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사회복지학박사학위논문

**Academic Stress and Mental Health among  
Adolescents: Applying a Multi-Dimensional  
Stress Coping Model**

청소년의 학업스트레스와 정신건강:  
다차원 스트레스 대처 모델 검증

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서울대학교 대학원  
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다차원 스트레스 대처 모델 검증

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**Academic Stress and Mental Health among  
Adolescents: Applying a Multi-Dimensional  
Stress Coping Model**

**CHANGMIN YOO**

**A DISSERTATION SUBMITTED TO THE  
DEPARTMENT OF SOCIAL WELFARE AND  
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# **Abstract**

## **Academic Stress and Mental Health among Adolescents: Applying a Multi-Dimensional Stress Coping Model**

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The purpose of this study is to develop a theoretically valid model for multi-stress coping pathways which overcome the theoretical and empirical limitations of the Lazarus and Folkman (1984b)'s existing stress coping model; and furthermore tests its statistical validity using the nationally representative data of high school students in South Korea. To be specific, this study aims to examine (1) the effects of bonding social capital on two-dimensional mental health (subjective well-being and suicide ideation) among Korean high school students, and (2) whether the academic stress, two-dimensional self-esteem, and problem, behavioral, and emotional focused coping mediates the relations between bonding social capital and two-dimensional mental health (subjective well-being and suicide ideation) among Korean high school students.



Adolescence is an important developmental stage where one forms their understanding of the self and the world. Scholars have pointed out that happiness and mental health of an adolescent affects the perception of themselves as well as define the life satisfaction and mental health in their adulthood. Unfortunately, Korean adolescents have been reported to be unhappy, mentally unhealthy, and high suicide problem in general. According to previous findings, academic stress is the greatest threat to the happiness and mental health of the Korean adolescents. However, academic stress does not equally give negative effect to all adolescents. Although the stress level may be similar, the level of suicide ideation or subjective well-being may be different according to their coping strategies. Coping with stress is especially important to adolescents.

Coping strategies developed during adolescence are closely related to mental health such as subjective well-being and suicide ideation. Accordingly, research has been carried out based on Lazarus and Folkman (1984b)'s Stress Coping Theory. However, these studies based on stress coping theory have limitations. These limitations involve lack of research attention to (1) the two-dimensionality of subjective well-being and suicide ideation which is positive and negative mental health, (2) the necessity of distinguishing 'bonding social capital as a positive coping resource' and 'problem, behavioral, and emotional focused coping as coping style,' and (3) self-esteem, cognitive appraisal, has the two-dimensionality. According to the previous research findings, peer and parent bonding social capital is likely to decrease academic stress and develop adolescent's stress coping abilities such as two dimensional self-esteem, problem focused coping, behavioral focused coping, and emotional focused coping, which in turn promotes subjective well-being and prevent suicide ideation. The present study develops a multi-dimensional stress coping model where the effect of peer and

parent bonding social capital on subjective well-being and suicide ideation can be either direct or indirect through academic stress, two-dimensional self-esteem, and problem/behavioral/emotional focused coping. The main research hypotheses involve: (1) Does the bonding social capital have an effect on subjective well-being and suicide ideation, among Korean high school students? (2) Does the academic stress have an effect on subjective well-being and suicide ideation, among Korean high school students? (3) Do Korean high school students' coping factors mediate the effect of bonding social capital and academic stress on subjective well-being and suicide ideation, among high school students?

To empirically test the validity of the conceptual model and research hypotheses, Structural Equation Modeling was performed to employed to analyze the nationally representative data from '2012 Children Supplementary Survey of Korean Welfare Panel Study.' The sample consisted of 471 high school students in 10th, 11th, and 12th grade.

The results suggest that the mechanisms concerning the association between 'bonding social capital' and 'subjective well-being and suicide ideation' among Korean high school students can be explained by applying this multi-dimensional stress coping model and the proposed conceptual model. Specifically, (1) it was found that all the model fit was acceptable for CFI, IFI, RMSEA, and SMC. (2) bonding social capital as coping resource, academic stress as stressor, self-worth and self-deprecation as cognitive appraisal, problem, behavioral, emotional focused coping as coping style, and subjective well-being and suicide ideation can be considered as one of the essential stress coping variables for developing positive stress coping abilities of Korean adolescents, and (3) adolescent's academic stress, self-worth, self-deprecation, problem

focused coping, behavioral focused coping, and emotional focused coping were found to mediate the effects of peer and parent bonding social capital on subjective well-being and suicide ideation.

These results implies that (1) simultaneous intervention of subjective well-being and suicide ideation is necessary to promote mental health of adolescents, (2) bonding social capital and academic stress are major protective and risk factors affecting mental health of adolescents, and (3) coping process used by Korean adolescents is not healthy, and it is important to develop adolescents' healthy stress coping skills. Despite some limitations due to the secondary data and cross-sectional analysis, this study has a important significance that it develops a multi-dimensional stress coping model for bonding social capital to mental health pathways and empirically verified its validity with nationally representative data. Based on the results of this study, hoping that more research will be conducted to healthy mental health of Korean adolescents.

**Keywords:** multi-dimensional stress coping model, mental health, bonding social capital, academic stress, two-dimensional self-esteem, coping style, subjective well-being, suicide ideation

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# CONTENTS

<b>CHAPTER I - INTRODUCTION</b> .....	<b>1</b>
1. Problem Statement.....	1
1.1. Korean adolescents' mental health.....	1
1.2. Limitations in the stress coping model.....	3
2. Purpose of the Study.....	9
3. Research Questions.....	9
<b>CHAPTER II - LITERATURE REVIEW</b> .....	<b>11</b>
1. Coping with Stress During Adolescence.....	<b>11</b>
1.1. Adolescence.....	11
1.2. The importance of coping with stress during adolescence	13
2. Limitations of The Stress Coping Theory.....	15
2.1. Stress coping theory.....	15
2.2. Limitation of adaptational outcome's uni-dimensionality...	18
2.3. Necessity of additional setting of coping resource concept...	24
2.4. Limitation of cognitive appraisal's uni-dimensionality.....	29
3. Multi-Dimensional Stress Coping Model .....	<b>34</b>
3.1. Introducing a multi-dimensional stress coping model.....	34
3.2. Adolescent stress coping variables .....	36
<b>CHAPTER III - RESEARCH MODEL</b> .....	<b>63</b>
1. Conceptual Model .....	63
2. Research Hypotheses .....	65

<b>CHAPTER IV - METHODS</b>	<b>67</b>
1. Data and Sample	67
2. Variables	68
2.1. Dependent variables	68
2.2. Exogenous variables	70
2.3. Mediating variables	70
2.4. Control variables	73
3. Analysis Techniques	75
<b>CHAPTER V - RESULTS</b>	<b>79</b>
1. Descriptive Statistics	79
1.1. Socio-demographic characteristic	79
1.2. Distributions of major variables	80
2. Measurement Model	82
2.1. Overall measurement model fit	82
2.2. Construct validity	84
3. Structural Model	88
3.1. Overall structural model fit	88
3.2. Parameter estimation	90
3.3. Decomposition of effects	96
4. Summary	103
<b>CHAPTER VI - DISCUSSION</b>	<b>105</b>
1. Findings	105
1.1. Validity of multi-dimensional stress coping model	106
1.2. Effect of multi-dimensional stress coping variables	107
1.3. Indirect effect of bonding social capital on subjective well	

being and suicide ideation .....	119
2. Theoretical Implications .....	123
2.1. Need to address positive and negative mental health simultaneously .....	123
2.2. Need to focus on positive coping resource .....	124
2.3. Need to address positive and negative coping factors simultaneously .....	125
3. Practice Implications .....	126
3.1. Implications for parents .....	126
3.2. Implications for adolescents .....	127
4. Policy Implications .....	131
5. Limitations and Suggestions .....	133
REFERENCE .....	135
APPENDIX 1 .....	174
APPENDIX 2 .....	175
APPENDIX 3 .....	176
국문초록 .....	186

## TABLES

Table 1 Longitudinal relation between major predictors and ‘subjective well-being and suicide ideation’ .....	62
Table 2 Measures of variables .....	74
Table 3 The Socio-demographic characteristics .....	79
Table 4 Descriptive statistics of major variables .....	81
Table 5 Measurement model fit .....	84
Table 6 Estimate of convergent validity .....	85
Table 7 Estimates of correlation .....	87
Table 8 Structural model fit .....	89
Table 9 Estimates of squared multiple correlation .....	90
Table 10 Estimates of relations among major variables .....	93
Table 11 Estimates of relations between major and control variables ..	96
Table 12 Estimates of total, direct, and indirect effects .....	97
Table 13 Specific indirect paths and their significance of peer bonding social capital .....	101
Table 14 Specific indirect paths and their significance of parent bonding social capital .....	102
Table 15 Estimates of total, direct, and indirect effects of whole variable	174
Table 16 Correlations of ten major variables .....	175

## FIGURES

Figure 1 Lazarus and Folkman (1984)'s stress coping model .....	17
Figure 2 Adaptational outcome .....	18
Figure 3 Coping .....	24
Figure 4 Cognitive appraisal .....	29
Figure 5 Multi-dimensional stress coping model .....	35
Figure 6 Theoretical framework .....	64
Figure 7 Conceptual model .....	64
Figure 8. Measurement model .....	83
Figure 9. Structural model .....	88
Figure 10. Standardized estimates .....	95





# CHAPTER I - INTRODUCTION

## 1. Problem Statement

### 1.1. Korean adolescents' mental health

Adolescence is an important developmental stage where one forms their understanding of the self and the world. Scholars have pointed out that adulthood as well as the well-being in later life are affected by the individual's mental health and the perception of happiness that was formed in adolescence (Jun & Jang, 2009). That is, happiness and mental health of an adolescent affects the perception of themselves as well as define the life satisfaction and mental health in their adulthood. Unfortunately, Korean adolescents have been reported to be unhappy, mentally unhealthy, and dissatisfied with their lives in general. To be specific, Korean adolescents hold the lowest rank in subjective well-being indices (Park, Park, Seo, & Youm, 2010). In addition, the number one cause of death for Korean adolescents is suicide (Statistics Korea, 2015). Furthermore, they have the highest suicide growth rate between the OECD countries (Korea Institute for Health and Social Affairs, 2013). This reality shows the poor mental status of the Korean adolescents.

Academic stress is the greatest threat to the suicide ideation and well-being of the Korean adolescents (Hong, Okayasu, & Tsuda, 1994; Choi, Lee, & Lee, 2010; Statistics Korea, 2014; Yoo & Kahng, 2015). First, in relation to the effects of academic stress on the suicide ideation of adolescents; in 2013, the National Statistics Korea reported that the suicide ideation of Korean adolescents (age15-24) were most impacted by academic stress (Statistics Korea, 2014). Next, regarding the effects

of academic stress on the subjective well-being of adolescents, the Korea National Youth Policy Institute (Mo & Kim, 2009) asked the reasons for not being happy to high school students. As a result, 32.7% of the respondents answered 'burden of study,' 30.3% 'anxiety about the future,' and 10.4% 'family trouble.' In the case of middle school students, 32.6% of the respondents answered 'burden of study,' 18.8% 'anxiety about the future,' and 15.2% 'family trouble.' In the case of elementary school students, 32.6% of the respondents answered 'burden of study,' 20.1% 'family trouble,' and 17% 'peer relationship.' In addition, various studies show that the academic stress level of Korean adolescents was significantly higher than other countries (Hong et al., 1994; Choi, Lee, & Lee, 2010). These studies show that Korean adolescents are experiencing high academic stress. Furthermore, these studies point out that academic stress is a major factor that increases suicide ideation and reduces subjective well-being in adolescents.

However, academic stress does not equally give negative effect to all adolescents. According to how adolescents cope to academic stress makes the difference resulting in positive or negative developmental condition. In other words, although the stress level may be similar, the level of suicide ideation or subjective well-being may be different according to their coping strategies (Lazarus & Folkman, 1984b). Coping with stress is especially important to adolescents. Many scholars emphasize that the development of coping strategies are important for successfully achieving newly faced tasks upon entering adolescence as they mature into adults. In particular, coping strategies developed during adolescence are closely related to mental health such as subjective well-being and suicide ideation (Headey, & Wearing, 1990; Wilson et al., 1995; Fabricatore, Handal, & Fenzel, 2000; Shin & Khu, 2001; Uğurlu, & Ona, 2009; Suh, 2011; Zhanga et al., 2012; Kim, & Suh,

2014). Therefore, research on how adolescents' academic stress directly affects their suicide ideation and subjective well-being, as well as the various indirect influences of their coping processes is necessary.

Accordingly, research has been carried out to determine what factors reduce the suicide ideation or increase the subjective well-being of adolescents based on Lazarus and Folkman (1984b)'s Stress Coping Theory (Headey, & Wearing, 1990; Wilson et al., 1995; Fabricatore et al., 2000; Shin & Khu, 2001; Moon & Jwa, 2008; Uğurlu, & Ona, 2009; Kim & Cho, 2011; Suh, 2011; Zhanga et al., 2012; Kim, & Suh, 2014). These studies confirmed that the subjective well-being and suicide problems can be changed according to how the adolescent copes with stress. The positive or negative coping style in such coping process was specifically explained. Valuable evidence is also provided by identifying the various risks and protective factors to cope with the stress of adolescents. However, these studies based on stress coping theory have limitations in the theoretical and empirical aspects as follows.

### **1.2. Limitations in the stress coping model**

This section will describes some limitations in the field of adolescence research in Korea, which led the researcher to conduct the present study. These limitations involve lack of research attention to (1) the two-dimensionality of subjective well-being and suicide ideation which is positive and negative mental health, (2) the necessity of distinguishing 'bonding social capital as a positive coping resource' and 'problem, behavioral, and emotional focused responses as coping style,' and (3) self-esteem, cognitive appraisal, has the two dimensionality.

The first limitation is that previous studies do not consider the two-dimensionality of mental health. As mentioned earlier, the mental health of Korean adolescent is very poor. The high suicide rate and low

subjective well-being of adolescents show this reality. Therefore, this study was conducted to prevent and reduce suicide, which is negative mental health of adolescents. Recently, however, not only research focused on suicide but interest in positive mental health such as subjective well-being has increased. This is because the perspective on mental health has changed. According to the Constitution of the World Health Organization (WHO, 2016), mental health is defined as “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.” Many scholars argue the importance of the positive concept of mental health such as subjective well-being, life satisfaction, and happiness (Menninger, 1930; Jahoda, 1958; Keyes, 2006). Lazarus and Folkman also argues that the positive aspects of adaptational outcome should be considered while criticizing the disease model perspective (Lazarus & Folkman, 1984b, p182). This perspective of WHO, and various research on mental health is significant as the concept of mental health extends to the positive state from the viewpoint of the absence of disease. However, the limitations of these studies are that they focused only on the ‘positive’ state.

