mean (SD)**	**P**	**Mean (SD)**	**P**
Physical			.112		.400		**.040**		.273
Never	1,243 (86.4)	12.53 (1.77)		13.17 (2.38)		13.59 (2.14)		14.10 (1.90)	
Pre-college	181 (12.6)	12.21 (1.87)		13.00 (2.46)		13.19 (2.62)		13.80 (2.27)	
In-college	5 (0.3)	13.16 (0.89)		14.67 (3.06)		15.41 (3.59)		14.11 (2.16)	
In both periods	10 (0.7)	12.63 (1.58)		13.47 (2.20)		13.90 (2.81)		14.22 (2.81)	
Verbal			.384		.497		.314		.313
Never	908 (63.1)	12.54 (1.78)		13.18 (2.37)		13.59 (2.16)		14.11 (1.92)	
Pre-college	368 (25.6)	12.36 (1.82)		13.10 (2.39)		13.39 (2.34)		14.02 (2.04)	
In-college	18 (1.3)	12.60 (1.86)		12.37 (2.84)		13.24 (2.27)		13.33 (1.89)	
In both periods	145 (10.1)	12.55 (1.67)		13.22 (2.51)		13.74 (2.26)		13.97 (2.03)	
Relational			.727		.984		.829		.596
Never	1,099 (76.4)	12.47 (1.80)		13.16 (2.40)		13.54 (2.21)		14.03 (1.92)	
Pre-college	284 (19.7)	12.55 (1.69)		13.13 (2.44)		13.52 (2.25)		14.20 (2.07)	
In-college	9 (0.6)	12.19 (1.37)		13.33 (1.05)		13.78 (1.43)		14.17 (1.45)	
In both periods	47 (3.3)	12.69 (1.97)		13.08 (2.26)		13.83 (2.56)		14.10 (2.43)	
Cyber			.644		.773		.654		.245
Never	1,327 (92.2)	12.49 (1.79)		13.16 (2.41)		13.54 (2.20)		14.08 (1.94)	
Pre-college	55 (3.8)	12.78 (1.70)		13.26 (2.43)		13.87 (2.57)		14.25 (2.24)	
In-college	31 (2.2)	12.35 (1.50)		12.88 (1.95)		13.58 (2.33)		13.62 (2.10)	
In both periods	26 (1.8)	12.49 (2.00)		12.79 (2.07)		13.24 (2.50)		13.52 (2.31)	

P values obtained from ANOVA or 2-sample t-test, as appropriate; *in both periods* indicated both before and in college.

TABLE 2B. Domain Scores of WHOQOL-BREF, by Type of Bullied Experience and Period of Occurrence (N=1,439)

		Physical Health		Psychological		Social Relationships		Environment	
Type/Period	**Counts (%)**	**Mean (SD)**	**P**	**Mean (SD)**	**P**	**Mean (SD)**	**P**	**Mean (SD)**	**P**
Physical			**.013**		**.038**		**< .001**		.122
Never	1,271 (88.3)	12.55 (1.78)		13.21 (2.38)		13.65 (2.16)		14.11 (1.92)	
Pre-college	153 (10.6)	12.06 (1.81)		12.67 (2.45)		12.71 (2.51)		13.73 (2.22)	
In-college	10 (0.7)	12.47 (1.34)		12.67 (2.86)		13.96 (3.14)		13.73 (1.81)	
In both periods	5 (0.3)	13.03 (1.87)		14.13 (2.47)		14.20 (2.59)		14.07 (2.89)	
Verbal			**.001**		**.002**		**< .001**		**.001**
Never	951 (66.1)	12.61 (1.74)		13.31 (2.32)		13.77 (2.07)		14.18 (1.91)	
Pre-college	334 (23.2)	12.31 (1.84)		12.91 (2.47)		13.20 (2.45)		14.00 (1.99)	
In-college	29 (2.0)	12.69 (1.76)		13.24 (2.60)		13.53 (2.31)		13.57 (1.92)	
In both periods	125 (8.7)	12.03 (1.86)		12.60 (2.58)		12.86 (2.44)		13.48 (2.19)	
Relational			**.002**		**.001**		**< .001**		**.001**
Never	1,102 (76.6)	12.59 (1.76)		13.29 (2.37)		13.67 (2.13)		14.16 (1.92)	
Pre-college	286 (19.9)	12.26 (1.81)		12.79 (2.40)		13.29 (2.40)		13.87 (2.02)	
In-college	20 (1.4)	11.89 (1.91)		12.43 (2.47)		12.60 (2.42)		13.11 (2.20)	
In both periods	31 (2.2)	11.79 (1.82)		12.15 (2.37)		12.45 (2.79)		13.15 (2.15)	
Cyber			.714		.053		.470		.205
Never	1,355 (92.8)	12.50 (1.76)		13.20 (2.38)		13.58 (2.18)		14.09 (1.95)	
Pre-college	53 (3.7)	12.56 (2.05)		12.59 (2.45)		13.24 (2.40)		13.80 (2.11)	
In-college	28 (1.9)	12.29 (1.95)		12.48 (2.83)		13.10 (3.01)		14.03 (1.94)	
In both periods	23 (1.6)	12.14 (2.17)		12.46 (2.19)		13.36 (2.85)		13.31 (2.37)	

P values obtained from ANOVA or 2-sample t-test, as appropriate; *in both periods* indicated both before and in college.

