



Research Article

Volume 6 Issue 2 – December 2017  
DOI: 10.19080/AJPN.2017.06.555734

Acad J Ped Neonatol  
Copyright © All rights are reserved by Józefczuk Jan

# Influencing Factors on Health-Promoting Lifestyle and Health Related Quality of Life Among Adolescents: A Path Analysis based on the Health Promotion Model



Mi-NaJang<sup>1</sup>, Ok KyungHam<sup>2</sup>, Hyunbong Park<sup>1</sup> and Hee Soon Kim<sup>3\*</sup>

<sup>1</sup>College of Nursing, Yonsei University, South Korea

<sup>2</sup>Department of Nursing, Inha University, South Korea

<sup>3</sup>College of Nursing, Mo-im Kim Nursing Research Institute, Yonsei University, South Korea

**Submission:** September 28, 2017; **Published:** December 13, 2017

**\*Corresponding author:** Hee Soon Kim, College of Nursing, Mo-im Kim Nursing Research Institute, Yonsei University, South Korea,  
Email: KHSSOON@yuhs.ac

## Abstract

The purpose of this study was to examine the direct and/or indirect effects of individual characteristics and experiences, behaviour-specific cognitions and affects, and interpersonal influences on health promotion behaviour and health-related quality of life using the health promotion model. The study was performed with a cross-sectional design, and 346 students aged between 10 and 16 years voluntarily participated. The study instruments included Korean versions of the Self-Esteem Scale, the Multidimensional Scale of Perceived Social Support, the 21-item Depression Anxiety Stress Scales, the Strength and Difficulties Questionnaire, the Adolescent Lifestyle Questionnaire, and the Pediatrics Quality of Life Inventory TM 4.0. Data were analyzed using correlations and path analysis. The study identified significant direct effects of predictor variables (self-esteem, behavioural problems, and social support) on health promotion behaviour. The study also found that emotional problems, behavioural problems, and health promotion behaviour had significant direct effects on health-related quality of life ( $p < .05$ ). By elucidating causal pathways, nurses could identify critical points for intervention that could enable the development of effective school health programs.

**Keywords:** Quality of life; Adolescent, Self-efficacy; Problem behaviour; Social support

## Introduction

Factors Influencing Adolescents' Health Promotion Behaviour and Health-Related Quality of Life. Chronic disease is a serious health concern in Korea as well as in western countries, attributable to changes in lifestyle such as sedentary behaviour and unbalanced diet [1]. Particularly, Cerebro vascular disease and cancers are the major causes of mortality and morbidity, and are associated with unhealthy behaviours such as tobacco use, alcohol consumption, physical inactivity, and unbalanced diet [2]. Because many of the health risk behaviours that contribute to these conditions begin and are reinforced during childhood, nurses working with children and families have a valuable opportunity to promote healthy lifestyles by providing school health programs [3], which could affect youths' current as well as future health status [4].

Adolescence is a critical period in health promotion, as unhealthy behaviours have not yet been fixed. Physically, adolescents experience dramatic changes such as the manifestation

of secondary sexual characteristics, yet, they are immature in biological, cognitive, emotional, and social aspects, and thus they are more likely to commit multiple risk behaviours (alcohol use, smoking, drug abuse, suicidal attempts, and violence). Evidence also suggests that health risk behaviours increase significantly during adolescence compared to childhood [5]. Therefore, the prevention of health risk behaviours in the youth period is more effective than in adulthood and, accordingly, the importance of youth health promotion programs has been increasingly emphasized [6].

Adolescents in Korea experience severe academic stress because of the competitive college entrance process and academic achievement has always been a priority concern among them; thus, school health programs have been relatively less emphasized [7]. Former studies reported a high prevalence of lack of physical activity among youths, with 78% not performing regular physical activity, and a low proportion of participants having a balanced

diet (Ministry of Education, Ministry of Health and Welfare, & centres for Disease Control and Prevention, 2015, Ministry of Health and Welfare & centres for Disease Control and Prevention, 2012). In addition, most adolescents die from suicide than any other diseases or accidents, which has doubled during the last decade in Korea [8].