According to recent studies, ‘positive mental health’ and ‘negative mental health’ exists independently from each other (Veit & Ware, 1983; Seligman & Csikszentmihalyi, 2000; Keyes, 2002; Huppert & Whittington, 2003; Seligman, 2004). This means that reducing the negative condition does not automatically increase the positive condition. Therefore, mental health should be considered together in with the positive and negative states, and not just the unidimensional ‘good or bad.’ However, without considering this, many previous studies have limited the possibility of distorting the actual adaptation state by setting

only one of the subjective well-being or suicide ideation as the adaptational outcome (Shin, 1994; Wilson et al., 1995; Fabricator et al., 2000; Shin & Khu, 2001; Moon & Jwa, 2008; Uğurlu, & Ona, 2009; Kim & Cho, 2011; Suh, 2011; Zhanga et al., 2012; Ko, 2014; Lee, 2013b; Kim & Suh, 2014; Park, 2015). Therefore, this study focuses on the ‘two-dimensionality’ of the adaptational outcome. Furthermore, explains the necessity of the existing stress coping model revision by asserting the importance of simultaneous consideration of subjective well-being, which relates to the positive mental health and suicide ideation, which relates to the negative mental health.

The second limitation shows that it is necessary to distinguish between ‘coping resource’ that functions as the positive exogenous factor and ‘coping style’ that functions as mediators. As mentioned above, academic stress is the most important factor related to the high suicide rate and low subjective well-being of Korean adolescents. Therefore, many studies have examined the effects of academic stress on subjective well-being and suicide ideation (Shin & Khu, 2001; Moon & Jwa, 2008; Uğurlu, & Ona, 2009; Suh, 2011; Zhanga et al., 2012; Ha, 2015; Suh, 2016; Qi & Ahn, 2014). These studies have implications for identifying the underlying coping mechanism of academic stress on subjective well-being and suicide ideation. However, previous studies used ‘coping resources’ and ‘coping style’ as one abstract ‘coping’ concept, and set them as ‘mediators or moderators’ in the coping process without distinguishing between the two concepts.

Coping variables that are representative of adolescents developmental period are peer relations, parent relations, and problem, behavioral, and emotional focused forms of copings (Shin, 1994; Chung, 2012; Park & Kwon, 2013; Yoo, Kahng & Kim, 2014; Kim, 2016). Bonding social capital formed by peers and parents are very important

for adolescents. Bonding social capital includes inward looking bonds, relationships, networks centered on trust and interrelations which link within groups, and can be found in emotionally close, tightly knit relationships like family and close friends. The most representative bonding social capital is the parent-child relationship (Won, 2009; Coleman, 1988; Gatti & Tremblay, 2007). This is because ties with parents are a fundamental resource for emotional support, financial support, and life guidance for their children (Kim, 2008). Next, another important social capital is peer relationships. According to Lee et al (1993), compared to the shallow and general relationships with peer groups, relationships with intimate friends can determine not only the emotional and social development but the future of adolescents, and several studies suggest that bonding social capital decrease stress through emotional support (Berkman & Syme, 1979; Veenstra, 2001). Also, in this emotional as well as sensitive time of adolescence, depression, shrinking, and behavioral expressions are indicated as the exhibitions of anxiety or anger which are one of adolescent's most commonly used emotional and behavioral coping responses to stress (Ryan-Wenger, 1992; Chung & Yoon, 1997; Min & Yoo, 1998; Song et al., 2010; Chung, 2012; Yoo, Kahng & Kim, 2014). As such, many studies have used bonding social capital, behavioral and emotional expression as 'coping variables.' However, in order to clearly identify the stress coping processes, 'coping variables' should be separated into 'coping resources' and 'coping styles.' Furthermore, it is necessary to identify more positive developmental assets such as bonding social capital as well as problem-oriented factors such as stress (Silbereisen & Lerner., 2007).

Specifically, many existing studies set up the stress coping model in the order of; Stress→cognitive appraisal→coping resource or coping style→adaptational outcome. However, before stress, resources actually

affect stress first, then secondary cognitive appraisal, and lastly coping style. This is because ‘coping resources’ are the resources that already exists. When a certain stressful situation arises, one judges whether or not they can cope with this situation based on the amount of resources that they already possess. The coping resources are considered before the stressful situation and the secondary cognitive appraisal. Lazarus and Folkman (1984b) also introduced the concept of coping resources, in the order of ‘resource→stress and coping’ to reduce the stress prior to stressful situations. Hobfoll (1989, 2001) stated in his Conservation of Resources Theory that individuals with sufficient resources do not lead to stress and exhaustion, or experience them in a relatively lower stress state. In fact, bonding social capital, which can be a very important resource for adolescents, are found to be precedent in both stress and secondary cognitive appraisal (Choi, Lee, & Shin, 2015; Yoo, in press). However, the stress coping theory does not take into account the preceding nature of these coping resources. Furthermore, previous studies focus only on identifying risk factors such as academic stress, and few studies have identified positive developmental resources such as bonding social capital. Therefore, in this study, coping is classified as ‘coping resource’ and ‘coping style.’ Bonding social capital, problem, behavioral, and emotional focused forms of coping are set as important coping resources and coping style in adolescence.

Third limitation is that Lazarus and Folkman’s stress coping theory did not consider the ‘two-dimensions’ of the ‘secondary cognitive appraisal.’ The self-esteem of ‘cognitive appraisal’ in stress coping process is very important for adolescents in the developmental aspect. Self-esteem is a subjective judgment or evaluation of one’s own personality, intellectual, and physical characteristics. This self-esteem enhances the subjective well-being of adolescents (Myers & Diener,



1995) and reduce depression, anxiety, and suicide ideation (Khanlou & Crawford, 2006; Chung, 2007). It was also found to be an important mediating factor in explaining the relations between stress and adaptation outcomes or coping style underlying mechanisms in adolescent stress coping process (Kim, 2007; Park, 2007; Corte & Zucker, 2008; Hyun & Nam, 2009). However, this self-esteem is not unidimensional.

Lazarus and Folkman (1984b) described the secondary cognitive appraisal as the degree of control over the current situation. That is, secondary cognitive appraisal assesses how well I can control such stressful situations. However, to assess such situational control, it is not simply about an uni-dimensional concept such as ‘I can or cannot control well.’ Positive and negative evaluations are performed independently at the same time in order to evaluate the control over specific situations. In other words, evaluation is made on what are the overall resources and capabilities that can be positively assessed; what are the risk factors that can be negatively assessed; and finally the ‘specific coping style’ may be selected. Actually, self-esteem which is self evaluation, is identified to consist of two-dimensional concepts; self-worth and self-deprecation (Owens, 1994; Lee, 2005; Ang et al., 2006; Kahng, 2006; Jung, 2010; Boduszek et al., 2013; Supple, et al., 2013; Choi, et al., 2015). However, the stress coping theory perceived these secondary cognitive appraisal as unidimensional and could not apprehend the dynamic and close relations between the variables in the stress coping process. Therefore, it is necessary to make simultaneous settings with two dimensions of ‘self-worth and self-deprecation’ rather than the uni-dimension of ‘global self-esteem.’

## **2. Purpose of the Study**

This study seeks to apply a theoretically valid model for stress coping pathways which overcome the theoretical and empirical limitations of the Lazarus and Folkman (1984b)'s existing stress coping model; further more tests its statistical validity using the nationally representative data of high school students in South Korea. To be specific, this study aims (1) to examine the effects of bonding social capital on two-dimensional mental health (subjective well-being and suicide ideation) among Korean high school students, and (2) to verify whether the academic stress, two-dimensional self-esteem, and problem, behavioral, emotional focused coping mediates the relations between bonding social capital and two-dimensional mental health (subjective well-being and suicide ideation) among Korean high school students.

## **3. Research Questions**

To serve the above purposes, three major research questions were established:

### **Research Question 1.**

Does bonding social capital have an effect on subjective well-being and suicide ideation, among Korean high school students?

**Research Question 2.**

Does academic stress have an effect on subjective well-being and suicide ideation, among Korean high school students?

**Research Question 3.**

Do Korean high school students' coping factors mediate the effect of bonding social capital on subjective well-being and suicide ideation, among high school students?

## **CHAPTER II - LITERATURE REVIEW**

In Chapter II, the theoretical framework and empirical evidence are addressed to revise a valid research model for this study. This chapter is composed of three sections: In the first section, the importance of coping with stress in adolescence and the stress coping model is introduced. In the second section, the theoretical and empirical limitations of the existing stress coping model are reviewed. In the third section, the revised multi-dimensional model and Korean adolescents' stress coping variables that take into account the developmental, situational, and conceptual characteristics are introduced.

### **1. Coping with Stress During Adolescence**

#### **1.1. Adolescence**

According to the life cycle, the human lifetime is often divided into infancy, childhood, boy (girl), adolescence, adulthood, middle age, and old age. 'Adolescence' is a concept which describes the period between childhood and adulthood of the life cycle. The term 'youth' and 'adolescence' is often used interchangeably, however, these terms can be used in different contexts. The term 'youth' has been used since the ancient society (Kleijwegt, 1991), but until the modern times it had a negative meaning of 'immaturity.' In recent years, however, this period between childhood and adulthood has been regarded as a distinctive life cycle and is used to emphasize the autonomy, accountability, and social rights within the social context of this period (Kim, 2014).

The term 'adolescence' has been used since the modern day and

its etymology comes from ‘adolescere,’ a Latin verb that means ‘to grow’ or ‘to come to maturity’ (Gumbiner, 2003). ‘Adolescence’ is a term used primarily to refer to the developmental stage of a biological perspective of a period when hormones and growth changes, both physical and mental, occur in the transition process from child to adult. Therefore, this period has a transitional importance of rapid growth achieved physically and mentally (Chung, 2004).

The age categories of adolescents vary according to social context and different laws that exist within the same country. Generally, adolescents are defined by ages ranging from middle school to college graduation. Specifically, the 12-14 year old middle school students are classified as early adolescents, the 15-18 year old high school students as intermediate adolescents, and the 18 to early 20 as late adolescents (Chung, 2004). However, the exact age of adolescence is different according to the scholars and the social culture.

In the United States, where interest and research on adolescent have been relatively advanced, in 1935 President Franklin D. Roosevelt defined the age of the adolescent as 16-24 by law. In Japan, the Cabinet Office of Japan has been publishing ‘Youth White Paper’ every year since 1956, where the adolescent age is from 0 to 29 years old. In China, adolescents refer to boys and youth, boys are from ages 10 to 15, and youth are mainly people aged 15 to 16 and younger than 44 (Lee, 2006). Shell, the most authoritative adolescents research in Germany, defines the study subjects as 13 to 25 years old. Adolescents in Australia is seen to be between 15 and 25 years old (Kim & Kim, 2007; Bae et al, 2014). In Korea, adolescent age is defined in various ways. In the case of the Child-related laws or the Labor Standards Act, adolescent are under 18 years of age. Under the Juvenile Protection Act, below 19 is defined as underage, but under the Civil Act, adolescent

younger than 20 years are considered to be underage. Generally, adult celebration is at 20 years old. However, the Election law gives voting rights from 19 years old. In Korea, the Youth Promotion Act enacted in 1987 stipulated adolescents from 9 to 24 years old, and this standard was maintained in the Basic Law of Youth established in 1991. Therefore, in Korea, the age of 9 to 24 is generally regarded as an adolescent. The research subjects of the Korea National Youth Policy Institute, which is the national policy research institute also specify the age of adolescents as 9 to 24 years old<sup>1)</sup>.

### **1.2. The importance of coping with stress during adolescence<sup>2)</sup>**

The Korean adolescents have been reported to be unhappy, mentally unhealthy, and dissatisfied with their lives in general. To be specific, Korean adolescents hold the lowest rank in subjective well-being indices. (Park et al., 2010). Furthermore, Korean adolescents hold the highest in suicide growth rates between the adolescents in OECD countries (Park et al., 2010), and suicide has been found to be the number one cause of death for the Korean adolescents (Statistics Korea, 2015). Adolescents in the current Korean society perceive themselves as a generation without hope for better life, dismayed by the harsh reality that awaits them (Hong, 2015). This reality shows the weak subjective well-being, poor positive mental health and high suicide ideation as well as negative mental health; indicating the unfortunate mental health state of the Korean adolescents.

The biggest threat to the subjective well-being and suicide ideation

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1) Child-related laws=아동관련법; Labor Standards Act=근로기준법; Juvenile Protection Act= 청소년보호법; Civil Ac= 민법; Election law=선거법; Youth Promotion Act=청소년육성법; Basic Law of Youth=청소년기본법

2) This section is the revised and supplemented research of Yoo, Kahng, and Kim (2017)'s research which was accepted in the Asian Pacific Journal of Social Work and Development.

of Korean adolescents is 'academic stress.' In 2013, the National Statistics Korea reported that the suicide ideation of Korean adolescents (age15-24) were most impacted by academic stress (Statistics Korea, 2014). However, the negative impact of academic stress cannot be uniformly applied to all adolescents. In other words, although the stress level may be similar, the subjective well-being or suicide ideation level may be different according to the coping strategies (Lazarus & Folkman, 1984b). Lazarus and Folkman (1984b) stated that the adaptational outcome is not directly affected by the stressful event, but gives indirect effects through the 'cognitive appraisal.' When a stressful event is evaluated as 'I cannot cope very well,' a negative effect can be given to the distress of a person due to the stressor becoming a risk factor; but if the stressful event was evaluated as 'I can cope very well,' a positive effect can be given to the eustress of a person due to the stressor becoming a protective factor. This means that according to how they cope to these difficulties makes the difference resulting in positive or negative developmental condition.

Coping with stress is especially important during adolescence. Shin and Khu (2001) found that upon entering adolescence, the development of coping strategies is important in successfully adapting new challenges and growing into adults. Especially, coping strategies developed during adolescence are closely related to mental health. Spence, Sheffield, and Donovan (2002) emphasize that healthy adaptation to stressful situations are related to coping strategies. In addition, Daughters et al (2009) point out that repeated use of ineffective coping strategies during adolescence may lead to psycho-pathological symptoms as adolescents grow up. These studies suggest that it is very important to help develop healthy coping strategies during adolescence.