Bullying-Related Experiences and Other Factors Associated with HRQOL

As shown in Table 3, various types of bullying-related experiences were significantly associated with HRQOL in different domains, even after controlling for key background characteristics, health conditions, and health risk behaviors. In addition, long-term difficulty with activities of daily living and severity of depression have both been found to significantly affect HRQOL in all four domains.

With regard to the physical health domain, female college students (β=-.070) and those in their 3rd and 4th year in university (β=-.089 and -.075, respectively) reported significantly lower HRQOL. However, being cyber bullied before college was significantly associated with a higher score in this domain (β=.060).

Concerning the psychological domain, those in their 4th year in university (β=-.081) and those with a diagnosed mental disorder (β=-.061) reported significantly lower HRQOL. By contrast, those in a stable relationship (β=.101) showed a significantly higher score in this domain. However, none of the bullying-related experiences was significantly associated with HRQOL.

Further, in regard to the social relationships domain, females (β=.139), those in a stable relationship (β=.152), and those who had a grade point average in the top 21-40% (β=.065) and middle 41-60% (β=.076) reported significantly higher HRQOL. However, those in their 3rd and 4th year in university (β=-.090 and -.136, respectively) and those with a diagnosed mental disorder (β=-.051) had significantly lower HRQOL. This study also found that college students with verbal bullying (β=.130) and relational bullying (β=.072) experiences in both periods showed significantly higher HRQOL in this domain, whereas those with verbally bullied (β=-.086) and relationally bullied (β=-.056)

experiences in both periods reported significantly lower HRQOL.

Lastly, as regards the environment domain, while those attending a private university (β=-.169) and those from out of town (β=-.080) had significantly lower HRQOL, those who reported smoking in the past year (β=.056) had significantly higher HRQOL. Those being cyber bullied in college also reported significantly higher HRQOL in this domain (β=.068).

TABLE 3. Multiple Linear Regression Models for Factors Associated with Domain Scores of WHOQOL-BREF

Variable	Physical Health	Psychological	Social Relationships	Environment
	β	β	β	β
Gender				
Male (ref)				
Female	**-.070***	-.022	**.139*****	-.003
Type of University				
Public (ref)				
Private	-.040	-.009	-.050	**-.169*****
Year in University				
1st (ref)				
2nd	-.008	-.005	-.047	-.014
3rd	**-.089****	-.025	**-.090****	-.035
4th	**-.075***	**-.081****	**-.136*****	-.054
Grade Point Average				
Top 20%	.066	.030	.054	.033
Top 21-40%	.061	.056	**.065***	.032
Middle 41-60%	.052	.000	**.076***	.034
Bottom 61-100% (ref)				
Region of Origin				
Local (ref)				
Out of town	-.027	.016	-.010	**-.080****
In a Stable Relationship				
No (ref)				
Yes	.018	**.101*****	**.152*****	-.010
Long-Term Difficulty with Activities of Daily Living				
No (ref)				
Yes	**-.095*****	**-.095*****	**-.120*****	**-.079****
Diagnosed Mental Disorder[a]				
No (ref)				
Yes	-.031	**-.061***	**-.051***	-.026
Severity of Depression				
None (ref)				
Mild	**-.301*****	**-.323*****	**-.243*****	**-.228*****
Moderate to severe	**-.413*****	**-.469*****	**-.320*****	**-.306*****
Past-Year Smoking				
No (ref)				
Yes	.033	.039	.048	**.056***

TABLE 3. (Continued) Multiple Linear Regression Models for Factors Associated with Domain Scores of WHOQOL-BREF

Verbal − Bullying				
Never (ref)				
Pre-college	-.016	.023	.038	.003
In-college	.020	-.019	-.010	-.028
In both periods	.056	.054	**.130*** **	.044
Relational − Bullying				
Never (ref)				
Pre-college	.037	.009	-.006	.047
In-college	.013	.034	.016	.015
In both periods	.052	.037	**.072** **	.052
Verbal − Bullied				
Never (ref)				
Pre-college	-.013	.005	-.042	.011
In-college	-.001	.012	-.012	-.040
In both periods	-.048	-.043	**-.086** **	-.053
Relational − Bullied				
Never (ref)				
Pre-college	-.041	-.044	-.040	-.043
In-college	.014	-.001	-.017	-.008
In both periods	-.026	-.021	**-.056***	-.042
Cyber − Bullied				
Never (ref)				
Pre-college	**.060***	-.012	.010	.019
In-college	.041	.013	.028	**.068***
In both periods	.014	-.009	.047	.018
F	**7.858****	**10.757****	**8.679****	**5.570****
R^2	.231	.291	.249	.176
Adjusted R^2	.201	.264	.220	.144

β standardized regression coefficient.