In order to alleviate detrimental health problems, health promotion practices would be a cost-effective approach in the long-term [9]. Schools and families could collaborate in the implementation of health promotion school initiatives to help youths develop the health-related knowledge, values, attitudes, and skills that they need to make healthful lifestyle choices [10]. An understanding of the predisposing factors and determinants of health and health behaviour should be preceded in order to develop effective health promotion programs [11]. Since the goal of health promotion is to achieve highest levels of well-being and health-related quality of life (HRQoL), elucidation of the factors that influence HRQoL is imperative (e.g., health promotion behaviour) [12]. Some studies were conducted to identify the relationship between lifestyle behaviours (physical activity and eating behaviour) and HRQoL. However, comprehensive approaches to understanding the roles of health promotion behaviours in relation to HRQoL among youths have been scarce, especially those applying a theoretical framework. Therefore, based on the health promotion model (Pender, 1996), this study sought to understand the factors that predict health promotion behaviour and HRQoL among youths in order to provide baseline data for the development of school health programs.

### Conceptual Framework

We applied the Health Promotion Model as a theoretical framework guide this study. This model identifies background factors that influence health behaviour, and by using it, nurses can assist clients in modifying behaviours to achieve a healthful lifestyle and in turn promote HRQoL. The components of the model include (a) individual characteristics and experiences, (b) behaviour-specific cognitions and affects, and (c) situational/interpersonal influences.

Individual characteristics and experiences incorporate prior related behaviour and personal factors that could not be modified through health promotion interventions. Our study included gender and school type (as personal factors), and experience of school health education (as a prior related behaviour) as control variables. Perceived benefits and barriers, perceived self-efficacy, and activity-related affect were included as subcomponents of behaviour specific cognitions and affects. Former studies identified that mental health and conduct problems were significantly associated with health promotion behaviours [13], thus in our study, instead of perceived benefits and barriers, we included emotional problems (depression, anxiety, and stress) and behavioural problems (hyperactivity/inattention and peer problems) as components of behaviour specific cognitions and affects. Some researchers have contended that self-efficacy and self-esteem are strongly related, while others have shown that

self-esteem significantly predicted health behaviours among university students [14]. Self-esteem includes beliefs and feelings about oneself and implies self-evaluation, which is a crucial factor contributing to mental health as well as health and quality of life [15]. Using the health promotion model, self-esteem was found to significantly influence perceived benefits and barriers, and was identified as a significant factor in emotional and behavioural problems. Therefore, as a predictor variable, self-esteem was included in the path model along with emotional and behavioural problems that determine health promotion behaviour and HRQoL in our study. Lastly, we included social support as an interpersonal influence variable, which was reported as a significant determinant of health promotion behaviours [7].

Applying the health promotion model, the purpose of this study was to examine direct and/or indirect effects of individual characteristics (gender, school, and other control variables), behaviour-specific cognitions and affects (emotional problems, behavioural problems, and self-esteem), and interpersonal influences (social support) on health promotion behaviour and HRQoL after controlling for personal factors (school type, gender, and experience of school health education) among youths in Korea.

### Method

#### Design

Our study employed a cross-sectional non-experimental design to describe the direct and indirect effects of self-esteem, behavioural problems, emotional problems, social support, and health promotion behaviour on HRQoL based on the health promotion model.

#### Sample

One elementary school in an urban area and one middle school in a metropolitan area agreed to participate in our study and helped to recruit study participants. Students from the fourth-to ninth-grades were recruited, whose parents as well as themselves could understand the purpose of the study and agreed to participate. According to the definition of adolescence, youths aged between 10–19 years were eligible to participate in our study [16]. Based on the maximum likelihood estimation in structured equation modeling (SEM), a sample size between 150 and 400 was required [17], thus, we recruited 357 students. A total of 357 questionnaires were distributed, and after the exclusion of 8 questionnaires with incomplete answers, the questionnaires from 349 students were included in the analysis.

#### Measures

General characteristics. These variables included age, gender, school level (primary or secondary), and experience of school health education. Self-esteem. The Self-Esteem Scale [18], which was translated into Korean by the Behavioural Science Research Centre at Korea University (2000), was used to measure self-esteem after obtaining permission. This instrument includes ten items of positive (6) and negative (4) self-esteem questions and measured with a 4-point Likert scale. Higher total scores

represent higher self-esteem. Cronbach's alpha was .75-.86 in a former study, and .86-.91 in the present study.