## **2. Limitations of The Stress Coping Theory**

In this section, the theoretical and empirical limitations of the stress coping model are provided. This section is composed into four parts. The first part introduces the existing stress coping model. The second part points out that the adaptational outcomes are not unidimensional but a two-dimensional (positive and negative) condition. In the third part, the need to consider ‘Coping Resource,’ which is the ‘positive developmental asset’ as well as the preceding factor to stressor and appraisal is introduced. The fourth part points out that the secondary cognitive appraisal is not unidimensional but two-dimensional (positive appraisal and negative appraisal).

### **2.1. Stress coping theory<sup>3)</sup>**

#### **2.1.1. Stress**

Stress is one of the most frequently used and familiar term in our lives. However, in most cases, people have a negative image, considering stress as merely ‘something bad.’ It is rare for stress to be exactly understood. The academic view of stress can be divided into three broad categories. First, is the viewpoint of behaviorism, where stress is seen as a stimulant. In other words, it refers to external factors or environmental stimuli that negatively affect an individual (Jung, 2010). The focus of this approach is on external factors and on stimulation itself. Therefore, it is assumed that certain stimuli are standardized and gives influence. For example, when extrinsic stimuli

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3) This section is the revised and supplemented research of Yoo, Kahng, and Kim (2014)<sup>3)</sup>s research which was published in the Korean Journal of Social Welfare Studies, 45(3), 237-262.



such as family deaths, illnesses, and natural disasters are applied, because of the importance of such stimuli, stress is exerted by everyone. However, this approach does not take into account the level of subjective perception that can vary by individuals. Therefore, limitations that could not explain that individuals feel the same stimulus differently was observed.

Second, in view of stress as a reaction, Hans Selye (1956) focuses on the response of an individual to external factors or environmental stimuli. In this case, the reaction may be seen as a physiological response such as heartbeat or cold sweat, psychological reaction such as anxiety or irritation, and physical reaction such as headache. According to this approach, if an individual is sweating cold, it is because he is stressed. However, limitations point out that this description does not clearly explain the stress-stimulating factors that cause such reactions, for example, whether perspiration is due to being threatened or whether it is hot.

Finally, Lazarus and Folkman (1984b) found that stress appears as a result of the interaction between humans and the environment surrounding. That is, if there is any stress stimulus, rather than automatically responding to it, they may or may not feel stress after processing through a cognitive evaluation of such stimulus. Therefore, even if there is a similar stimulus, the individual may be stressed according to their evaluation, and the degree of physical, psychological, and physiological responses may be different or sometimes not appear at all.

### *2.1.2. Stress coping theory*

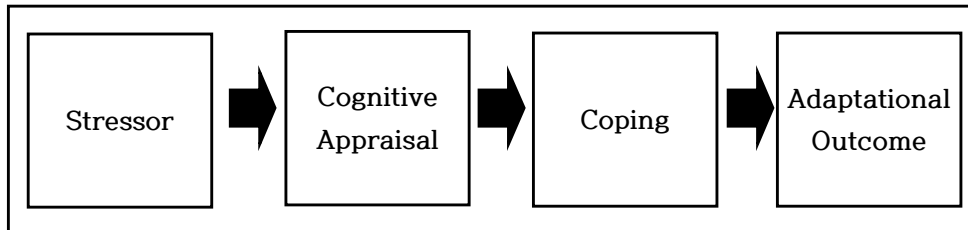


Fig 1. Lazarus and Folkman (1984b)'s Stress Coping Model

According to the 'stress coping theory' of Lazarus and Folkman (1984b), when a 'stressor' occurs, a 'cognitive appraisal' about this situation is made, then based on these 'evaluations,' coping methods are decided. Therefore, when someone confronts a stressful situation, it does not immediately affect the adaptational outcomes. The adaptational outcomes are explained by the preceding factor 'coping,' and this 'coping' is explained by its preceding factor 'cognitive appraisal.' In order to predict the consequences of stress, it is necessary to understand the overall coping process, and the stress coping model can be a theoretical model to understand this process.

The stress coping model emphasizes individual cognitive appraisal. Cognitive appraisal is an assessment of how stressful a situation is when an individual develops a stressor. Primary appraisal and secondary appraisal are distinguished. Primary appraisal is an assessment of what situations are threat, loss, or challenge. As a result of primary appraisal, when a situation is judged to be a problem, it becomes stress. If it is judged that it is not a problem, it is not stressful. Secondary appraisal is a further step in the primary appraisal by assessing the likelihood of control over such situations when stress is determined to be problematic in the primary appraisal. This secondary

appraisal determines what kind of coping resources are available, how to effectively use such coping resources, discover the consequences of such resources, and finally evaluate the possibility of coping with the current situation (Lazarus & Folkman, 1984b).

## 2.2. Limitation of adaptational outcome's uni-dimensionality

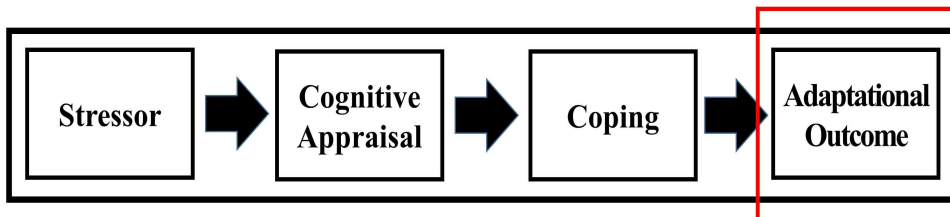


Fig 2. Adaptational outcome

### 2.2.1. *Adaptational outcome*

Long ago, Freud (1936) studied a variety of defense mechanisms that could be seen as adaptive, such as displacement, projection, reaction formation, regression and suppression. Lazarus and Folkman (1984a) explained that adaptation is the processes employed to manage environmental demands. Zeidner and Saklofske (1996) introduced the criteria for coping effectiveness corresponding to the adaptation outcome as follows.

“resolution of the conflict or stressful situation; reduction of physiological and biochemical reactions; reduction of psychological distress; normative social functioning; return to prestress activities; well-being of self and others affected by the situation; maintaining positive self-esteem; perceived effectiveness (p508)”

According to these criteria, adaptation outcome can be divided into

two states. One is when a problem has been clearly resolved, and the other is when a positive state is maintained (Aldwin & Revenson, 1987). Folkman and Moskowitz, (2004) described ‘adaptive outcomes’ expressing short-term outcomes as proximal outcomes and long-term outcomes as distal outcomes. Lazarus and Folkman (1984b) also describe ‘social function, morale, physical and mental health’ as adaptational outcomes in their theoretical studies.

### ***2.2.2. Two-dimensionality of the adaptational outcome***

According to recent studies, the positive and negative conditions of ‘adaptational outcome’ can exist independently from each other (Veit & Ware, 1983; Seligman & Csikszentmihalyi, 2000; Keyes, 2002; Huppert & Whittington, 2003; Seligman, 2004). This means that reducing the negative condition does not automatically increase the positive condition (Diener & Emmons, 1984; Clark & Watson, 1991; Huppert & Whittington, 2003). For example, not thinking about suicide does not necessarily mean happiness. Therefore, adaptational outcomes should be considered together with the positive and negative states, and not just the unidimensional ‘good or bad’ state.

Many studies have verified the duality of adaptational outcomes. Especially, positive and negative adaptational outcomes have been found to be independent as well as correlate to each other (Diener & Emmons, 1984; Seligman & Csikszentmihalyi, 2000, Greenspoon & Saklofske, 2001; Huppert & Whittington, 2003, Seligman, 2004). Huppert and Whittington (2003) compared the characteristics of positive and negative mental health in a population sample. Specifically, they used the positive adaptational outcome scale based on positive responses to the positive items (e.g., ‘Have you recently felt that overall, you were doing things well?; Have you recently been managing to keep yourself

busy and occupied?') of the General Health Questionnaire of Goldberg (1972). They compared this scale to the standard symptom measure that is the negative adaptational outcomes scale (e.g., 'Have you recently been feeling unhappy and depressed?; Have you recently felt that life is entirely hopeless?'). As a result, positive adaptational outcomes and negative adaptational outcomes were found to be correlated but also independent. Above all, Lazarus and Folkman (1984b) also pointed out that the limitations of the previous studies which analyze the adaptational outcomes are unidimensional.

“even when separated, most measures of morale summate divergent emotions into a single positive and a single negative affective index, leaving unsettled what part is played by different specific emotion qualities and intensities (Lazarus & Folkman, 1984b, p198)”

Nevertheless, over the years, many studies related to the stress coping of adolescents have neglected the duality of the adaptational outcome and applied only one of the positive or the negative adaptational outcomes. In other words, the existing studies were mainly focused on unidimensional adaptational outcomes such as maladjustment (Shin, 1994), mental health (Ko, 2014; Park, 2015), suicidal ideation (Kim & Cho, 2011; Lee, 2013a, 2013b), depression (Seo, 2008; Min, 2012), and did not consider the positive and negative adaptational outcomes together. However, the adaptational outcomes are independent of the positive and negative states and exists in a multi-dimensional manner. Thus, approaching with a unidimensional viewpoint has a limitation that can distort the actual adaptational outcome. These limitations also appear in the mental health research.

### ***2.2.3. Mental health***

Mental health is one of the most important indicators in the adaptational outcomes. Before looking at what mental health is, it is necessary to first look at the concept of health.

Traditionally, the concept of health is based on a disease model, which is defined as the absence of distress, disorder, or disease. Based on this concept, many studies have set up maladjustment, mental health, and suicide ideation as factors corresponding to ‘adaptational outcomes’ (Shin, 1994; Seo, 2008; Kim & Cho, 2011; Min, 2012; Ko, 2014; Lee, 2013a; Park, 2015). These studies are all focused on how to reduce or eliminate negative mental health such as maladjustment, depression, and suicidal ideation. However, the concept of mental health in recent years includes not only the absence of the negative state but also the appearance of the positive state. According to the World Health Organization (WHO, 1948), health is defined and emphasized as “physical, mental and social well-being, not merely the absence of disease and infirmity.” This change in the perspective of health has also emerged in mental health. According to the Constitution of the World Health Organization (WHO, 2016), mental health is defined as “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.” Many scholars also argue the importance of a positive concept of mental health. For instance, Menninger (1930) defined mental health as “the adjustment of human beings to the world and to each other with a maximum of effectiveness and happiness (p1).” Jahoda (1958) also notes that in the traditional view of mental health, the absence of disease is important but not enough to explain mental health, therefore wanted to include happiness and life satisfaction in the concept

of mental health. Keyes (2002, 2006, 2007) used the subjective well-being indicator to distinguish the type of mental health from flourishing to languishing. These definitions of mental health implies that the concept of mental health extends to a positive state from the viewpoint of the absence of disease; and that subjective well-being, life satisfaction, and happiness are important indicators of mental health.

The change from a negative viewpoint to a positive viewpoint on health also appears in the ‘adaptational outcome’ part of the stress coping theory of Lazarus and Folkman. Lazarus and Folkman argues that positive aspects of adaptational outcomes should be considered while criticizing the disease model perspective (Lazarus & Folkman, 1984b, p182). Specifically, they described ‘morale’ as the positive adaptational outcome in the stress coping theory as quoted below. Moreover, the concept of morale is in line with mental health as defined above, which corresponds to subjective well-being, life satisfaction, and happiness.

“Morale is concerned with how people feel about themselves and their conditions of life. It is related in a somewhat unclear way to avowed happiness (McDowell & Praught, 1982; Wilson, 1967), satisfaction (Campbell, Converse & Rodgers, 1976), and subjective well-being (Bradburn, 1969; Costa & McCrae, 1980). All these terms have been used more or less interchangeably, and they all pertain to morale. The multidimensional quality of this concept is reflected in a report by Bryant and Veroff (1982) on the structure of psychological well-being. Using a confirmatory factor analysis of the data from two very large nationwide representative samples, the authors identified three major dimensions of psychological well-being: unhappiness, strain, and personal inadequacy. The dimensions touch on all the above definitions, namely, avowed happiness, satisfaction, and subjective well-being (p194).”

This perspective of the WHO and various scholars is significant in that they focus on the positive status rather than the negative status of mental health. However, the limitations of these studies are that they focused only on the 'positive' state. As mentioned earlier, both positive and negative state should be addressed at the same time. In fact, according to various studies, there was a group with low well-being without psychosis; and a group with high well-being with psychiatric illness (Antaramian, Huebner, Hills, & Valois, 2010; Kelly, Hills, Huebner, & McQuillin, 2012). In addition, Antaramian, Huebner, Hills, and Valois (2010) showed that 'students who have low well-being without psychiatric illness' frequently had behavior problems and academic problems as much as 'students with psychiatric illness and low well-being.' Similarly, the group 'with psychiatric illness but with high well-being' is known to have a higher level of function than the group 'with psychiatric illness and lack of well-being.' (Antaramian et al., 2010; Greenspoon & Saklofske, 2001).

Therefore, this study focuses on the 'two-dimensionality' of the adaptational outcome. Furthermore, explains the necessity of the existing stress coping theory revision by asserting that the positive state and the negative state should be considered simultaneously. The duality of these adaptational outcome is called 'Positive adaptational outcome' and 'Negative adaptational outcome.'



### 2.3. Necessity of additional setting of coping resource concept

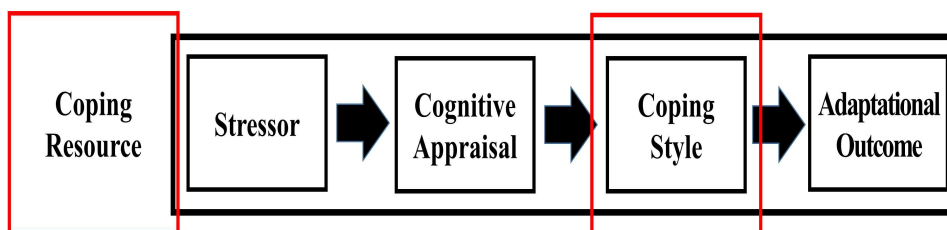


Fig 3. Coping

#### 2.3.1. Coping

Lazarus and Folkman (1984b) classified the concept of coping into two broad perspectives, ‘automatic reaction’ and ‘effort response.’ First, the view of coping as an ‘automatic reaction’ was viewed by psychoanalytic ego psychology suggesting coping as a characteristic. The characteristics mentioned here are a unique physical character that makes people react in a given way and a given situation (Moos & Holahan, 2003). Thus, the coping used by an individual is consistently occurring in a direction consistent with the person’s temperamental trait. However, the view of coping as an ‘automatic reaction’ is criticized for failing to predict the actual process of coping and overlooking the subjective behavior and cognition of an individual. Therefore, the view of coping as an ‘effort reaction’ appears to include the cognition and evaluation of the individual. Lazarus and Folkman (1984b) define coping as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (p141).”