In both periods indicated both before and in college.

Only variables that were significantly associated with at least one domain of HRQOL are presented in the table; however, all four models also controlled for monthly disposable income, having a religion, sexual orientation, diagnosed physical disorder, past-year unprotected sex and heavy episodic drinking, physical and cyber bullying experiences, and physical bullied experiences.

[a]Excludes depression

*P ≤ 0.05, **P ≤ 0.01, ***P ≤ 0.001

Chapter 4. Discussion

This study, to our knowledge, was among the first few to empirically examine the associations of various types of school bullying-related experiences in different periods in life with HRQOL in various domains among college students in Taiwan. This study also controlled for the effect of depression given its co-occurrence with bullied experiences commonly identified in prior research [12, 20, 21]. In addition, as recommend by the WHOQOL-BREF Taiwan version working group, the variables that are likely to affect people's HRQOL were also included in the analyses to account for their potential confounding effects. Besides, according to the adolescent problem behavior framework [41], young people often engage in a host of health risk behaviors such as drinking, smoking, and sexual-risk taking. Considering that they might affect the HRQOL as well, these behaviors were incorporated in the analyses, too. Even after taking into account the aforementioned background characteristics, health conditions, and health risk behaviors, this study found significantly independent associations between different types of bullying-related experiences and HRQOL in different domains.

Verbal and Relational Bullying Experiences in Both Periods and Possible Reflection of Personality Traits

College students with verbal and relational bullying experiences both before college and in college reported higher HRQOL in the social relationships domain. Their repetitive and consistent bullying behavioral pattern in both periods may reflect their underlying aggressive personality traits [42, 43] in combination with great verbal and interpersonal skills, enabling them to engage in verbal and relational bullying. On the other hand, their peers may attempt to appease them out of fear, which could in turn be

misinterpreted by the bullies as signs of their popularity, or even centrality of their role in the social network, resulting in greater self-perceptions of their social relationships. Clearly, more research is warranted to evaluate the personality traits as well as the verbal and interpersonal skills of students, and to assess their inter-relationships with bullying experiences. Such findings may help to inform future health education and bullying prevention initiatives to foster healthier social interactions on campus.

Cyber Bullied Experiences and Possible Lifestyle Altering Effect

Interestingly, those being cyber bullied only before college and only in college reported significantly higher HRQOL in physical health and environment, respectively. It is possible that students with cyber bullied experiences before college changed the pattern of, or reduced, their Internet use in response to their cyber bullied experiences, devoting more time instead to other activities that turned out to enhance their physical health. Moreover, since college students lead a more autonomous life, cyber bullying victims in college may find solace in their environment outside the cyberspace (e.g., dining out, visiting places). As a result, they may have a better understanding of the environment and develop a greater appreciation of their environment, resulting in higher HRQOL in the environment domain. It remains unclear whether cyber bullied experiences have a lifestyle altering effect as noted above. Cohort research is needed to illuminate possible life-course changes following cyber bullied experiences in different periods in life.

Multiplicative vs. Additive Effect of Verbally and Relationally Bullied Experiences

Verbal and relational bullying may have detrimental effects on interpersonal confidence of the victims, thereby leading to social avoidance and even self-inflicted isolation. The victims could also be marginalized after being bullied. These consequences may jointly contribute to their decreased HRQOL in social relationships. Notably, the significant adverse effect of verbally bullied experiences in both periods (β=-.086), compared with only before college (β=-.042) and only in college (β=-.012), suggests a multiplicative, rather than additive, effect of verbal bullying victimization on HRQOL in social relationships. By contrast, relationally bullied experiences in both periods (β=-.056) exhibited an additive effect (β=-.040 for only before college and β=-.017 for only in college). These findings also suggest that, in order for the negative effects of these two types of bullied experiences to manifest themselves, a possible threshold might need to be exceeded with a minimum amount of cumulative effect from both periods of bullied experiences, which needs to be corroborated in future studies. More research is also warranted to further examine the quadratic relationship found between different periods of verbal bullying victimization and HRQOL, and to explore the possible mechanisms of such moderating effect.

Bullying, Depression, and Mediating Effect on HRQOL

In this study, depression was found to have the strongest effect on HRQOL in each domain, and its negative effects match what the literatures offered as reviewed previously [31, 32]. However, unlike a previous Australian study in adults [29] using SF-36 in which earlier bullied experiences significantly affected HRQOL in both physical and psychological health, this study found none of the bullying-related experiences to be significantly associated with HRQOL in the psychological domain.

Other than differences in the study population and measures used, another likely explanation for the above finding is that this study also controlled for depression, a mental disorder that is more likely to occur after bullied experiences [12, 20, 21], which may be attributable for reduced HRQOL in the psychological domain. In view of that, an ancillary analysis was conducted and found that college students with verbally bullied experiences in both periods (β=-.097) and those with relationally bullied experiences before college (β=-.079) exhibited significantly lower HRQOL in the psychological domain after removing severity of depression from the model. This suggests that some of the psychological effects of bullying victimization on HRQOL may have been mediated through depression. This possible mediating effect of depression on the relationships between bullied experiences and HRQOL requires future longitudinal investigations to ascertain their temporal relations and causal mechanisms.