**Emotional problems.** The 21-item Depression Anxiety Stress Scale (DASS) was used to measure emotional problems [19]. We obtained permission from the authors of the original instrument and we utilized a Korean version of the DASS (K-DASS-21). The instrument consists of 21 items in three subscales: depression, anxiety, and stress. The depression scale assesses Dysphoria, despair, worthlessness, and indifference. The anxiety scale measures transient anxiety and perception of anxious affect experiences. The stress scale examines difficulty in relaxation, nervous arousal, emotional restless, and intolerance [19]. Responses were measured with a 4-point Likert scale, with higher total scores represent worse depression, anxiety, and stress (range 0-63). Cronbach's alpha was .89-.91 in the former study [19] and .79-.87 in the present study.

**Behavioural problems.** The Korean version of the Strength and Difficulties Questionnaire (SDQ) [20], which was translated by [21] was used to measure behavioural problems (SDQ-Kr). It was translated and back-translated by Korean researchers and its validity and reliability were verified by using it with Koreans [21]. The SDQ-Kr consists of 20 items in five domains including emotional disturbance (5 items), conduct behaviour disorders (5 items), hyperactivity/inattention (5 items), peer relationship difficulties (5 items), and socially desirable behaviours (5 items). In this study, we included three domains of behavioural problems (conduct behaviour disorders, hyperactivity/inattention, and peer relationship difficulties) in the analysis. Higher scores indicate worse behaviour problems. Items were scored on a 3-point scale (0=not true, 1=somewhat true, and 2=certainly true). Cronbach's alpha was .82 in the previous study (Ahn et al., 2002) and .79 in our study.

**Social support.** The Multidimensional Scale of Perceived Social Support was used to assess social support perceived [22], which was translated into Korean. The 12 item-scale measures support from significant others, friends, and members of a family using a 7-point Likert type scale (range 12-84). Higher scores indicate better social support perceptions. Cronbach's alpha was .85 in the original study [22] and .96 in the present study.

**Health promotion behaviour.** Health promotion behaviour was assessed using the Adolescent Lifestyle Questionnaire (ALQ) [23] after obtaining permission from the original author. The instrument consists of 43 items in seven subscales: life appreciation, healthy eating, engaging in physical activity, safety, health responsibility, social support, and stress management. Items are measured with a 6-point Likert type scale (1 = never, 2=rarely, 3=sometimes, 4=often, 5=almost always), and the total score ranges between 43 and 215. Higher scores indicate positive health promotion behaviours. Cronbach's alpha was .91 in the former study [23] and .95 in our study.

**HRQoL.** Assessment of HRQoL was performed with a Korean version of the Pediatrics Quality of Life Inventory (Peds QLTM 4.0) after obtaining permission from the original researchers. The

instrument was developed by Varni, Seid, and Kurtin (2001) and consists of 23 items in four subscales including physical (8 items), emotional (5 items), social (5 items), and school functioning (5 items). It was measured with a 5-point Likert scale (0= never, 1=almost never, 2=sometimes, 3=often, and 4= almost always), and transformation of the scale items was performed (0 = 100, 1=75, 2=50, 3=25, and 4=0). Higher scores indicate better HRQoL. Cronbach's alpha was .72-.87 in the former study [24] and .91 in our study.

### Data Collection and Ethical Considerations

Data collection was conducted between October and November 2014 after obtaining approval from the Institutional Review Board of the university where authors are affiliated. School news letters were sent to parents of potential participants, which informed the purpose of the study and incorporated consent forms. Returned signed consent forms were collected by the research assistants from the parents who agreed that their children could participate in our study. Before data collection, the research assistants also obtained verbal assent from the participating students whose parents had already submitted the signed consent forms. Upon completing the survey, US \$3.00 was offered to participating youths as a gift.

### Data Analysis

Data were analyzed using SPSS WIN 21.0 and STATA/IC 13.1. Descriptive statistics such as frequencies, percentages, means, and standard deviations was utilized to describe study variables. Pearson's correlation coefficients were used to identify correlations between the study variables. Path analysis was performed using a structural equation modelling (SEM) to explore effects of predictor variables dependent variables. Maximum likelihood estimation was used [25], and significance test was performed using bootstrapping. Significance was determined at  $p < 0.05$  level.