#### 2.3.2. Coping resource and coping style

In order to clearly identify the stress coping processes, it is necessary to distinguish between ‘coping resource’ and ‘coping style.’ It is also necessary to consider at what point the concept of ‘coping’

functions and manifests itself according to its subtype. The purpose of the current study is to focus on the concept of 'coping resource' which is not well understood nor clear concerning time in the stress coping theory. This study will overcome the limitations of the existing stress coping theory and explain the necessity of revision in the theory by adding the concept of 'Coping Resource.' Also, claim that these 'coping resource' should be considered as preceding factors of the stressor and coping style.

According to the stress coping theory; when a stressor occurs, secondary cognitive appraisal is applied to it; and 'coping style' is selected based on the evaluation, then the adaptational outcome may be changed according to the coping style. Stress coping theory explains all of these processes with the concept of 'coping.' However, it is necessary to distinguish the concept of 'coping.' Lazarus and Folkman (1984b) define coping as "constantly changing cognitive and behavioral efforts to manage specific external and / or internal demands that are appraised as taxing or exceeding the resources of the person (p141)." This coping definition can be used in conjunction with other concepts; such as "coping resources" when tied to resources, "coping types" when tied to types, and "coping style" when tied to style (Andrews et al. 1978; Patterson & McCubbin, 1987; Simons et al., 2002). Stress coping theory is significant as it clarifies the theoretical concepts related to coping by classifying the coping resources, coping type and coping style. However, in the subsequent empirical analysis, many studies have used the concept of coping resources, coping type and coping style as an abstract concept of 'coping' (Shin, 1994; Chung, 2012; Yoo, Kahng, & Kim, 2014; Lee, Son, & Kim, 2015). These studies have contributed to the finding in that they have identified resources or styles to cope with stress. However, the limitations of these studies are that they did

not distinguish between “coping resource” and “coping style” as mentioned above, and therefore did not confirm the temporal relations with other variables during the coping process. Generally the concept of coping in these studies are set up with the model in the order of ‘stress →cognitive appraisal→coping→adaptational outcome.’ This model is appropriate when the concept of coping is ‘coping style,’ but it is inappropriate when it is about ‘coping resource.’ In other words, depending on whether it is a coping resource or a coping style, the temporal order relations with other variables can be changed.

In fact, Lazarus and Folkman (1984b) mentioned their resource concept as follows.

“.....we see coping as a process that evolves from resources. In other words,.....we see them (resources) as factors that precede and influence coping, which in turn mediates stress (p158)”

This means that Lazarus and Folkman examined resource as being prior to stressor and coping. In other words, resource affects stress itself before the stress situation, but also affects the secondary cognitive appraisal and then the coping style. So it should be viewed as ‘Coping Resource→Stress→Secondary Cognitive Appraisal→Coping Style→Adaptational Outcome’ process. In general, ‘coping resources’ refers to the resources that one already have. In fact, whether or not to cope with this situation is decided when a particular stress situation occurs, based on the degree of resources that already exists. These characteristics of coping resource can be found in the Conservation of Resources Theory of Hobfoll (1989). According to Hobfoll (1989), humans try to secure, preserve, protect and nurture things that are valuable to them. And individuals with sufficient resources do not lead

to stress and exhaustion, or they experience them in a relatively lower state. In other words, the coping resource of an individual affects the level of stress in the future. Therefore, coping resources should be considered before the stress situation and the cognitive evaluation.

The precedent characteristics of such coping resources can be confirmed in empirical researches (Choi et al., 2015; Yoo, in press). Yoo (in press) examined the longitudinal relations between bonding social capital and academic stress of Korean adolescents, using the autoregressive cross-lagged model. The results show that the effects of earlier bonding social capital on later academic stress are more significant than the effects of earlier academic stress on later bonding social capital. This means that the results support the causal relationship which proceeded from bonding social capital to academic stress. Choi et al (2015) also carried out autoregressive cross-lagged model to verify the longitudinal causal relations between peer alienation and two dimensional self-esteem among South Korean students. The results suggest that self-worth and self-deprecation did not affect peer alienation over time, yet peer alienation had a positive influence on later self-deprecation. These findings suggest that coping resources for adolescents such as bonding social capital or peer relationships precede not only academic stress which is a stressor but also self-esteem which is a secondary cognitive appraisal, and the coping process there after.

However, even though coping resource precedes stress and cognitive appraisal both theoretically and empirically, it is not necessary to set coping resource as an exogenous variable. According to Lazarus and Folkman, stress coping is not a 'linear,' 'unilateral,' or 'cross-sectional' process, but a 'cyclical' and 'longitudinal' process. In other words, many studies so far have studied with 'precedence factor-follow up outcome,' 'cause-effect,' and 'one-way' perspective; but

in reality, sometimes the ‘adaptational outcome’ could become an ‘exogenous variable,’ which can influence stress precedently. That is, designating variable A as coming first and variable B to follow depends on what point the researcher chooses as a temporary exogenous variable to break the continuity of the cycle according to the research purpose (Lazarus & Folkman, 1984b).

As a result, many studies have set stress as an exogenous variable not necessarily because stress must be an exogenous variable, but in order to identify ‘risk factors’ that negatively affect adolescents’ adaptational outcomes. However, these studies that have a problem centered view of adolescents are often criticized. Research has begun to search for ‘protective or positive factors’ that have a positive effect on adolescents’ adaptational outcomes (Lee & Kim, 2007). In previous studies, the focus was set on the negative phenomenon or pathology, yet recent focus is on identifying and developing positive factors. Silbereiseon et al (2007) introduces the concept of adolescents’ developmental asset, and argues for the importance of developmental resources necessary for healthy growth of adolescents.

Accordingly, this study set ‘Coping Resource’ as the ‘exogenous variable’ because coping resource precede stress and cognitive appraisal, also in order to focus on the ‘positive dimension factors’ affecting the psycho-social development of adolescents.

## 2.4. Limitation of cognitive appraisal's uni-dimensionality

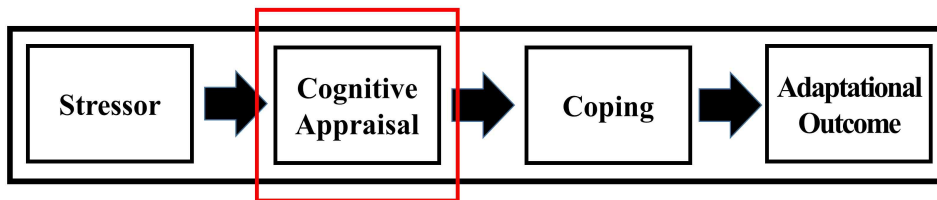


Fig 4. Cognitive appraisal

### 2.4.1. Cognitive appraisal

According to the stress coping theory of Lazarus and Folkman (1984b), when a stress situation occurs, an individual's cognitive appraisal of such a situation is performed first. These evaluations are divided into primary cognitive appraisal and secondary cognitive appraisal. A primary cognitive appraisal is an assessment of what a situation is; such as loss, threat, or challenge. As a result of these primary appraisal, if you think you are in serious harm, loss, or threat, it becomes a stressful situation; and if you do not think it is a problem, you do not become stressed. Secondary cognitive appraisal is a more advanced form of assessment that evaluates what can be done to control the situation if it is judged to be a problem, threat or a challenge, during the primary appraisal. This secondary cognitive appraisal is the process of assessing whether there are specifically available coping resources, the ability to effectively apply such coping resources, and the consequences thereof. The main purpose of the secondary cognitive appraisal is to determine whether it is possible to control the current situation. Situational control refer to the "extent to which a person believes that he or she can shape or influence a particular stressful person-environment relationship" (Lazarus & Folkman, 1984b, p69).

Related to this secondary cognitive appraisal and situational control

appraisal, Lazarus and Folkman introduce the concept of outcome expectancy and efficacy expectancy by Bandura (1977, 1982). Outcome expectation refers to an assessment that any action could have on expected outcome, and efficiency expectation implies the belief that a successful action can be taken to produce the outcome. Outcome expectation and efficiency expectation have a direct effect on adaptation, as well as on the choice of coping style. For example, if you think that you can control the situation, you are more likely to choose a problem focused coping, and if you think you can not control the situation, you will be more likely to choose emotional focused coping (Anderson, 1977; Folkman & Moskowitz, 2004). Lazarus and Launier (1978) suggests the importance of secondary cognitive appraisal by describing imaginative scenarios for this secondary cognitive appraisal process as follows (Lazarus & Folkman, 1984b, p306~307).

- ① "As things stand now, I will probably be rejected. This is a very damaging outcome because I have no other job opportunities. If I had the ability to deal effectively with the interview, I could be hired, but I don't have the ability. Moreover, there is no one to help me. The situation is hopeless."
- ② "As things stand now, I will probably be rejected. This is a very damaging outcome because I have no other job opportunities. If I had the ability to deal effectively with the interview, I could be hired. I believe I do have such ability and I must think out what would make me an attractive candidate, rehearse, and take a tranquilizer two hours before the interview to control my nervousness."

In Scenario 1 above, cognitive appraisal strengthens the threat and treats the situation as hopeless. This makes it easier to feel depressed. On the other hand, in Scenario 2, he finds a basis for hope from threat

and anxiety according to his cognitive evaluation, and evaluates it as a challenge rather than a threat. Although there are some environmental demands or pressures that cause people to stress, there are individual or group differences in the degree or type of reactions, and cognitive appraisal is an important factor in producing these differences.

#### ***2.4.2. Two-dimensionality of cognitive appraisal***

The stress coping theory of Lazarus and Folkman (1984b) is significant as it identifies as well as conceptualizes the importance and meaning of cognitive appraisal in stress coping. However, the problem is that the secondary cognitive appraisal has two-dimensions. Therefore, this study focuses on the 'two-dimension' of the secondary cognitive appraisal that is not addressed in the stress coping theory. Thus will overcome the limitations of the existing stress coping theory by asserting that both positive and negative evaluations should be considered simultaneously, and explaining the necessity to revise the theory.

As mentioned above, the secondary cognitive appraisal judges whether the stress situation is controllable, and this secondary cognitive appraisal influences whether or not to choose any coping style afterwards. Self-esteem considered as self evaluation is an important criterion for secondary cognitive appraisal<sup>4)</sup>. Therefore, many studies

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4) This secondary cognitive appraisal coincides with self-esteem which is self evaluation. Conceptually, self-esteem is defined in various ways according to scholars. Coopersmith (1967, 1981) refers to self-esteem, an individual's usual assessment of him/herself; as capable, meaningful, successful, and represents the degree to which we believe ourselves as worthy. Long, Henderson, and Ziller (1968) emphasized the emotional element of self-esteem as a value or importance that presumed to belong to him as compared to others. According to Gilmore (1974), self-esteem is an individual's self evaluative attitude. Newman and Newman (1975) define self-esteem as a result of self-evaluation of two experiences: their ability and social acceptance. Rosenberg (1979) perceived self-esteem as the degree of self respect and self-worth, an evaluation that an individual judges or maintains consciously about oneself. Baumeister (1997) also defined self esteem as the positive degree of individual evaluation. To summarize these definitions, self-esteem is a



have set self-efficacy and self-esteem as the secondary cognitive appraisal factors (Kim, 2007; Hyun & Nam, 2009; Yoo, Kahng, & Kim, 2014). All these studies, however, utilized secondary cognitive appraisal concept in the uni-dimension, and not in the two-dimensions. For example, the self-esteem corresponding to the secondary cognitive appraisal were set as a uni-dimension, and evaluating such situational control is just an unidimensional concept of 'I can or cannot control well.' However, in order to assess situational control for a particular situation or event, positive and negative assessments are made at the same time, and not only on just one of the positive or negative assessments. Overall, evaluation on what resources are positively assessed, what capabilities are available, what are the risk factors that can be negatively assessed and then finally selecting the 'specific coping style' must be carried out.

In fact, in recent studies, two-dimensional secondary cognitive appraisal has been verified (Owens, 1993, 1994; Sheasby et al., 2000; Wright et al., 2000; Kahng & Mowbray, 2004; Kahng & Mowbray, 2005; Kahng, 2006). Owens (1994) explains that the items that measure the positive part of self such as "I feel I have many good parts" and the items that measure the negative part of self such as "My life is not very useful" are not just different because of the narrative form of the sentence, but the content measures the opposite dimension of self-esteem. In fact, Owens (1994) analyzed the same research model and the same data repeatedly as Rosenberg, Schooler and Schoebach

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subjective judgment or evaluation of one's own personality, intellectual, and physical characteristics. It can be seen as; the ability to accomplish what you are thinking of, the ability to control and influence others, the degree of positive, negative evaluation and attitude about their worth, competence and importance. These concepts of self-esteem are consistent with the concept of outcome expectancy and efficacy expectancy introduced by Lazarus and Folkman.

(1989). The results verified that self-esteem has a two-dimensional structure of positive self evaluation that is self-worth and negative self evaluation that is self-deprecation. Also, another study related to adolescent development confirmed that the model applying the dual structure of self-esteem was valid (Greenberg, Chen, Dmitrieva & Farruggia, 2003; Farruggia et al., 2004; Ang et al., 2006; Boduszek et al., 2013; Supple, et al., 2013). In addition, the research for Korean adolescents shows the validity of the research model applying the two-dimensional self-esteem (Farruggia et al., 2004; Lee, 2005; Jung, 2010; Yoo, 2017b). These findings confirm that self-esteem, which can be the secondary cognitive appraisal, has two-dimensions. This indicates that the secondary cognitive appraisal also has dual characteristics. Therefore, this study overcomes the unidimensional limit of the secondary cognitive appraisal and sets up the two-dimensional revision. The two-dimension of these secondary cognitive appraisal will be called 'Positive Cognitive Appraisal' and 'Negative Cognitive Appraisal.'

### **3. Multi-Dimensional Stress Coping Model**

In this section, first, the multi-dimensional stress coping model is introduced. Next, the important factors in considering the developmental characteristics of adolescents and the situation of Korean adolescents will be examined. The conceptual correspondence between these factors and the multi-dimensional stress coping model will be confirmed. In addition, whether each factor is an important factor that continuously affects subjective well-being and suicide ideation of adolescence will be confirmed through the results of previous researches.