Other Factors Associated with HRQOL

First, females reported lower HRQOL in physical health than males possibly due to biological differences (e.g., menstrual cycles). However, females had higher HRQOL in social relationships, which may be attributable to the patterns of social interactions (e.g., exchanging gifts) and relational disclosure (e.g., heart-to-heart chats) [44-46] . As anticipated, those in a stable relationship also reported higher HRQOL in both the psychological and social relationships domains, as a stable relationship could provide certain social support that enhances their mental health and meets their relationship needs [47]. An alternative explanation may be that people with greater psychological health and social relationships are more likely to develop and maintain a stable relationship.

Further, college students in their junior and senior years also showed lower HRQOL in all domains perhaps owing to aging, worse lifestyles, career pressure, etc., suggesting the need to provide more student counseling and career development support among these students. Besides, students with a mid-range grade point average enjoyed better HRQOL in social relationships; it is likely that they had academic performances similar to the majority and hence were better able to fit in and get along with their peers. Also, students attending a private university reported lower HRQOL in environment, possibly reflecting their constrained financial resources and abilities for them to enjoy better amenities, given their higher tuition and fees. Furthermore, students from out of town also reported worse HRQOL in environment, since they might be relatively unfamiliar with their surroundings and also lack local resources. In light of this, student orientation programs, including "buddy systems" for out-of-town students, may help them adapt to campus life more easily.

In addition, long-term difficulty with activities of daily living contributed to worsened HRQOL in all domains, indicating that those living with long-term difficulties are a particularly vulnerable group that needs more attention and support as they often fall victim to bullying, too [13]. Also, understandably, those with a diagnosed mental disorder may suffer poor social relationships because of their withdrawal from social interactions (e.g., social phobia). Finally, a positive moderate effect of past-year smoking on HRQOL in environment was found in the analysis, which requires further investigations in the future to confirm this relationship. Qualitative research is also recommended to provide insights into this phenomenon and help elucidate its possible mechanisms.

Limitations and Future Directions

There are some limitations to this study. First, since this study was based on self-report, there is potential reporting bias as most self-administrated surveys might encounter. However, considering that validated measures were used for the main study variables, and that a pilot test, including a test-retest reliability assessment of the bullying-related questions, was also conducted to ensure clarity and appropriateness of the survey items, such bias is likely to be minimal. Also, the effects of social desirability were reduced given the anonymous nature of this survey.

Second, college students in this study were recruited from two universities, and thus the generalizability of our findings to the entire college student population may be limited. However, considering that the two purposely selected universities are comparable in many aspects using proportional stratified cluster sampling to recruit participants, and that a comprehensive set of important control variables were included in the multivariate analyses to adjust for potential confounding effects and to enhance the internal validity of the research findings, the significant effects of bullying-related experiences on HRQOL demonstrated in this study highlight the importance of bullying as a major health issue among students. Future research based on a larger national sample is warranted to examine if our study findings could be replicated.

Finally, the cross-sectional nature of the survey design may constrain our ability to make causal inferences. However, since bullying-related experiences inquired in this study were either concurrent or preceding the survey, their temporal relationships with the current HRQOL were relatively clear. Nonetheless, future longitudinal research is still needed to confirm their causal relationships and to elucidate the underlying mechanisms through which bullying-related experiences affect HRQOL. Furthermore, the inter-relationships of these school bullying-related experiences and their possible long-term effects on HRQOL could also be explored in later adulthood.

Conclusions

This study empirically examined the associations of various types of school bullying-related experiences in different periods in life with HRQOL in various domains among college students in Taiwan. Verbal, relational, and cyber bullying-related experiences were found significantly associated with HRQOL in the physical health, social relationships, and environment domains. Considering the significant negative associations between earlier bullied experiences and HRQOL among college students, it is reasonable to suggest that previous exposure to bullying victimization may have latent effects that could be triggered by future bullying-related traumatization. Therefore, whether their bullying-related experiences up until college might exacerbate over time into later adulthood remains unclear and requires further investigations. In addition, although no bullying-related experiences appeared to affect HRQOL in the psychological domain, the effects of bullying victimization on psychological HRQOL may be mediated and manifested through depression. In brief, while this study has provided empirical evidence of the significant associations between school bullying-related experiences and HRQOL among college students, future research is warranted to elucidate their causal mechanisms and to explore school policies and health education initiatives that may help ameliorate the impact of bullying among adolescents and youths.