### Results

Descriptive Statistics of General Characteristics and Study Variables of the participating students, 50.9% (n= 176) were male, while 49.1% (n=170) were female. The mean age (SD) was 12.95 (1.47) years, range:10-16 years. Primary school students constituted 48.8% (n=169), and 51.2% (n=177) were secondary school students. Sixty-two percent (n=216) answered that they had experience of school health education. The mean score for self-esteem was 22.43 (5.47), range: 6-30; for emotional problems 7.87(9.38), range: 0-49; for behavioural problems 10.40(5.42), range: 0-29; and for social support 71.10(14.67), range: 2-84. The mean score for health promotion behaviour was 160.99(29.35), range: 67-215, and for HRQoL 336.35(55.34), range: 70-400.

### Correlation Matrix of Study Variables

Significant positive relationships were identified between health promotion behaviour and self-esteem ( $r=.663$ ,  $p<.001$ ) and social support ( $r=.553$ ,  $p<.001$ ), while significant negative

association were found between health promotion behaviour, and emotional problems ( $r=-.451$ ,  $p<.001$ ) and behavioural problems ( $r=-.512$ ,  $p<.001$ ). The results indicated that those with higher levels of self-esteem and social support engaged in better health promotion behaviour than their counterparts. HRQoL was positively correlated with self-esteem ( $r=.569$ ,  $p<.001$ ), social support ( $r=.434$ ,  $p<.001$ ), and health promotion behaviour ( $r=.506$ ,  $p<.001$ ), and negatively associated with emotional problems ( $r=-.593$ ,  $p<.001$ ) and behavioural problems ( $r=-.612$ ,  $p<.001$ ). These results suggest that high self-esteem, more social support, and better health promotion behaviour lead to better HRQoL, while more emotional and behavioural problems are connected with worse HRQoL. Direct Effect, Indirect Effect, and Total Effect on Health Promotion Behaviour and Health-Related Quality of Life.

Path analysis was performed to determine the direct, indirect, and total effect of predictors on health promotion behaviour and HRQoL after controlling for personal variables (gender, school type, and experience of school health education) (Figure 2). Regarding the effects of the predictors on health promotion behaviour, self-esteem had direct and indirect effects. Behavioural problems had a negative direct effect, while social support had a positive direct effect on health promotion behaviour, after controlling for personal factors (gender, school type, and experience of school health education). Concerning Howl, the results indicated that emotional problems and behavioural problems had negative direct effects on HRQoL, while health promotion behaviour had a positive direct effect after controlling for personal factors. Social support had positive indirect effect on HRQoL. The results indicated that health promotion behaviour mediated the relationships between behavioural problems and HRQoL, and between social support and HRQoL.

### Discussion

Based on the health promotion model, this study performed path analysis to identify effects of predictor variables on health promotion behaviour and HRQoL among youths, and the results support the assumptions of the model. The study results reveal that self-esteem, behavioural problems, and social support had significant direct effects on health promotion behaviour, while emotional problems, behavioural problems, and health promotion behaviour had significant direct effects on HRQoL. Behavioural problems and social support had indirect effects on HRQoL. Health promotion behavior mediated the relationship between behavioural problems and HRQoL, and between social support and HRQoL.

In our study, instead of perceived benefits and barriers, we included mental health (behavioural and emotional problems) in the model as a component of behaviour-specific cognitions and affects. A former study conceptualized childhood psychopathology in two broad categories: internalizing problems (negative emotions), and externalizing problems (hostility, hyperactivity, and delinquency), and contended that both internalizing (emotional

problems) and externalizing problems (behavioural problems) may co-exist upon emergence of precipitating factors in children and youths (Shaver, 2003). Others have reported that mental health and conduct problems are significantly associated with health promotion behaviour [13]. Therefore, we were interested in whether these emotional and behavioural problems would have direct and/or indirect effects on health promotion behaviour and HRQoL in children/adolescents and we thus included them in the model.

Our study found that behavioural problems had a direct effect on health promotion behaviour, while direct/indirect effects on HRQoL. In this indirect effect, health promotion behaviour mediated the relationship between behavioural problems and HRQoL. Similar to our study, former studies described that mental health was closely associated with health risk behaviour [26]. Especially, behavioral problems of mental health have a significant impact on health promotion behavior. Others also reported that HRQoL was significantly different according to the behavioural problem scores using the SDQ [27]. This study is unique in that we examined direct and indirect effects of mental health on health promotion behaviour and HRQoL among youths; associations between mental health and health promotion behaviour had been previously analyzed among adults [13]. The current study found that the direct effect of emotional problems was not significant on health promotion behaviour, but it was significant on HRQoL. In line with our findings, former studies reported that more depressive symptoms and anxiety emotions have been associated with lower HRQoL [28], while lower levels of stress were associated with better HRQoL [29]. Accordingly, the results of our study suggested that behavioural and emotional problems should be considered together in the development of interventions to improve HRQoL in youths. Especially, interventions to modify behavioural problems would help to enhance both health promotion behaviour and HRQoL.