#### **3.1. Introducing a multi-dimensional stress coping model**

So far, this study introduced the stress coping theory by Lazarus and Folkman (1984b), confirmed the theoretical and empirical limitations, and introduced the necessity of model revision accordingly. The following figure is the multi-dimensional model for coping with the stress of adolescents in Korea that complements the theoretical and empirical limitations previously discussed. Figure 5 contains the stress coping model of Lazarus and Folkman (1984b), as well as the multi-dimensional stress coping model. The multi-dimensional stress coping model when compared with the original model has been broadened in three main areas. First, the two-dimensional setting of the adaptational outcomes; second, the coping resource setting, and third, the two-dimensional setting of the secondary cognitive appraisal.

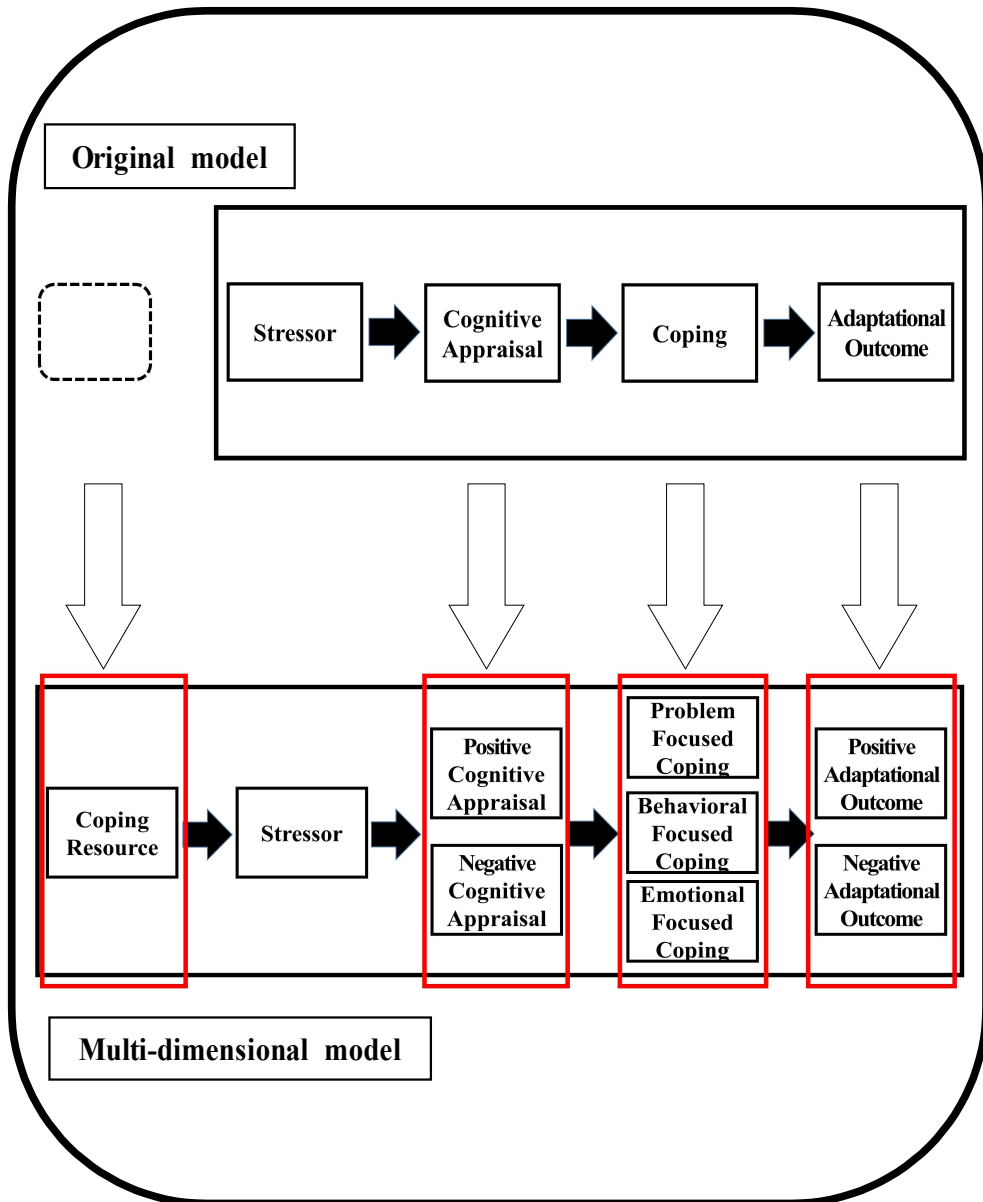


Fig 5. Multi-dimensional Stress Coping Model

## **3.2. Adolescent stress coping variables**

### ***3.2.1. Adaptational outcome: two-dimensional mental health***

Two-dimensional adaptational outcomes are operationalized as positive mental health and negative mental health. Each adaptational outcomes were measured respectively by subjective well-being and suicide ideation.

#### ***① Developmental characteristics of Korean adolescents***

The major mental health variables that should be identified when considering adolescent developmental characteristics in the Korean context are subjective well-being and suicide ideation. There are many studies on adolescent subjective well-being and the suicide issue because of the following reasons. The Korean society has recently been alarmed by reports that Korean adolescents are in general, unhappy and dissatisfied with their lives overall. According to a recent report (Park et al., 2010), Korean adolescents ranked the lowest in subjective well-being indices, and they have the highest suicide growth rate between the OECD countries. This unfortunate ranking is also true in the reality of suicide in Korean adolescents.

According to Korea Institute for Health and Social Affairs, 2014, adolescents aged 10 or less among various ages are the first age group to think about suicide. From 2011 to 2013, adolescents account for more than 50% of all ages. This shows that adolescents have a higher risk of suicide ideation in their whole life. Also, according to the statistics released by the Statistics Korea (2014) of the National Statistical Office, the causes of deaths in adolescents (aged 15-24) in 2011 were ‘suicide (13%),’ ‘transport accident (7.8%),’ ‘cancer (3.8%),’ and ‘cardiopathy (1%).’ The suicide rate of Korean adolescents per

100,000 population is 13, which is relatively small compared to the total population suicide rate of 31.7, but it is very high when compared to OECD countries. According to a report by the Korea Institute for Health and Social Affairs (2013), “Trends and Policy Suggestions by Population Group in Korea compared to OECD Countries,” in 2000, South Korean adolescent’s suicide rate per 100,000 population increased from 6.4 to 9.4 in 2010, showing a rapid increase of 47% as the fastest suicide growth rate. In addition, the Korean ranking of objective suicide rates among OECD countries also rose from 18th to 5th (Jin & Ko, 2013).

These problems such as low subjective well-being and high suicide issue suggest that research on subjective well-being and suicide ideation of Korean adolescents is very urgent. First of all, it is important that the mental health formed in adolescence continues to affect the later adult life. Therefore, research is needed to enhance the subjective well-being of adolescents and to prevent as well as cope with suicide in advance. Reflecting the concept of ‘subjective well-being and suicide ideation’ as well as the reality of Korean adolescent, this study will set ‘subjective well-being and suicide ideation’ which is positive and negative mental health as the adaptational outcome. In this way, we seek to find ways to improve the subjective well-being of Korean adolescents and to reduce suicide ideation.

This subjective well-being and suicide ideation is conceptually consistent with the positive and negative adaptational outcomes of the multi-dimensional stress coping model.

## ***② Conceptual and operational definition of subjective well-being and suicide ideation***

### ***Positive mental health and subjective well-being***

The concept of positive mental health and subjective well-being

can be seen in the philosophical claims which are divided into two positions. First is the hedonistic position, and the second is the eudaimonism position. While hedonism equates positive mental health with happiness that emphasizes the emotional aspect of pleasure; eudaimonism equates positive mental health with happiness that focuses on the cognitive part, focusing on the meaning and value of life (Keyes, 2006; Ryan & Huta, 2009). Researchers from the hedonistic standpoint prefer the term subjective well-being. Subjective well-being is an individual's subjective perception and evaluation of how satisfied he/she is with his/her life (Diener & Emmons, 1984; Kashdan, Biswas-Diener, & King, 2008). Subjective well-being is composed of positive emotions, negative emotions, and cognitive factors. Therefore, the more positive emotions such as pleasure are felt as much as possible, and the less the negative emotions are, the happier one's life is. Based on this perspective, subjective well-being is a happy life in which people are satisfied with their lives, often experience positive emotions, and experience fewer negative emotions (Diener, Sandvik & Pavot, 2009; Ryan & Huta, 2009). Eudaimonism position prefer the term psychological well-being, which is the pleasure of finding and realizing the true self. Human happiness is obtained through a virtuous life, and true happiness is a life that is in harmony with a worthy life, and true self (Ryan & Huta, 2009). However, Kashdan, Biswas-Diener, and King (2008) state that there is no need to distinguish these hedonism and eudaimonism positions related to happiness which is positive mental health, and concludes that they have the same concept.

This definition of subjective well-being coincides with the definition of positive morale and positive mental health. According to hedonism, eudaimonism, and many scholars, subjective well-being defines not only emotional aspects such as positive emotions and pleasure, but

includes cognitive aspects such as satisfaction of life, desire for life, activity, and satisfaction. Morale which is the adaptational outcome of stress coping theory, is also concerned with how people feel and think about themselves and their conditions of life. Morale is related to happiness, satisfaction, and subjective well-being (Lazarus & Folkman, 1984b). When observing the items of the standardized tools for measuring this morale, the contents matching subjective well-being can be seen<sup>5)</sup>.

At the same time, subjective well-being is an indicator of positive mental health. Keyes (2006) stated that in order to evaluate mental health, specific measures of subjective well-being were developed, in particular, mental health considering the positive feelings of one's life (Diener, Emmons, Larsen, & Griffin, 1985) and the functioning well level in life (Ryff, 1989). Suldo et al (2011) used 'subjective well-being' as a positive indicator of positive mental health, defining positive mental health as subjective well-being and negative mental health as psychopathology. Keyes (2002, 2003, 2004, 2005) reported that the presence and absence of mental health are measured by subjective well-being scales. As can be seen from these standardized measurement tools and previous studies, subjective well-being is a valid indicator that comprehensively covers positive mental health.

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5) PCG Morale Scale (Lawton, 1972; revisions suggested by Lawton, 1975), consists of the following contents. A) senses satisfaction with self; B) feeling there is a place in the world for self; and C) acceptance of what can not be changed. Kutner Morale Scale (Kutner et al., 1956) defines morale as a set of dispositions or mental states. Moriwaki (1974) claimed that subjective well-being and morale scales are similar. Costa and McCrae (1980) examined the influence of extraversion and neuroticism on subjective well-being. In this case, the morale scale was used to measure this subjective well-being. Liang et al. (1987) used the Philadelphia Geriatric Center Morale Scale to analyze cross-cultural comparisons between Japan and the US in relation to the subjective well-being scale, confirming that subjective well-being and morale conceptually coincides.



### *Negative mental health and suicide ideation*

The concept of suicide can be subdivided into suicide ideation, attempted suicide, and suicide plan. Among these, the current study focuses on ‘suicide ideation<sup>6)</sup>.’

The World Health Organization (WHO, 1968) defined suicide as “suicidal act with fatal outcome,” where suicidal act is a self-infliction of injury with varying degrees of intent and awareness of motive. Durkheim (1951) defined suicide in his book as “all death events that occur as a direct or indirect consequence of an active or passive action that the victim knows and will take.” The domestic and international definition of suicide ideation is the idea of ending oneself rather than harming themselves or natural death (Nock et al., 2008). The meaning of suicide ideation ranges from vaguely negotiating death to the broadly and in depth thoughts about death. It is also a concept that includes specific plans for where and how to die (Park & Kim, 2014).

These definitions of suicide ideation coincides with the definition of negative morale and negative mental health. Positive mental health, positive morale, or subjective well-being is defined as happiness, satisfaction, positive emotions, pleasure, desire for life, activity and satisfaction. On the contrary, negative mental health, negative morale, or suicide ideation shows there is no motivation for life, desire to die, no

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6) All adolescents with suicide ideation do not actually attempt suicide, but domestic and international studies have shown that suicide ideation is a risk factor for attempted suicide. Diekstra and Garnefski (1995) argue that suicide ideation and attempted suicide precede the complete suicide. Dubow et al (1989) viewed suicide ideation as the starting point of the continuous process of suicide behavior. Beck, Kovacs and Weissman (1979) viewed the process of suicide behavior as starting from suicide ideation, attempted suicide, suicide risk then leading to suicide (Kim, 2005). Oh (2009) found that suicide and suicide ideation have different meanings, but they are one of the main variables of suicide and they are important research topic as a previous step of suicide. In addition, Park (2008) analysed the primitive online research data on Korean adolescent health in 2006, (Korea Center for Disease Control and Prevention, 2006) resulting with the group that had suicide ideation having attempted suicide risk 31.8 times higher than the group without suicide ideation.

satisfaction in life and no reason to live. In other words, it conceptually coincides with suicide ideation which reflects ‘no desire for life, no satisfaction, lack of morale, and desire to die.’ Many scholars point out to the coinciding relations between the negative mental health, negative morale and suicide. Beck, Steer, Kovacs, and Garrison (1985) state below that hopelessness which is negative morale is associated with suicide.

“hopelessness is a core characteristic of depression and serves as the link between depression and suicide (p559).”

In the following excerpt, Edwards and Holden (2001) mentions suicide by quoting Frankl (1967)’s ‘existential vacuum’ concept.

“Frankl (1967) suggested that an “existential vacuum” arises in one who is lacking meaning, experienced by the individual as a sense of complete emptiness, and an absence of a purpose for continuing to live. Suicide, then, may seem like a viable solution to relieve this distressful state of being. (p1519).”

Bryant (2003) explained about suicide in the [Handbook of death and dying] .

“The suicidal death of an individual or a group of people has such important implications that a case of suicide often raises questions about the very quality of life experienced by someone who chooses to die……. Suicide is the ultimate rejection of life……. Suicidal behavior encompasses individual psychotic episodes, rational calculation of the positive and negative aspects of living, and institutional forces that are, under certain conditions, actively promoted (p309)”

According to these scholars; suicide ideation signifies the individuals' conclusion to the overall positive and negative evaluation of their life; resulting with a stronger reason to die rather than to live; therefore finally becoming helpless, hopeless, and without a reason to strive for life. In other words, suicide ideation and negative morale both includes showing no desire to live, dissatisfaction with life, out weighed by the negative aspects of life, giving up life, and ultimately choosing self-intentioned death. Furthermore, there are many researches concerning the coinciding relation between negative mental health and suicide ideation (Bock & Webber, 1972; Lester & Badro, 1992; Koivumaa Honkanen et al., 2001; Ponizovsky et al., 2003; Renberg et al., 2008; Arnautovska & Grad, 2010).