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附錄一、文獻回顧

霸凌之發展與其相關因素

霸凌議題之相關研究已有數十年歷史，早期研究又以學者 Olweus 為代表，探索斯堪地那維亞半島之族群行為特性，而隨時間之推移，霸凌概念結合學童、校園、青少年健康與社交行為等元素不斷演變，各國研究亦逐漸出現。霸凌行為一般被認為係不理想之社交行為表現，且可能造成霸凌者與被霸凌者身心之負面影響，也因其可能有害學童之成長健康，近年來霸凌議題不斷受到各界關注 [1-3]。由於「霸凌」一詞在不同語言與文化之定義存有差異 [4]，故透過回顧性文獻可見，學者多參考 Olweus 之霸凌定義進行研究，文獻中亦整理出一般認同之霸凌三大構成要素：具傷害性之行為、發生於相同年齡層之族群中一段時間以及行為者與其行為對象處於權力不對等之情形下 [5, 6]。另根據國外霸凌研究與回顧性文章得知，可能與被霸凌相關之基本人口學背景與個人特質為年齡較小、父母教育程度低、家庭經濟狀況低、學習困難、體重過重、社會支持低、憂鬱與焦慮症狀、身體活動障礙及慢性病等 [7-9]。而霸凌之行為角色亦包含霸凌者與被霸凌者 [10]。目前最常被使用之霸凌型態分類共四種：肢體、言語、關係及網路霸凌，且四種型態各具不同之行為者特性 [3, 11]。

霸凌盛行率現況

關於霸凌之盛行率，歐洲跨國研究發現，8 至 18 歲之中小學生其霸凌盛行率為 11.7%至 29.6%，其中英國之盛行率最高達 29.6%，德國居中為 17.7%，法國最低為 11.7% [9]。一篇印度研究指出，其國中小學生中，有約 60%之受訪者回報具有霸凌受害經驗 [12]。在美國，18 歲以上之成年人中，5.9%過去曾經霸凌他人 [13]；另一研究發現，12-18 歲之中小學生，半年內之被霸凌情形，由 1999 年之 5%上升到 2003 年之 7% [14]，而根據美國兒童與青少年精神病學會 2005 年資料，50%之兒童曾被霸凌，10%之兒童為頻繁受害者 [15]，顯示被霸凌情形在美國可能有逐步上升之趨勢。相對於國外之霸凌相關研究，國內之研究成果仍屬不足，但依據一篇針對某地區國中小學童之研究可見，38.7%受訪者在過去一學期中曾被霸凌 [16]；兒童福利聯盟文教基金會經全國調查亦發現，國小四五六年級學童於兩個月內遭受霸凌之比例，由 2007 年之 9.9%上升到 2010 年之 16.1% [17]，增

幅極大；另有針對霸凌行為之全國性研究指出，高達68%之國小至高中受訪者，於過去一年曾有過校園暴力行為 [18]。回顧以上資訊可知霸凌乃一種跨國存在之現象，且在臺灣，無論霸凌者或被霸凌者，皆已達到不容忽視之比重，急需相關單位有所行動。

霸凌與健康之關係及其長期風險

霸凌議題之所以受到關注，除發生情形普遍外，亦因其可能造成之多種負面健康影響。據過往之縱貫性研究顯示，生理健康方面，小學之被霸凌者出現腹痛、睡眠問題、尿床、食慾不振及肢體霸凌造成之身體傷害等問題之風險較高 [8]，亦可能與頭痛及腸躁等症狀有關 [12]。心理健康方面，小學之被霸凌者出現憂鬱與焦慮症狀之風險較高 [8]；而針對高中生之研究發現，曾經歷頻繁霸凌並產生自殺意念或憂鬱者，日後出現憂鬱之機會較高 [19]；此外，被霸凌逐漸被證實為日後自殺意圖或自殺行為之可能危險因子 [20]。另以整體健康來看，有研究指出霸凌與較差之心理健康相關生活品質 (Health-Related Quality of Life, HRQOL) 有關 [21]。透過以上文獻，可瞭解霸凌行為對被霸凌者而言，極可能產生許多直接且立即之健康危害，此健康危害不僅為心理與生理兩範疇，亦可能影響至目前研究鮮少探討到之社會健康範疇。

針對霸凌可能造成之長期影響，芬蘭之縱貫性研究發現，小學男性頻繁霸凌與被霸凌者，成年後具較高之嚴重憂鬱風險 [22]，且有焦慮症之可能 [23]，表示霸凌與日後憂鬱問題之相關性逐漸明確；而為經常霸凌他人者，成年後則可能出現人格異常之問題 [23]。顯見無論曾為霸凌者或被霸凌者，其成年後之健康皆可能受到影響。因霸凌相關行為可能造成之健康影響廣泛，僅針對特定疾病症狀測量恐不慎完全，若使用具系統整合性之多面向綜合指標，應能以更趨完整之範疇檢視霸凌對健康之影響。澳洲學者便以健康相關生活品質為研究切入點，探討霸凌受害經驗對於整體健康之影響程度，結果顯示具霸凌受害經驗者，在生理與心理健康兩方面之分數皆呈顯著較低 [24]。然有一點值得注意，多篇文獻中，對象為憂鬱症患者之病例對照研究、對象為一般門診病人以及對象為跨國民眾之調查研究皆同時指出，次憂鬱症者之健康相關生活品質高於重症憂鬱者，但低於一般人 [25-27]，呈現憂鬱症嚴重程度與健康相關生活品質之負向關係。故結合以上文獻，於探討過往之霸凌相關經驗與現今之健康相關生活品質相關性時，除其他可