Schools could provide a positive environment to prevent mental health problems and school-based interventions could be effective in promoting socio-emotional competencies in children and adolescents, thereby decreasing the prevalence of mental health problems [30]. However, due to a lack of infrastructures and funds, mental health services in schools have been insufficient to deal with the mental health problems of high-risk groups. Thus, political and financial support is needed from the government to strengthen competencies of teachers in providing mental health services and to implement effective mental health programs in schools in partnership with local communities [31].

Our study found that social support had a positive direct effect on health promotion behaviour; however, direct effect of social support on HRQoL was not significant. Consistent with our study, former studies also reported significant direct effect of social support on health promotion behaviour [12]. An insignificant effect of social support on HRQoL was also reported in other studies [27]. However, our study found a positive indirect effect,

and health promotion behaviour mediated the relationship between social support and HRQoL. The results of our study provide important implications for practitioners in that we found a significant association between social support and HRQoL, while this relationship was mediated by health promotion behaviour. The results suggest that provision of social support interventions will be more effective to improve health promotion behaviours and in turn promote HRQoL than those interventions directly provided to enhance HRQoL.

Among adolescents, lower levels of connectedness to family, school, and teachers were found to be associated with increased health risk behaviours [32]. It was found that school connectedness was more influential in reducing health risk behaviours than family or teacher connectedness [32]. School connectedness includes liking school and a positive relationship with friends and teachers, and is associated with multiple health outcomes [33]. During adolescence, emotional separation from parents is established, while peer influence becomes a dominant psychosocial issue. Thus, support from peers and teachers is important in preventing and avoiding health risk behaviours, while strategies to handle peer pressure will help adolescents to overcome barriers and make healthful lifestyle.

The study results revealed that self-esteem directly and indirectly influenced health promotion behaviour, and social support had a positive direct effect on health promotion behaviour, which is congruent with a previous study. Others also investigated the direct path from self-esteem to health promotion behaviour utilizing the health promotion model [7]. Positive self-esteem is considered as a protective factor against health risk behaviour, and functions as an internal moderator in adverse situations, while social support could be used as an external moderator in such situations. Positive self-esteem is also associated with receiving respectful attention and affection [34]. Therefore, those with positive self-esteem would get more social support from peers and family members in implementation of health promotion behaviour. Self-esteem also functions as a buffer in terms of adverse influence from others in relation to health risk behaviours [15]. Researchers have also contended that the sense of support from significant others (parents, teachers, and peers) is influential on the development of self-esteem. Therefore, strategies to enhance self-esteem in supportive social surroundings could be effective approaches to promote positive health behaviours among children and adolescents [15]. In addition, offering school health programs focused on self-esteem building could yield multiple outcomes including academic achievement, positive social relations, reduced health risk behaviour, and improved physical and mental health [35].

The significant relationship between health promotion behaviour and HRQoL found in this study is consistent with previous studies [12]. The current study found that health promotion behaviour not only directly influenced HRQoL, but also mediated the relationship between predictor variables and

HRQoL. Health promotion behaviours such as non-smoking, physical activity, and balanced diet are well known to impact health positively, which in turn will enhance HRQoL. Therefore, interventions to promote positive health behaviours would help to improve the HRQoL of youths [12]. The utility of the health promotion model was confirmed in our study in predicting health promotion behaviour and HRQoL, and found direct and indirect effects of multiple predictor variables among youths. The understanding of factors associated with health promotion behaviours should precede the development of interventions to promote positive health behaviours and HRQoL. Accordingly, the results of our study provide valuable information for the planning of effective health promotion programs. The study results suggest that interventions to alleviate emotional and behavioural problems and efforts to enhance self-esteem along with social support services will help to increase health promotion behaviour and HRQoL among adolescents.