At the same time, suicide ideation is an indicator of negative mental health. According to Borges et al (2008), suicide ideation, plan, attempt, and potential risk factors were assessed in the The Mexican Adolescent Mental Health Survey. Gould et al (1998) assessed the suicidal ideation and behavior by the Affective Disorders module of the parent and child versions of the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3) (Shaffer et al., 1996). Zivin et al (2009) used suicidal thought as one of the indicators to measure the mental health problem.

These studies considered mental health as a single dimension, but explained the concept of suicide ideation as a state with negative mental health. Moreover, as can be seen from these standardized measurement tools and previous studies, suicide ideation are valid indicators that comprehensively cover negative mental health.

### ***3.2.2. Coping resource<sup>7)</sup>***

In general, there are several variables that can be coping resources: parent resources, peer resources, and family resources. These resources may vary depending on the life cycle, such as primary caregivers in childhood, peers in adolescence, broad human networks in adulthood, and intimate people in the old age (Erikson, 1980; Carstensen, Isaacowitz, & Charles, 1999). Amongst these, as the subject of this study is adolescents, ‘bonding social capital’ formed from peer and parent relations were chosen, as it is a variable corresponding to the ‘coping resource’ set in the multi-dimensional stress coping model.

#### ***① Developmental characteristics of Korean adolescents***

Adolescence is a period of transition from childhood to adulthood, a period of increasing independence from parental protection and increasing interaction with peers. Although the importance of peer relationship is increasing, this is a time where parents support is just as important. Experiences with peers during this period affects identity formation (Erikson, 1980), social adjustment, social skills (Ishiyama, 1984; Dusek, 1991), and plays an important role in increasing psychological adaptation. In addition, ties with parents are a fundamental resource for emotional support, financial support, and life guidance for children (Kim, 2008). According to Lee and his colleagues (1993), compared to the shallow and general relationships with peer groups, relationships with intimate friends can determine not only the emotional and social development but the future of adolescents. Putnam (2000) calls this deep emotional relationship bonding social capital. According to several studies, these social capitals formed within family and schools

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7) This section is the revised and supplemented research of Yoo (in press)’s research which was accepted in the Child Indicators Research.

have been identified as affecting the adolescents' academic stress (Yoo, in press), self-esteem and emotional development (Crosnoe, 2004; Lee & Kim 2007), problem, behavioral, and emotional focused forms of copings (Buist, Dekovic, Meeus & van Aken, 2004; Bosacki, Dane, Marini & Ylc-Cura, 2007), as well as subjective well-being and suicide ideation (Yoo, Kahng, 2015; Yoo, Kahng, & Kim, 2017).

The importance of these peer and parent relationships also appears in empirical studies. (1) Bonding social capital decrease stress through emotional support (Berkman & Syme, 1979; Veenstra, 2001; Yoo, in press). According to Yoo (in press)'s study, early bonding social capital was found to reduce academic stress in adolescents. (2) Bonding social capital is also related to self-esteem. According to the Sociometer Theory, self-esteem is an indicator that monitor the quality of interpersonal relationships (Leary et al., 2001). Therefore, the evaluation of how integrated or alienated from other people makes a positive evaluation and negative evaluation of oneself. This evaluation of self has an important influence on the formation and maintenance of self-esteem. In fact, adolescents with positive peer and parent relationships have higher self-esteem (Coopersmith, 1981; Crosnoe 2004; Chung, 2007; Lee & Kim 2007; Yoo, 2017b). According to Coopersmith (1981), adolescents with a high level of interest from their parent and good parent-child relationship, have a high level of self-esteem. In the study of Chung (2007) and Yoo (2017b), self-esteem of children was higher when parent-child relationship and parent supervision were high. (3) Bonding social capital is associated with problem, behavioral, and emotional focused forms of coping for adolescents. The experience of peer alienation cause sadness, loneliness, depression and anxiety of adolescents (Leary et al., 2001; Bosacki et al., 2007). It is also reported to be related to delinquency action (Buist et al., 2004) and social anger

(Bosacki et al., 2007). According to previous studies (Kim et al., 2008; Choi & Lee, 2011; Kim & Kim, 2014; Park et al, 2016), positive parent-child relationships increase the use of problem focused coping. On the contrary, positive peer and parent relationships reduce behavioral and emotional focused forms of copings. According to Buist et al (2004), good parental attachment reduce adolescent's emotional and behavioral expressions. Catalano et al (2004) state that majority of programs in the United States which centered on adolescent's development achieved a successful result when concentrated on developing social capital of adolescents. Furthermore, these programs prevent problem behaviors and improve positive actions of adolescents. Several studies confirm the positive effect of social capital on problem behaviors and psychological adaptation of adolescents (Curran, 2007; Lim, 2013; Seo, 2013). (4) Yoo and Kahng (2015), Yoo, Kahng, and Kim (2017) analyzed the predictors related to the trajectory of life satisfaction and suicide ideation in adolescents. As a result, both parent-child relationship and peer relationship are effective and consistent to adolescents. The results of the study by Bostik and Everall (2007) show that the risk of suicide among adolescents is lower when the relationship with parents is good. Lee and Jang (2011)'s study pointed out that the suicidal ideation of adolescents decreases as the family cohesiveness increases. Yoo (2017a) analyzed the adolescent's family, school, and community bonding social capital trajectories. As a result, peer relations showed an increasing trajectory of change over time. These studies confirm that parent-child relationships are an important protective factor for adolescents.

These results imply that peer and parent relationships are important during adolescence. Also, positive peer relationship increases social competence such as initiative, sociability, responsibility, and openness, but failure to have intimate friends can cause problems in

self-development (Sim, 2000; Choi et al., 2015). Especially, bonding social capital formed by peer and parent are crucial protective factors having long-term effect in either buffering or increasing adolescents' subjective well-being and suicide ideation (Yoo & Kahng, 2015; Yoo et al., 2017).

### ***② Conceptual and operational definition of bonding social capital***

In general, 'coping resources' refer to the resources that I already possess. In fact, whether or not to cope with this situation is decided when a particular stress situation occurs, based on the degree of resources that already exists. This characteristic of the coping resource can be found in the Conservation of Resources Theory of Hobfoll (1989). According to Hobfoll (1989), humans try to secure and preserve things that are valuable to them. Further on, individuals with sufficient resources do not lead to stress and exhaustion, rather, they experience them in a relatively lower state of stress.

This coping resource coincides with the bonding social capital in a conceptual and functional manner. The definition of social capital differs depending on the scholars. Nevertheless, it has common characteristics; such as social support, interpersonal trust, social networks, mutual cooperation and reciprocity (Bourdieu, 1986; Coleman, 1988; Portes, 1998; Putnam, 1993; Lin, 2001). These social capital were divided into bonding and bridging social capital. Putnam (1993) introduced social capital as social organization with aspects that include network, norms, trust which promote mutual benefit through coordination and cooperation. This concept was further elaborated by Putnam (2000) by defining social capital into bonding and bridging social capital. Bonding social capital includes inward-looking bonds, relationships, networks centered on trust and interrelations which link within groups, and can be found in emotionally close, tightly-knit relationships like family and close friends

(Holland, Reynolds, & Weller, 2007).

The above feature of bonding social capital could be seen as a critical protective factor which stimulates the development of adolescents who are often impacted by the environment. According to Hobfoll's Theory of Resource Conservation (1989), good social relations are critical in order for people to acquire resources. If social relations are strong, members can express their true emotions as well as feel less heterogeneity from others (Hochschild, 1983), and support from supervisors or peers aid in reducing job stress (Cohen & Syme, 1985; House, 1981; LaRocco, House, & French, 1980).

As previously mentioned, the coping resource concept was introduced to be most precedent to affect the overall stress coping process in adolescents. Berkman, Kawachi and Glymour (2014) explained their understanding of social capital in the 「Social Epidemiology 2nd edition. Oxford press. (Social Epidemiology)」 .

“resources that are accessed by individuals as a result of their membership of a network or a group (p291)”

Actually, peer relationships, which can be a very important resource for adolescents, are found to be precedent in both stress and secondary cognitive appraisal (Choi et al., 2015; Yoo, in press). Also, Lee and Lee (2009) examined whether bonding social capital formed from peers and parent can be mediators in relations between academic stress and suicide ideation. These findings show that bonding social capital, which can be a coping resource for adolescents precedes not only academic stress which is a stressor but also the secondary cognitive appraisal, which is the coping there after. Therefore, the current study set bonding social capital as the coping resource.



### 3.2.3. *Stress*

#### ① *Developmental characteristics of Korean adolescents*

Academic stress is the greatest threat to the subjective well-being and suicide ideation of the Korean adolescents (Hong, Okayasu, & Tsuda, 1994; Choi, Lee, & Lee, 2010; Statistics Korea, 2014; Yoo & Kahng, 2015). First, regarding the effects of academic stress on the subjective well-being of adolescents, the Korea National Youth Policy Institute (Mo & Kim, 2009) asked the reasons for not being happy to high school students. As a result, 32.7% of the respondents answered ‘burden of study,’ 30.3% ‘anxiety about the future,’ and 10.4% ‘family trouble.’ In the case of middle school students, 32.6% of the respondents answered ‘burden of study,’ 18.8% ‘anxiety about the future,’ and 15.2% ‘family trouble.’ In the case of elementary school students, 32.6% of the respondents answered ‘burden of study,’ 20.1% ‘family trouble,’ and 17% ‘peer relationship.’ Next, in relation to the effects of academic stress on adolescents’ suicidal ideation, the National Statistics Korea reported that the suicide ideation of Korean adolescents were most impacted by academic stress (Statistics Korea, 2014).

The problem of academic stress among Korean adolescents appeared to be in an alarming state when observed in domestic as well as international statistics. Furthermore, comparative studies with other countries also confirm this reality. Hong et al (1994) presented that compared to Japanese students, Korean middle school student’s academic stress level was statistically high, which was found in their research comparing the academic stress of Korean and Japanese students. In addition, the Korean Youth Policy Institute analysis supported the devastating situation of Korean adolescents as they presented that the academic stress of Korean students were reported to be 72.6% which

was a result of the health status of adolescents in the United States, China, Japan and Korea. This figure was very high compared to China (59.2%), USA (54.2%), and Japan (44.7%) (Choi, Lee, & Lee, 2010). These results show that Korean students are greatly affected by academic stress.

Also, academic stress is associated with self-esteem, problem, emotional, and behavioral focused coping. First, related to the relations between academic stress and self-esteem, Burt, Cohen, and Bjorck (1988) found that experience with success and failure in academic problems may have a significant impact on self-esteem, which in turn will assess their abilities in a positive or negative direction. Second, in relation to academic stress and problem, behavioral, emotional focused coping, Ahn (2014) state that the higher the academic stress, the higher the use of aggressive coping strategies. According to Yoo, Kahng, & Kim (2014), academic stress has been found to increase emotional responses such as internalization. In addition, many studies point to 'academic stress' as the most powerful predictor of adolescents depression (Conley & Lehman, 2012; Kim, Lee, & Chung, 2013; Yang, Won, & Kim, 2013). On the other hand, there is a study that the higher the academic stress, the less the problem focused coping is used (Ahn, 2014).

These results suggest that Korean students experience high academic stress and that academic stress is a major factor in increasing suicide ideation and decreasing subjective well-being in adolescents.

### ***② Conceptual and operational definition of academic stress***

Stressor is operationalized as academic stress. Oh and Chun (1994) defined academic stress as an uncomfortable state such as mental burden, tension, fear, and anxiety due to feeling too burdened, annoyed of school study or grades. In fact, academic stress has been found to be negatively related to adolescents' emotions (Lee & Cho, 2004). In addition, severe academic encouragement can become seriously stressful and lead to emotional problems (Kim, 2003). However, the negative impact of academic stress is not equally applicable to all adolescents. Lazarus and Folkman (1984b) pointed out the positive and negative functions of stress itself by distinguishing between eustress and distress. Therefore, it is important to understand how adolescent academic stress directly affects their psychosocial development. Also, by studying how adolescents' coping processes have an indirect effect on mental health; an even more effective intervention may be found as how the stress they experience due to schoolwork affect subjective well-being or suicide ideation can be understood.

#### ***3.2.4. Cognitive appraisal***

Two-dimensional cognitive appraisal is operationalized as two-dimensional self-esteem which are self-worth and self-deprecation.

### ***① Developmental characteristics of Korean adolescents***

Self-esteem is very important for adolescents in the developmental aspect. Self-esteem enhances the subjective well-being of adolescents (Myers & Diener, 1995) and reduce depression, anxiety, and suicide ideation (Khanlou & Crawford, 2006; Chung, 2007). Especially, self-esteem is the crucial protective factor that has a long-term effect in either buffering or increasing adolescents' life satisfaction and suicide

ideation (Yoo & Kahng, 2015; Yoo, Kahng, & Kim, 2017). It was also found to be an important mediating factor in explaining the relations between stress and adaptation outcomes or coping style underlying mechanisms in the adolescent stress coping process (Kim, 2007; Park, 2007; Corte & Zucker, 2008; Hyun & Nam, 2009). Since adolescence is a time when the self is established (Erikson, 1994), it is very important to check how the self-esteem of adolescence functions.

## ***② Conceptual and operational definition of self-worth and self-deprecation***

### ***Secondary cognitive appraisal and self-esteem***

Secondary cognitive appraisal is the process of assessing whether there is specifically available coping resources, the ability to effectively apply such coping resources, and the consequences thereof. The main purpose of the secondary cognitive appraisal is to determine whether it is possible to control the current situation. Situational control appraisals refer to the “extent to which a person believes that he or she can shape or influence a particular stressful person-environment relationship” (Lazarus & Folkman, 1984b, p69). Related to this secondary cognitive appraisal and situational control appraisal, Lazarus and Folkman introduce the concept of outcome expectancy and efficacy expectancy. Outcome expectation refers to an assessment that any action will have on expected outcome, and efficiency expectation implies the belief that a successful action can be taken to produce the outcome.

This secondary cognitive appraisal coincides with self-esteem which is self evaluation in a conceptual and functional manner. Conceptually, self-esteem is defined in various ways according to scholars (Coopersmith, 1967, 1981; Long, Henderson, & Ziller, 1968; Gilmore, 1974; Newman & Newman, 1975; Rosenberg, 1979;

Baumeister, 1997). To summarize these definitions, self-esteem is a subjective judgment or evaluation of one's own personality, intellectual, and physical characteristics. It can be seen as; the ability to accomplish what you are thinking of, the ability to control and influence others, the degree of positive, negative evaluation and attitude about their worth, competence and importance. These concepts of self-esteem are consistent with the concept of secondary cognitive appraisal.