能之干擾因子外，應特別考量憂鬱症狀造成之影響。

健康相關生活品質

生活品質之概念早於 1920 年代便由學者 Pigou 所提出，直至 1970 年代方出現一般性測量之發展。近年來，健康相關生活品質之測量已逐步發展成熟，測量工具通常涵蓋兩大要素：1) 功能性健康狀態測量、2) 主觀之健康與完滿美好 (well-being) 程度。當中可能又以 1992 年出版之短版健康調查 (36-Item Short Form Health Survey, SF-36) 與世界衛生組織發展之生活品質評估工具 (World Health Organization Quality of Life Assessment, WHOQOL) 最廣受使用 [28]。但 WHOQOL 與 SF-36 不同之處，在於 WHOQOL 之發展目的之一為跨文化應用性，因此更適合作為跨文化議題研究之用 [29]。在臺灣，WHOQOL (WHOQOL-100) 之應用經研究證實，具備良好之文化適應性，且與其他 15 國之資料具可比較性 [30]；而短版之 WHOQOL 問卷 (WHOQOL-BREF) 亦經研究指出其良好之長版問卷替代性 [31]，並可用於臺灣之青少年族群 [32]。此外，WHOQOL 分別涵蓋心理與社會關係兩大範疇 [29]，應適於霸凌相關研究。

霸凌相關經驗與大學生健康

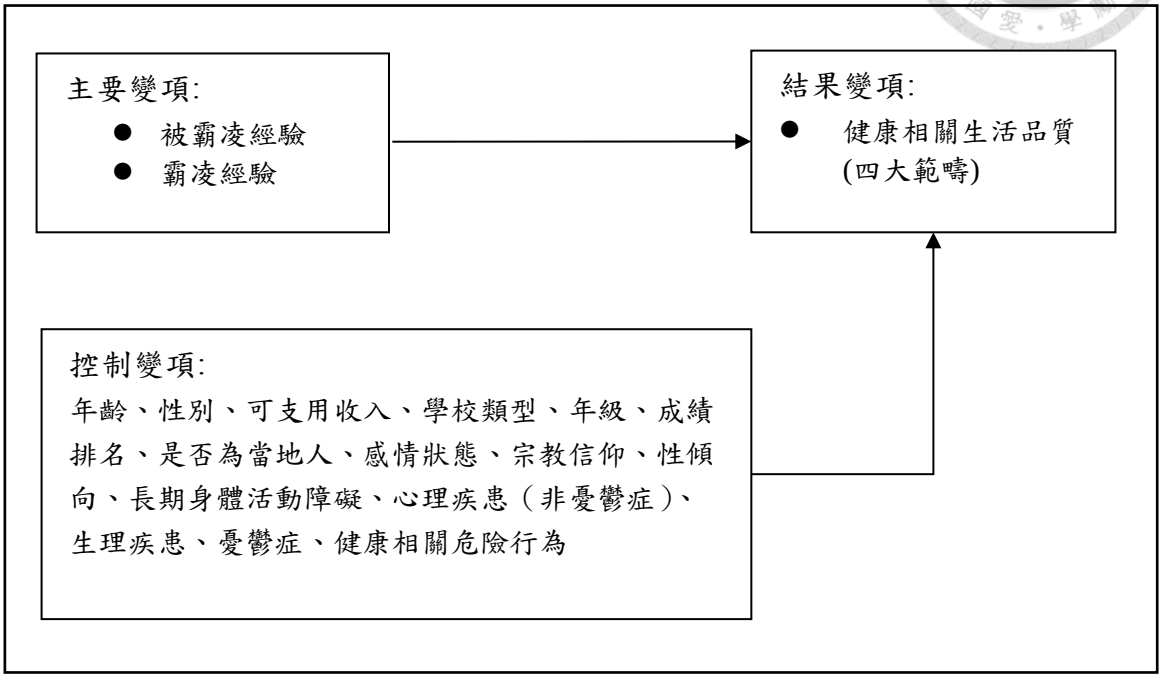
青少年時期之習慣形成，將影響成年後之社會、環境及行為因素，而此因素又與慢性病及過早死亡有關 [33]，因此大學生雖在生活型態上相較中小學時期自由、對自身行為之支配程度高，使此時期之霸凌盛行率較低 [34]，其健康行為之形成與健康情形亦值得關注。此外，因大學階段與過去中小學之生命歷程連接緊密，亦使大學生族群之健康較可能受到過去霸凌相關經驗所影響。故綜上，大學生族群之中小學霸凌相關經驗與其當下之健康相關生活品質之關係，值得進一步研究。

文獻小結

透過文獻已知校園霸凌可對學生產生許多健康方面之危害，但若本研究得發現此行為經驗具長期之全面健康影響，可再一次凸顯霸凌議題之重要性，並喚起相關當局對霸凌相關健康議題之關注，進一步加入健康觀點於中小學時期之霸凌防制策略制定中。亦盼本研究結果可作為霸凌議題衛教介入之參考，並能作為大學生相關健康政策之依據，以達到健康促進之目的。回顧當前文獻，未見有針對大學生族群，探討其霸凌相關經驗與健康相關生活品質之研究，因此盼本研究得補足目前相關文獻之空缺。