### Implications for School Nursing

Schools can provide environments conducive to health education and health promotion programs to promote positive health behaviours and HRQoL, which will contribute to the students' academic success and school completion [36]. Because many health behaviours begin and are reinforced during childhood, nurses in school settings have an opportunity to promote healthful lifestyles through school health programs [37]. School health programs can be one of the most cost-effective investments to improve both health and education simultaneously [38]. For effective school health programs, comprehensive approaches are needed to modify educational, social, economic, and political conditions to reduce risks associated with health and health behaviour [38]. By understanding the significant predictors and mediators influencing health promotion behaviour and HRQoL and elucidating the causal pathway from an independent to a dependent variable [39-65], nurses could identify critical points of interventions and thereby develop effective school health programs incorporating strategies to modify and/or reinforce those critical components applying models of health behaviour.

### Limitations and Recommendations for Future Research

One of the study limitations may include use of the convenience sampling; thus, careful attention should be paid when generalizing our results. Furthermore, our study cannot exclude social desirability bias in some of the questions because data were gathered using a self-report method. Additionally, care should be taken in interpretation of the study results, since we did not include some of the health promotion model components in our study. Future studies are needed to include the variables of the health promotion model that were not considered in our study (i.e., perceived benefits and barriers, and self-efficacy), and investigate whether these variables significantly predict health promotion behaviour and HRQoL, and/or they play a mediator or moderator role in explaining HRQoL.