Next, self-esteem is functionally consistent with the secondary cognitive appraisal. According to the stress coping theory, the secondary cognitive appraisal influences the subsequent coping style. Lazarus and Folkman (1984b) states that secondary cognitive appraisal which is an outcome expectation and efficiency expectation, has a direct effect not only on the adaptational outcome, but also on the choice of coping style. For example, if you think that you can control the situation, you are more likely to choose a problem focused coping, and if you think that you can not control the situation, you are more likely to choose emotional focused coping (Anderson, 1977; Folkman & Moskowitz, 2004). The relations that secondary cognitive appraisal effects the subsequent coping style is the same as many empirical studies' results show, that self-esteem effects the subsequent coping style (Coppersmith, 1981; Kim, 2007; Park, 2007; Corte & Zucker, 2008; Hyun & Nam, 2009). As observed, secondary cognitive appraisal from stress coping theory is conceptually and functionally consistent with self-esteem.

### *Two-dimensions of self-esteem*

Rosenberg (1965) defined self-esteem as 'positive or negative attitude toward self,' and this implies a unidimensional global self-esteem that includes both positive and negative evaluations of self. In other words, a person with a high level of self-esteem feels self-

respect and self-worth, admits their flaws or disadvantages, yet, those with low levels of self-esteem feels worthless, lacking, seriously flawed, having low self-respect and only emphasize their weakness (Rosenberg, 1979). This view is based on the assumption that the self-esteem concept consists of a single domain and negative content items are scored reversely, then added together. The higher the total self-esteem measure, the more positive meaning was used.

In recent studies, however, it has been argued that positive and negative evaluations of self are composed of different dimensions rather than the unidimensional global self-esteem (Owens, 1993, 1994; Sheasby et al., 2000; Wright et al., 2000; Kahng & Mowbray, 2004; Kahng & Mowbray, 2005a; Kahng, 2006; Boduszek et al., 2013; Supple et al., 2013; Yoo, 2017b, 2017c). Owens (1994) explains that the items that measure the positive part of self such as “I feel I have many good parts” and the items that measure the negative part of self such as “My life is not very useful” are not just different because of the narrative form of the sentence, but the content measures the opposite dimension of self-esteem. In fact, Owens (1994) analyzed the same research model and the same data repeatedly as Rosenberg, Schooler and Schoebach (1989). The results verified that self-esteem has a two-dimensional structure. The former was distinguished as ‘positive self-esteem’ or ‘self-worth’ and the latter as ‘negative self-esteem’ or ‘self-deprecation.’

The dual nature of this self-esteem has been supported and used in several empirical studies. Kahng (2006) analyzed the factors related to the dual self-esteem of individuals with mental illnesses. As a result, he confirmed that factors which influence self-worth and self-deprecation do not always coincide with each other. Especially, while self-worth was associated with approaching or withdrawing behavior, self-deprecation was associated with information-managing behavior. Boduszek and his

colleagues (2013) used the National Survey of American Life Survey to examine the factor structure and composite reliability of the Rosenberg Self-Esteem Scale for 669 ex-prisoners. As a result, the two-factor structure (positive and negative self-esteem) model showed better data fit than the other model, and the two-factor structure model showed very good reliability.

Especially, in the study related to adolescent development, it was confirmed that the model applying the dual structure of self-esteem was valid (Greenberg et al., 2003; Farruggia et al., 2004; Ang et al., 2006; Supple et al., 2013). Supple and his colleagues (2013) assessed the factor structure of the Rosenberg Self-Esteem Scale for 1,248 adolescents. As a result, the model fit of the two structure (positive and negative) of self-esteem was found to be appropriate, and the positive self-esteem and negative self-esteem factors were predicted by parenting behaviors and academic motivation differently. In addition, the research for Korean adolescents shows the validity of the research model applying the two-dimensional self-esteem (Lee, 2005; Jung, 2010a; Choi et al., 2015; Yoo, 2017b). Lee (2005) conducted an exploratory regression analysis of factors that are expected to affect positive and negative self-esteem among adolescents. As a result, the types of factors affecting positive and negative self-esteem were different. Choi and his colleagues (2015) confirmed the longitudinal interrelation of self-worth, self-deprecation, and peer alienation. As a result, peer alienation was more related to self-deprecation than self-worth.

### ***3.2.5. Coping style<sup>8)</sup>***

Coping styles are very diverse. These different coping styles can be classified according to the subjects such as problem solving coping, cognitive restructuring, avoidance coping, aggressive behavior, behavioral avoidance, behavioral change, cognitive avoidance, cognitive conversion, emotional expression, patience, information seeking, isolation behavior, self control behavior, spiritual support, stress factor modification, positive reevaluation, emotional attack, emotional diversion behavior, separation of emotional relief (Amirkhan, 1990; Ryan-Wenger, 1992; Chung & Yoon, 1997; Min & Yoo, 1998). When analyzing the coping strategies, due to the variety of coping styles, the type of coping used for research analysis should be judged carefully according to the research purpose and subjects of the study. Reflecting the fact that the current study subjects are adolescents, problem, behavioral, and emotional focused coping will be used as the types of coping style.

#### ***① Developmental characteristics of Korean adolescents***

Adolescence is emotionally unstable due to the rapid development of the body and the excessive work required by society (Kim et al., 2004). In this excessively competitive academic environment and emotionally sensitive time for adolescence, the following coping types are indicated as the expression of anxiety and anger which are one of adolescent's most commonly used emotional and behavioral coping responses to stress. Problem focused coping includes factors such as seeking academic counseling, help for studies, and fitness training; behavioral focused coping includes factors such as aggression; and

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8) This section is the revised and supplemented research of Yoo, Kahng, & Kim (2014)'s research which was published in the Korean Journal of Social Welfare Studies, 45(3), 237-262.



finally emotional focused coping includes factors such as avoidance, minimization, distance keeping, emotional expression, denial and behavioral non involvement. (Ryan-Wenger, 1992; Chung & Yoon, 1997; Min & Yoo, 1998; Song et al., 2010; Chung, 2012; Yoo, Kahng & Kim, 2014).

According to stress coping theory (Lazarus & Folkman, 1984b) and various previous studies (Forsythe & Compas, 1987; Terry et al, 1995; Suh, 2011; Park & Ko, 2014; Lee, 2015), problem focused coping, behavioral focused coping, and emotional focused coping have positive and negative functions, respectively. Specifically, problem focused coping such as academic counseling or fitness activities were confirmed to have a positive function (Cho & Doo, 2004; Choo & Jang, 2005; Lee & Lee, 2012; Park & Ko, 2014; Yoo & Kim, 2014; Lee, 2015). According to Lee and Lee (2012), Career Journal Program had a positive effect on the mental health of 12th grade students, and Park and Ko (2014) presented that adolescents' subjective well-being was significantly higher for those who participated in the positive psychology counseling than those who did not participate. Choo and Jang (2005) observed that mental health levels of students who participated in working out in the gym, swimming, tennis, and table tennis were significantly different to those who did not. Yoo and Kim (2014)'s research revealed that those who exercised in physical education class more than three times a week were more happy than those who did not. On the other hand, the effects of behavioral and emotional focused coping are controversial. Adaptive emotions and their impulses may be negative when functioning excessively, on the other hand, they could also have positive functions. The negative effects of behavioral and emotional focused copings on mental health were consistently supported through various studies (Karremans, Van Lange, Ouwerkerk, &

Kluwer, 2003; Hildingh & Baigi, 2010). However, the positive function of behavioral and emotional focused responses have been discussed for a long time. For example, in the case of extreme depression, an appropriate expression of anger can help alleviate the symptoms. In other words, this behavioral and emotional focused responses are stress responses (Novaco, 1979) and the natural response to pain (Alschuler & Alschuler, 1984). In addition, the positive function of behavioral and emotional focused responses have been proposed by several scholars (Earley, 2013; Kwon, 2010). In the empirical study, verbal aggression corresponding to behavioral responses showed a significant positive correlation with subjective well-being and life satisfaction (Seo, 2012). These views imply that anger or aggression is an emotion or behavior experienced by adaptive needs.

The behavioral and emotional focused copings mentioned above have been emphasized differently according to the researcher's point of view. Whether negative or positive, it is true that there is confusion in understanding the adaptive and maladaptive aspects. Behavioral and emotional focused coping are higher in the middle and later stages than in early adolescence because the tasks that have to be done during the high school years are more numerous than at other times (Ha et al., 2004; Kim, 2009). Also, behavioral and emotional focused coping such as depression, avoidance, anger are crucial factor having long-term effect in either adolescents' subjective well-being and suicide ideation (Yoo & Kahng, 2015; Yoo, Kahng, & Kim, 2017). Therefore, it is necessary to confirm the function of behavioral and emotional focused coping in the stress coping process of high school students in Korea.

## ***② Conceptual and operational definition of problem, behavioral, and emotional copings***

Lazarus and Folkman (1984) define coping as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (p141).” These coping types may vary, but they can be categorized based on the similarities that exists in these coping strategies. Among these types of categorization, problem focused coping, behavioral focused coping, and emotional focused coping are widely recognized.

First, problem focused coping refers to taking action to eliminate or reduce the effects of stressors. Specifically, active coping responses such as seeking social support and planning are the types of problem focused coping (Lazarus & Folkman, 1984; Carver, Scheier, & Weintraub, 1989). Behavioral focused coping refers to a state under controlled by lack of appropriate suppression of emotions or behaviors, accordingly includes symptoms such as aggression and hyperactivity. Emotional focused coping refers to the process that reduce emotional pain. The sub-concepts of emotional focused coping include avoidance, minimization, distance, emotional expression, denial, behavioral and mental non-involvement (Lazarus & Folkman, 1984). Specifically, emotional expressions imply focusing on psychological pain and expressing it, while denial is a reaction that does not want to believe that stress factors exist. Behavioral non-involvement means reducing efforts to deal with stressors, stopping and doing nothing, and putting distance to stressors (Carver et al., 1989).

The coping style of behavioral and emotional focused coping such as anger and escape, generally receive prejudice that they are negative emotions, behaviors, and consequences of a reaction. However, Lazarus

and Folkman (1984b) found that concerning the relations between the function of emotion and the result of adaptation, positive emotions or negative emotions do not have unconditional positive or negative functions. Lazarus and Folkman (1984b) states that “anger involves impulses to assault the environment, thereby to bring down an adversary, make the adversary back off or retreat, or otherwise to change for the better a damaging relationship with the environment. Fear often serves a valuable function in survival by galvanizing escape or avoidance (p182).” The contents of these coping strategies show relief of negative emotions caused by stress factors, as well as the use of emotional functions such as avoidance and distancing in advance to avoid the negative emotions that may occur. In fact, in previous studies, problem focused coping such as academic and career counseling, behavioral and emotional focused coping such as depression, anxiety, anger, and aggressive behaviors, were classified as a style of coping and used as the main variables (Ryan-Wenger, 1992; Chung & Yoon, 1997; Seo, 2012; Lee & Yoo, 2013; Lee, 2013; Yoo, Kahng & Kim, 2014). Therefore, the current study set problem, behavioral, and emotional focused coping as coping style.

### ***3.2.6. Persistent impact variable***

In the previous section, we examined the variables that verified the multi-dimensional stress coping model by considering the developmental characteristics of adolescents, present situation of Korean adolescent, and conceptual as well as operational definition of multi dimensional stress coping model. Bonding social capital, academic stress, self-worth, self-deprecation, problem, behavioral, and emotional focused forms of copings, subjective well-being, and suicide ideation are the variables. Another rationale for selecting these variables is ‘persistent

impact.’ These variables are not only a temporary influence on subjective well-being and suicide ideation, which are dependent variables of the multi-dimensional stress coping model, but are also important variables that continuously give affect over time.

In order to select the key variables which will be set for each path in the stress coping model (stressor, cognitive appraisal, coping style, and adaptational outcomes), it is necessary to identify the key variables that continuously affect the outcome factors over time. Therefore, this section will introduce the research conducted to identify the factors that continuously affect subjective well-being and suicide ideation, then ultimately, the current study would like to set the variables that continuously affect subjective well-being and suicide ideation of adolescents.

**① *Factors that continuously affect subjective well-being and suicide ideation<sup>9)</sup>***

A number of studies have been conducted to analyze the relations between ‘predictors’ and ‘subjective well-being and suicide ideation’ for the purpose of preventing suicide issues and promoting happiness of Korean adolescents (Brent, 1987; Kim & Chun, 2000; Brown & Vinokur, 2003; Brezo, Paris, & Turecki, 2006; Kim & Lee, 2008; Park & Moon, 2010; Javdani, Sadeh & Verona, 2011; Koh, 2012; Cho, Kang, & Lee, 2012; Seo & Kim, 2013; Joung, Seo, 2014; Kim, Park, & An, 2014). These studies have identified the main factors that influence adolescent subjective well-being and suicide ideation. However, under the cross-sectional design, it is difficult to gain an understanding

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9) This section is the revised and supplemented research of Yoo and Kahng (2015)'s research which was published in the Korean Journal of Social Welfare Research, 46, 25-54; and Yoo, Kahng, and Kim (2017)'s research which was accepted in the Asian Pacific Journal of Social Work and Development.

of how subjective well-being and suicide ideation changes overtime, and whether identified predictors in fact have long-term effect on adolescents' subjective well-being and suicide ideation.

Considering this, Yoo, Kahng (2015), Yoo, Kahng and Kim (2017) analyzed the latent growth curve modeling using the data from the Korean Youth Panel Survey (2004-2008) on a total of 3,449 adolescents. This study was set out to fill the gap in literature by examining the subjective well-being and suicide ideation of Korean adolescents, and identifying the possible risk and protective factors that have long term effect on their changing subjective well-being and suicide ideation.

Table 1 is a summary of how the effects of major predictors on subjective well-being and suicide ideation in adolescents changes with the passing of time. Subjective well-being and suicide ideation were not analyzed by a single integrated model, therefore, direct comparisons are difficult because they are the results of separate studies. However, indirect comparison is possible because they are analyzed using the same data, same sample, and same starting point<sup>10</sup>).

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10) Subjective Well-Being analysis data: Korean Youth Panel Survey from 2004 to 2008; Suicide Ideation analysis data: Korean Youth Panel Survey from 2004 to 2007.