附錄二、研究方法

研究架構



資料收集

本研究擬使用橫斷式研究，即便較理想之選擇為長期縱貫性研究，然受研究之時間因素限制，只得採退一步之研究設計，求能於研究限制與效度間適當取捨。儘管如此，研究之測量仍會針對問題變項之時間框架明顯定義，以呈現出研究變項間之可能時序關係。

為確保樣本之多元代表性，抽樣對象擬為臺灣北部公、私立綜合型大學各一所，且針對日間部大學生進行抽樣。方法將採取等比例分層集束抽樣方式(proportional stratified cluster sampling)，總樣本數為 1,600 人，依學院人數比例，隨機抽選院內系必修課作為集束。收案採用自填式問卷，問卷發放將給予誘因以增進問卷填答成效。

資料分析

所得資料以 SPSS 20.0 進行資料處理與統計分析。首先，針對樣本之基本背景變項特性進行描述性統計。其次，描述樣本於各霸凌型態與其發生時期之人數分佈，並以雙變項分析檢視與不同範疇之健康相關生活品質之關聯性。最後，以多元迴歸模型進行多變項分析，控制各干擾因子後，納入霸凌相關經驗，以檢視其與目前健康相關生活品質之關係。

測量工具

健康相關生活品質量表：WHOQOL-BREF Taiwan Version

此量表由世界衛生組織研製，並經臺灣學者完成 WHOQOL-BREF 臺灣適用版本 (WHOQOL-BREF Taiwan Version，以下以 WHOQOL-BREF 稱之)，用以測量健康相關生活品質。經研究證實 WHOQOL-BREF 具良好之文化合適性與跨國可比較性 [30, 31]。此工具內容含括生理健康、心理、社會關係與環境四大範疇，可提供較豐富之健康資訊；其跨文化適用性與免費此兩大特性亦可使研究結果較易於透過各研究重複驗證。此外，霸凌可能影響社交關係，因此對本研究主題而言，社交相關健康測量可能有其必要性。WHOQOL-BREF 問卷內容共 28 題，其中包含兩題本土化問題，分別於社會關係與環境兩大範疇中，每題回答皆為五點類立克氏選項。四大範疇之題目舉例如下：

生理健康範疇：「您需要靠醫療的幫助應付日常生活嗎？」；

心理範疇：「您滿意自己的睡眠狀況嗎？」；

社會關係範疇：「您滿意自己的人際關係嗎？」；

環境範疇：「您滿意所使用的交通運輸方式嗎？」

霸凌問卷：依 Olweus 之校園霸凌定義並參考相關研究所編製

首先引用 Olweus 之校園霸凌定義：「一名學生或一群學生對另一名學生，做出或說出令人討厭與不悅的事，包含不斷地嘲笑、捉弄等。同時兩方是處於權力或力量不對等的關係下」，而後詢問參與者是否具相關之霸凌經驗。相同之霸凌相關經驗問法於過去研究中曾被採用 [24, 35]，且此測量方式對不同霸凌角色與不同時期之研究對象亦曾於文獻中出現 [36, 37]。為取得較完整之霸凌相關經驗，此問卷分別涵蓋霸凌者與被霸凌者，且進一步詢問不同霸凌類型之相關經驗：肢體、言語、關係及網路霸凌。

憂鬱症量表：病人健康問卷九題版本 (Patient Health Questionnaire, PHQ-9)

病人健康問卷九題版本於憂鬱症測量之信效度經過驗證，對重度憂鬱症之偵測敏感度為 88%，特異度亦為 88%。此工具對憂鬱嚴重度之測量亦可靠且有效，問卷總分數依照 5 與 10 分，可區分憂鬱程度為三個程度：正常、輕度、中度至嚴重憂鬱症 [38]。PHQ-9 在臺灣經過信效度測試後，內在信度達 0.8，重測信度達 0.87，且與漢氏憂鬱量表(Hamilton Depression Rating Scale, HAM-D)具顯著相關 [39]，顯示此工具應可應用於臺灣之族群。

研究變項

健康相關生活品質

定義：針對與健康相關之兩大要素進行生活品質評估，分別為功能性健康狀態及主觀健康與完滿美好 (well-being) 程度之測量[29, 40]。

霸凌相關經驗

定義：霸凌為一具傷害性之行為，須於相同年齡層之族群中發生一段時間，且行為者與其行為對象處於權力不對等之情形[5]，若過去於國小、國中、高中及大學時期有此相關經驗則視為具霸凌相關經驗。

憂鬱症

定義：根據世界衛生組織之定義，憂鬱症為一種心理疾病，症狀為情緒憂鬱、對事物失去興趣與快樂、感到罪惡或自我價值低落、睡眠或食慾障礙、缺乏動力以及注意力貧乏[41]。依文獻回顧之結果，憂鬱症與霸凌相關經驗及健康相關生活品質息息相關，其中霸凌相關經驗與其關係尤為緊密，故此特別納入憂鬱症嚴重程度，而非以單純罹病與否進行分析。