## References

1. Park YH (2014) Strategy for noncommunicable disease control and prevention. *Journal of the Korean Medical Association* 57: 808-814.
2. Kann L, McManus T, Harris WA, Shanklin SL, Hawkins J and Zaza S (2016) Youth risk behaviour surveillance—United States, 2015. *MMWR. MMWR Surveill* 65(6): 1–174.
3. Lee GY, Ham OK (2012) Perception and needs in health education curriculum among school nurses as health teachers in Korea. *J Sch Nurs* 29(1): 10-18.
4. Sawyer SM, Afifi RA, Bearinger LH, Blakemore SJ, Patton GC (2012) Adolescence: a foundation for future health. *The Lancet* 379: 1630-1640.
5. Klosky JL, Howell CR, Foster RH, Mertens AC, Robison LL (2012) Risky health behaviour among adolescents in the childhood cancer survivor study cohort. *J Pediatr Psychol* 37(6): 634-646.
6. Bandura A (2004) Health promotion by social cognitive means. *Health Educ Behav* 31(2): 143-164.
7. Kim SH, Lee JH (2008) Test of a Hypothetical Model for Health Promoting Behaviour in School-aged Children. *Child Health Nursing Research* 14(1): 22-34.
8. Shin HY, Lee JY, Song J, Lee S, Lim B (2016) Cause-of-death statistics in the Republic of Korea, 2014. *Journal of the Korean Medical* 59: 221-232.
9. Abu-Moghli FA, Khalaf IA, Barghote FF (2010) The influence of a health education programme on healthy lifestyles and practices among university students. *Int J Nurs Pract* 16(1): 35-42.
10. Jang BS, Kim DH (2015) Health literacy and health behaviour in late school-age children. *J Korean Acad Journal of Korean Academy of Community Health Nursing* 26(3): 199-208.
11. Kim HK, Lee MH (2011) Factors influencing resilience of adult children of alcoholics among college students. *J Korean Acad Nurs* 41(5): 642-651.
12. Mohamadian H, Eftekha H, Mohamad HT, Shojaiezade D, et al. (2011) Predicting health-related quality of life by using a health promotion model among Iranian adolescent girls: A structural equation modelling approach. *Nurs Health Sci* 13(2): 141-148.
13. Adrian M, worth CAS, Vander SA, Mc Cauley E, Becker L (2014) Health promotion behaviours in adolescents: Prevalence and association with mental health status in a state wide sample. *Journal of Behavioural Health Services and Research* 41: 140-152.
14. Mahmoodabad SSM, Mehri A, Morowatisharifabad M (2005) The relationship of health behaviour with self-esteem and self-efficacy in students of Yazd Shahid Sadooghi University of Medical Sciences. *J Educ Health Promot* 3(2): 111-117.
15. Mann MM, Hosman CM, Schaalma HP, De Vries NK (2004) Self-esteem in a broad-spectrum approach for mental health promotion. *Health Educ Res* 19(4): 357-372.
16. World Health Organization(2016) Adolescent health.
17. Hair J, Black W, Babin BJ, Anderson RE, Tatham RL (2006) *Multivariate data Analysis* (6<sup>th</sup> edn.). Upper Saddle River, NJ: Pearson Prentice Hall.
18. Rosenberg M (1965) *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
19. Lovibond PF, Lovibond SH (1995) The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Lovibond PF* 33(3): 335-343.
20. Goodman R (1997) The strengths and difficulties questionnaire: a research note. *J Child Psychol Psychiatry* 38(5): 581-586.
21. Ahn JS, Jun SK, Han JK, Noh KS, Goodman R (2003) The development of a Korean version of the strengths and difficulties questionnaire. *J Korean Neuropsychiatr Assoc* 42(1): 141-147.
22. Zimet GD, Dahlem NW, Zimet SG, Farley GK (1988) The multidimensional scale of perceived social support. *Journal of Personality Assessment* 52: 30-41.
23. Gillis A (1997) The adolescent lifestyle questionnaire: development and psychometric testing. *Can J Nurs Res* 29: 29-46.
24. Kook SH and Varni JW (2008) Validation of the Korean version of the Pediatrics quality of life inventory 4.0 (PedsQL) generic core scales in school children and adolescents using the Rasch Model. *Health Qual Life Outcomes* 6: 41-55.
25. Kline RB (2005) *Principles and Practice of Structural Equation Modeling*. (2<sup>nd</sup> edn), Guilford press, New York, USA.
26. Patton GC, Coffey C, Carlin JB, Degenhardt, Lynskey (2002) Cannabis use and mental health in younger people: cohort study. *BMJ* 325(7374): 1195-1198.
27. Ravens-Sieberer U, Erhart M, Gosch A, Wille N, European KG (2008) Mental health of children and adolescents in 12 European countries—results from the European KIDSCREEN study. *Clinical Psychology and Psychotherapy* 15: 154-163.
28. Stevanovic D (2013) Impact of emotional and behavioral symptoms on quality of life in children and adolescents. *Quality of life Research* 22(2): 333-337.
29. Vibe DM, Bjørndal A, Tipton E, Hammerstrøm KT, Kowalski K (2012) Mindfulness based stress reduction (MBSR) for improving health, quality of life, and social functioning in adults. *Campbell Systematic Reviews* 8(3): 1-127.
30. Reinke WM, Stormont M, Herman KC, Puri R and Goel N (2011) Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly* 26(1): 1-13.
31. Choi EJ (2012) Policy development for adolescent mental health promotion. *Health and Welfare Policy Forum*, 188: 78-86.
32. Brooks FM, Magnusson J, Spencer N and Morgan A (2012) Adolescent multiple risk behaviour: an asset approach to the role of family, school and community. *J Public Health* 34: 48-56.
33. Thompson DR, Iachan R, Overpeck M, Ross JG, Ross G (2006) School connectedness in the health behavior in school-aged children study: the role of student, school, and school neighborhood characteristics. *Journal of School Health* 76(7): 379-386.
34. Mullis RL, Chapman P (2000) Age, gender, and self-esteem differences in adolescent coping styles. *The Journal of Social Psychology* 140: 539-541.
35. King KA, Vidourek RA, Davis B, Mc Clellan W (2002) Increasing self-esteem and school connectedness through a multidimensional mentoring program. *J Sch Health* 72(7): 294-299.
36. Committee for Education Funding of USA (2015) *Education Matters: Invest in Learning for Health*.
37. Lee GY, Ham OK (2012) Perception and needs in health education curriculum among school nurses as health teachers in Korea. *J Sch Nurs* 29(1): 10-18.
38. World Health Organization (2016) *School health and youth health promotion*.
39. Behavioral Science Research Center Korea University (2000). *Handbook of Psychological Scale II*. Seoul, South Korea: Hakjisa
40. Boden JM, Fergusson DM, Horwood LJ (2008) Does adolescent self-esteem predict later life outcomes? A test of the causal role of self-esteem. *Dev Psychopathol* 20(1): 319-339.

41. Chen X, Sekine M, Hamanishi S, Wang H, Gaina A (2005) Lifestyles and health-related quality of life in Japanese school children: a cross-sectional study. *Prev Med* 40(6): 668-678.
42. Haavet OR, Saugstad OD, Straand J (2005) Positive factors associated with promoting health in low-risk and high-risk populations of 15- and 16-year-old pupils in Oslo, *Acta Paediatr* 94: 345-351.
43. Judge TA, Erez A, Bono JE, Thoresen CJ (2002) Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *J Pers Soc Psychol* 83(3): 693-710.
44. Kim HS, Kim YI (2010) Factors related to health promoting behaviour in late school-age children. *Journal of Korean Society of School Health* 23(1): 1-10.
45. Kim KY, Park SW, Kim JY, Bae J, Lee WK (2012) Trends in the prevalence of health risk behaviours among Korean adolescents, 2005-2009: The Korea Youth Risk Behaviour web-based survey. *Korean Journal of Health Education and Promotion* 29: 13-25.
46. Lee YM, Schwarzer R, Jerusalem M (1994) Korean adaptation of the general self-efficacy scale. *Korean adaptation of the general self-efficacy scale* 2007.
47. Lightsey Jr OR, Burke M, Ervin A, Henderson D, Yee C (2006) Generalized self-efficacy, self-esteem, and negative affect. *Canadian Journal of Behavioural Science* 38(1): 72.
48. Magalnick H, Mazyck D (2008) Role of the school nurse in providing school health services. *Pediatrics* 121: 1052-1056.
49. Mc Carroll EM, Lindsey EW, MacKinnon-Lewis C, Chambers JC and Frabutt JM (2009) Health status and peer relationships in early adolescence: The role of peer contact, self-esteem, and social anxiety. *Journal of Child and Family Studies* 18(4): 473-485.
50. Mc Neely C, Falci C (2004) School connectedness and the transition into and out of Health-Risk behaviour among adolescents: A comparison of social belonging and teacher support. *J Sch Health* 74: 284-292.
51. Melnyk BM, Small L, Morrison BD, Spath L, Blankenstein VS (2006) Mental health correlates of healthy lifestyle attitudes, beliefs, choices, and behaviours in overweight adolescents. *J Pediatr Health Care* 20(6): 401-406.
52. Ministry of Education, Ministry of Health and Welfare and Centers for Disease Control and Prevention (2015) The 11<sup>th</sup> Korea youth risk behaviour web-based survey, Chungbuk, South Korea: Korea centers for Disease Control and Prevention.
53. Ministry of Health and Welfare, & centers for Disease Control and Prevention. (2012) Korean Community Health Survey, Seoul, South Korea: Ministry of Health and Welfare.
54. Kline RB (2005) Principles and Practice of Structural Equation Modeling, (2<sup>nd</sup> edn). Guilford Press, New York, USA.
55. Puskar KR, Marie Bernardo L (2007) Mental health and academic achievement: Role of school nurses. *Journal for Specialists in Pediatric Nursing* 12: 215-223.
56. Ravens SU, Erhart M, Gosch A, Wille N, European KG (2008) Mental health of children and adolescents in 12 European countries-results from the European KIDSCREEN study. *Clinical Psychology and Psychotherapy* 15: 154-163.
57. Reuterswärd M, Lagerström M (2010) The aspects school health nurses find important for successful health promotion. *Scand J Caring Sci. Scandinavian Journal of Caring Sciences* 24(1): 156-163.
58. Shaver AE (2003) Patterns of rule-violating behavior in children and adolescents. (Unpublished Doctoral Dissertation). The Ohio State University, Columbus, Ohio.
59. Shwarzer R, Jerusalem M (1993) Generalized perceived self-efficacy scale.
60. Wallston KA, Stang J, Story M (2005) Guidelines for adolescent nutrition services. *General Perceived Self-Efficac/hauptteil\_general\_perceived\_selfefficac*.
61. Thomas RE, McLellan, Perera R (2013) School-based programmes for preventing smoking. *Evidence-Based Child Health: A Cochrane Review Journal* 8: 1616-2040.
62. Varni JW, Seid M, Kurtin PS (2001) PedsQL™ 4.0: Reliability and validity of the Pediatric Quality of Life Inventory™ Version 4.0 Generic Core Scales in healthy and patient populations. *Medical Care* 39: 800-812.
63. Weare K, Nind M (2011) Mental health promotion and problem prevention in schools: what does the evidence say? *Health Promotion International* 26(1): 29-69.
64. Yoo JS (2009) Factors influencing health risk behaviors in early adolescents. *Journal of Korean Academic Community Health Nursing* 20: 296-306.



This work is licensed under Creative Commons Attribution 4.0 License  
DOI: [10.19080/AJPN.2017.06.555734](https://doi.org/10.19080/AJPN.2017.06.555734)

### Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats  
( Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>