健康狀況與健康相關危險行為

由一南非國高中生之研究發現，霸凌行為可作為暴力與從事危險行為者之指標，同時為霸凌與受害者或霸凌者較多從事危險行為[42]，意即霸凌相關行為與危險行為存在可能之關聯機轉，值得探討。美國針對大學與中學生進行之研究亦發現，12-13 歲之族群中僅不足一成者從事多重健康相關危險行為（香菸、藥物、酒精或危險性行為等），但隨年齡增加至 18-21 歲後，有半數出現多重危險行為之現象[43]，而健康相關危險行為又可能影響健康相關生活品質[44]，是故將其納入本研究之分析以控制。

- 危險性行為：如無安全措施之性行為、多重性伴侶等
- 吸菸：尼古丁、菸焦油與各種香菸燃燒所產生具健康危害之化學物質，被吸入人體中
- 過度飲酒：短期出現酒精狂飲行為，或長期攝取超過建議標準量之酒精

背景特質

個人特質：

- 成績排名：受訪者前一學期於班上之成績排名百分位數
- 感情狀態：已婚、具穩定交往對象、無男女朋友等感情狀態
- 宗教信仰：是否具有特定宗教信仰
- 性傾向：是否對同性於情感與性方面具耐久之吸引
- 長期身體活動障礙：生理上具某種障礙，並且長期影響一般日常生活

基本人口學變項：

- 年齡
- 性別
- 學校類型
- 年級
- 可支用收入
- 是否為當地人

研究變項：操作化定義

變項名稱	變項類型	操作型定義	數值說明
結果變項			
Physical Health	連續變項	依據 WHOQOL-BREF 臺灣版 所計算出生理健康之健康相關生活品質分數	4-20 分
Psychological	連續變項	依據 WHOQOL-BREF 臺灣版 所計算出心理面向之健康相關生活品質分數	4-20 分
Social Relationships	連續變項	依據 WHOQOL-BREF 臺灣版 所計算出社會關係之健康相關生活品質分數	4-20 分
Environment	連續變項	依據 WHOQOL-BREF 臺灣版 所計算出環境面向之健康相關生活品質分數	4-20 分

變項名稱	變項類型	操作型定義	數值說明
自變項			
Bullying Experiences	類別	在學校期間，曾對他人嚴重霸凌	0 = 不曾發生過 1 = 大學以前發生過 2 = 大學時發生過
Bullied Experiences	類別	在學校期間，曾受到他人嚴重霸凌	0 = 不曾發生過 1 = 大學以前發生過 2 = 大學時發生過

變項名稱	變項類型	操作型定義	數值說明
背景變項			
Age	連續類別	受訪者之年齡	
Gender	二分類別	受訪者之性別，分為男、女二類	0 = 男 1 = 女
Type of University	二分類別	受訪者之就讀學校類型	0 = 公立大學 1 = 私立大學
Year in University	四分類別	受訪者之就讀年級	1 = 大一 2 = 大二 3 = 大三 4 = 大四
Grade Point Average	四分類別	受訪者的成績排名百分率	0 = 0- 20 % 1 = 21-40% 2 = 41-60% 3 = 61-100%
Monthly Disposable Income	四分類別	受訪者之每月可支用收入 (NTD)	0 = ≤4,000 1 = 4,001-8,000 2 = 8,001-12,000 3 = ≥12,001
Region of Origin	二分類別	受訪者是否來自當地	0 = 否 1 = 是
Religion Status	二分類別	受訪者是否有宗教信仰	0 = 否 1 = 是

（續下頁）

變項名稱	變項類型	操作型定義	數值說明
Relationship Status			
	二分類別	受訪者過去一年的穩定交往狀態	0 = 單身
			1 = 穩定交往中
Sexual Orientation			
	二分類別	受訪者之性傾向	0 = 異性戀
			1 = 非異性戀
Long-Term Difficulty with Activities of Daily Living			
	二分類別	受訪者是否有長期生活之困難	0 = 否
			1 = 是

變項名稱	變項類型	操作型定義	數值說明
健康狀況變項			
Diagnosed Physical Disorder			
	二分類別	受訪者是否有經醫師診斷之生理疾病	0 = 否
			1 = 是
Diagnosed Mental Disorder			
	二分類別	受訪者是否有經醫師診斷之心理疾病	0 = 否
			1 = 是
Depression			
	三分類別	受訪者是否有憂鬱症之情形	0 = 無
			1 = 輕度
			2 = 中度至嚴重

變項名稱	變項類型	操作型定義	數值說明
健康相關危險行為變項			
Unprotected Sex			
	二分類別	受訪者過去一年內是否有未保護之性行為	0 = 否
			1 = 是
Smoking			
	二分類別	受訪者過去一年內是否有抽煙習慣	0 = 否
			1 = 是
Binge Drinking			
	二分類別	受訪者過去一年內是否有大量飲酒	0 = 否
			1 = 是

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