<Table 1> Longitudinal relation between major predictors and ‘subjective well-being and suicide ideation’

Predictors	Subjective well-being		Suicide ideation	
	Relation with intercept	Within-group difference over time	Relation with intercept	Within-group difference over time
<b>Socio-economic status</b>				
Gender(female=1)	negative	maintained	negative	alleviated
Household income	positive	maintained	none	none
Father’s education level	positive	maintained	negative	maintained
Mother’s education level	none	intensified	positive	maintained
<b>Individual factors</b>				
Academic stress	negative	alleviated	positive	maintained
Self-esteem	positive	alleviated	negative	maintained
Internalizing	negative	maintained	positive	alleviated
Externalizing	none	none	positive	alleviated
<b>Family factors</b>				
Family structure (absent=1)	none	none	positive	maintained
Parent-child relationship	positive	alleviated	negative	alleviated
<b>School factors</b>				
Peer relationship	positive	maintained	negative	maintained
Teacher relationship	positive	maintained	positive	maintained

Note 1: The above table distinguishes whether the within group difference of the subjective well-being and suicide ideation intercept value according to the level of the predictor is intensified, sustained, decreased, or no influence over time.

Note 2: This table is composed of integrated and revised context from Yoo & Kahng (2015) research results and Yoo, Kahng, & Kim (2017) research results.

According to these results, ‘bonding social capital, academic stress, self-worth, self-deprecation, problem, behavioral, and emotional focused copings’ were selected in consideration of the developmental characteristics and the situation of the Korean adolescents. Furthermore, the conceptual definition are very important variables that continuously affect subjective well-being and suicide ideation.

## **CHAPTER III - RESEARCH MODEL**

In Chapter III, the research model of this study is proposed. This chapter is composed of two sections: In the first section, a conceptual model that is a revised version overcoming the aforementioned limitations, is proposed based on literature reviews and empirical evidences. In the second section, the research hypotheses about the research questions are suggested.

### **1. Conceptual Model**

In order to examine (1) the effect of bonding social capital and academic stress on subjective well-being and suicide ideation; and (2) the mediating effects of academic stress, two dimensional self esteem, problem, behavioral, and emotional focused coping; a conceptual model is established (Figure 7). The proposed conceptual model is composed of ten major variables. Subjective well-being and suicide ideation are two independent but correlated dependent variables indicating positive and negative mental health. Peer and parent bonding social capital are exogenous latent variables. Academic stress is a stressor variable. Self-worth and self-deprecation are two independent but correlated mediating variables indicating positive and negative cognitive appraisal. Self-worth, self-deprecation, and academic stress are explained by exogenous latent variable, and explain problem, behavioral, and emotional focused forms of copings, as well as dependent variables. Problem, behavioral, and emotional focused coping are three independent but correlated mediating variables indicating the coping style, which are explained by exogenous latent variable, stressor variable, self-worth and self deprecation, and explaining the dependent variables.



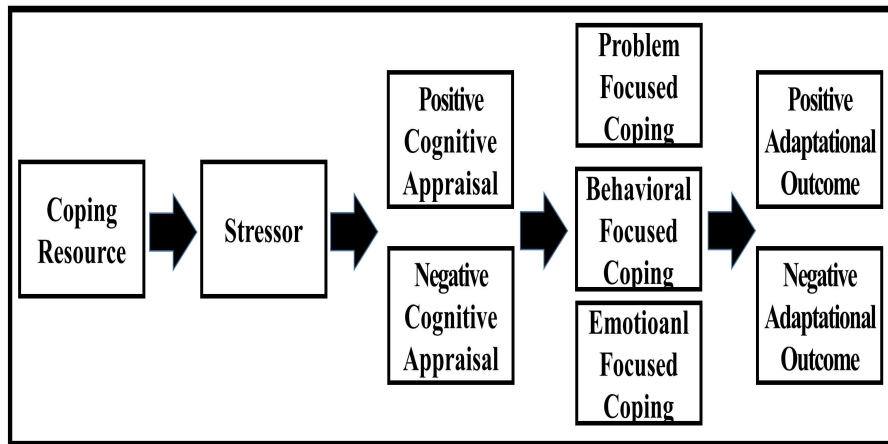


Fig 6. Theoretical framework

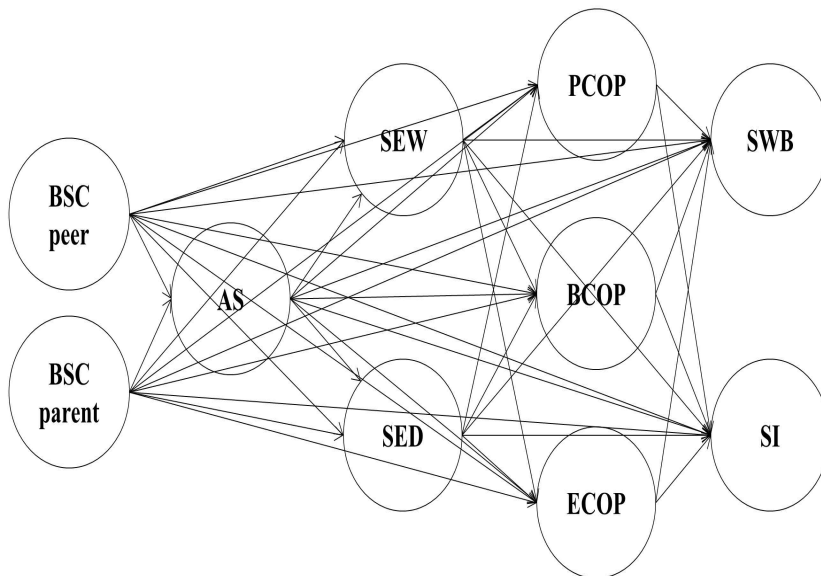


Fig 7. Conceptual model

BSC=bonding social capital; AS=academic stress;  
 SEW=self-worth; SED=self-deprecation; PCOP=problem focused coping;  
 BCOP=behavioral focused coping; ECOP=emotional focused coping;  
 SWB=subjective well-being; SI=suicide ideation

## **2. Research Hypotheses**

In order to test the research questions, main hypotheses are developed as follows:

### **Research Question 1.**

Does bonding social capital have an effect on subjective well-being and suicide ideation, among Korean high school students?

H. 1-1. Bonding social capital formed from peer will influence subjective well-being.

H. 1-2. Bonding social capital formed from peer will influence suicide ideation.

H. 1-3. Bonding social capital formed from parent will influence subjective well-being.

H. 1-4. Bonding social capital formed from parent will influence suicide ideation.

### **Research Question 2.**

Does academic stress have an effect on subjective well-being and suicide ideation, among Korean high school students?

H. 2-1. Academic stress will influence subjective well-being.

H. 2-2. Academic stress will influence suicide ideation.

### **Research Question 3.**

Do Korean high school students' coping factors mediate the effect of bonding social capital and academic stress on subjective well-being and suicide ideation?

- H. 3-1. Academic stress, self worth, self deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of bonding social capital formed from peer on subjective well being.
- H. 3-2. Academic stress, self-worth, self-deprecation, problem, behavioral, and emotional focused coping will mediate the effect of bonding social capital formed from peer on suicide ideation.
- H. 3-3. Academic stress, self-worth, self-deprecation, problem, behavioral, and emotional focused coping will mediate the effect of bonding social capital formed from parent on subjective well-being.
- H. 3-4. Academic stress, self-worth, self-deprecation, problem, behavioral, and emotional focused coping will mediate the effect of bonding social capital formed from parent on suicide ideation.
- H. 3-5. Self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of academic stress on subjective well-being.
- H. 3-6. Self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of academic stress on suicide ideation.

## CHAPTER IV - METHODS

In Chapter IV, the quantitative methods to address research questions are introduced. This chapter is composed of three sections: (1) data and sample, (2) measurements of variables, and (3) analysis procedure and techniques. In the first section, the data to be analyzed and the sample of the current study are described. In the second section, operational definition and measurement of major variables are introduced. In the third section, analysis procedure and techniques are explained.

### 1. Data and Sample

The data set derives from the Korea Welfare Panel Study (KWPS) conducted by the Korea Institute for Health and Social Affairs and the Seoul National University Institute of Social Welfare. KWPS is a national and longitudinal panel study that collects data on welfare needs. Panel survey started from the year 2006 up to 2016 on the units of households and the household members aged 15 years or older. In particular, KWPS is characterized by a high sample retention rate that is comparable to that of the world's major panel sample retention rate (KIHASA, 2016<sup>11</sup>). Based on Korea's 517 representative enumeration districts from the 2005 official census, the panel in 2006 included 7,072 households through a stratified double sampling approach. In order to ensure the representativeness of the sample, it classified according to income level groups; low-income households (3,500) which is 60%

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11) Korean Welfare Panel Sample Retention Rate Change (KIHASA, 2016)

	1	2	3	4	5	6	7	8	9	10
Original sample	7,072	6,511	6,128	5,935	5,675	5,335	5,270	5,104	4,896	4,760
Sample retention rate	100.00%	92.07%	86.65%	83.92%	80.25%	75.44%	74.52%	72.17%	69.2%	67.31

under median income level and general households (3,500) which is 60% over median income level.

For the current study, data were drawn from Children Supplementary Survey of Korean Welfare Panel Study (CSS-KWPS), a prospective cohort study, which contains information about children, family, friend, and school characteristics (four waves: 2006, 2009, 2012, 2015). Among these four waves, the current study will use the third wave of CSS-KWPS in 2012. The survey participants were high school students in Korea, 10<sup>th</sup> grade ( $M_{age}=15.86$ ,  $SD=0.37$ ), 11<sup>th</sup> grade ( $M_{age}=16.88$ ,  $SD=0.34$ ), 12<sup>th</sup> grade ( $M_{age}=17.86$ ,  $SD=0.37$ ), and excluded school drop outs. The final sample included 471 (10<sup>th</sup>=162; 11<sup>th</sup>=156; 12<sup>th</sup>=153) high school students.

This study was reviewed by Institutional Review Board (IRB) at Seoul National University. As a result, IRB Exemption was approved because the study participants could not be identified<sup>12)</sup>.

## **2. Variables**

The conceptual model of this study is composed of ten major variables. The definitions and measurements of these variables are introduced in this section.

### **2.1. Dependent variables**

#### ***2.1.1. Subjective well-being***

Subjective well-being should be considered along with various indicators, and not as a single indicator (Ben Arieh et al., 2001;

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12) Seoul National University IRB Exemption No. E1705/002-009.

Bradshaw & Richardson, 2009). Therefore, subjective well-being which is one of the dependent variables, is defined as the individuals' subjective assessment of their various areas of life. Subjective well-being was measured using Korean Child Well-Being Index which was a revised version of happiness indicators extracted from Health Behavior in School-aged Children Survey (WHO), Program for International Student Assessment (OECD) by Institute for Social Development Studies Yonsei University. Subjective well-being was measured by five items<sup>13)</sup>: 'I think I'm healthy,' 'I like school very much,' 'I am satisfied with life,' 'I feel a sense of belonging to my group,' 'I get along with those around me.' All of the items were measured by five-point Likert scale ranging from '1=very dissatisfied' to '5=very satisfied.' The Cronbach's alpha of subjective well-being in this data is 0.848. The higher scores reflect higher level of subjective well-being.

### **2.1.2. Suicide ideation<sup>14)</sup>**

Suicide ideation, as the other dependent variable is defined as; harming oneself, not part of natural death and thoughts of ending one's own life (Nock et al., 2008). Suicide ideation was measured using Reynolds (1988)'s Suicidal Ideation Questionnaire (SIQ). Suicide ideation was measured by six items: 'I thought about suicide,' 'I thought about how to commit suicide,' 'I thought about when to commit suicide,' 'I

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13) The existing scale consisted of six questions, but the sixth item was excluded because it was a negative and reversed score item.

14) Indicators of negative mental health are depression and anxiety in addition to suicide ideation. However, depression and anxiety are emotional states that are felt before suicide. In an empirical study, depression was found to mediate school life stress and suicidal ideation (Park, 2009). In addition, indicators such as depression and anxiety are included in the 'emotional focused coping' variable before 'suicide ideation' in this study. Therefore, in the current study, depression and anxiety were manipulated into 'emotional focused coping' which preceded 'suicide ideation,' and 'suicide ideation' was set as the final negative mental health affected by this internalizing.

thought that if I died, all the problems would be solved,' 'I thought about how people commit suicide,' 'I thought I had no reason to live anymore.' All of the items were measured by seven-point Likert scale ranging from '1=not at all' to '7=almost every day.' The Cronbach's alpha of suicide ideation in this data is 0.931. The higher scores reflect higher level of suicide ideation.

## **2.2 Exogenous variables**

Bonding social capital is defined as being linked to inward-looking bonds, focusing on relationships and networks of trust and reciprocity that ties within groups, and is found between individuals in tightly-knit, emotionally close relationships from family and close friends. Bonding social capital formed from peers was measured by two items: 'My friends are with me when I am lonely or going through a hard time,' and 'My friends help me when I need help.' Bonding social capital formed from parents was measured by 4 items representing parent supervision, and 4 items representing parent participation in education. All of the items were measured by four-point Likert scale ranging from '1=strongly disagree' to '4=strongly agree.' The Cronbach's alpha of bonding social capital formed from peer in this data is 0.850; bonding social capital formed from parent in this data is 0.662. The high scores reflect higher level of bonding social capital.

## **2.3. Mediating variables**

### **2.3.1. Academic stress**

Academic stress is defined as the difficulties students go through in the realms of scholastic achievement such as decline of motivation in scores, tests, study efficiency. Academic stress was measured with four

items: 'I'm stressed because my scores are not good,' 'because of homework or tests,' 'because I'm sick of studying,' 'because of college entrance examination.' All of the items were measured by four-point Likert scale ranging from '1=strongly disagree' to '4=strongly agree.' The Cronbach's alpha of academic stress in this data is 0.808. The higher scores reflect higher level of academic stress.

### ***2.3.2. Self-worth and self-deprecation***

Self-worth refers to the positive self evaluation of self-esteem, self-deprecation refers to the negative self-evaluation of self-esteem. Self-worth and self-deprecation was assessed by five items, respectively, from Korean version of Rosenberg Self-Esteem Scale (Rosenberg, 1965). Self-worth was measured by five items: 'I am as valuable a person as others,' 'I have a lot of talent,' 'I can do anything,' 'I do my best even though I'm not good at first,' 'I am satisfied with myself.' Self-deprecation was measured by five items: 'I felt like a loser,' 'I don't have anything to boast about,' 'I often feel useless,' 'I feel unable to do things,' 'I wish I could respect myself more.' All of the items were measured by four-point Likert scale ranging from '1=strongly disagree' to '4=strongly agree.' The Cronbach's alpha of self-worth in this data is 0.848; self-deprecation in this data is 0.784. The higher scores reflect higher level of self-worth and self-deprecation.

### ***2.3.3. Problem, behavioral, and emotional focused coping***

Problem focused coping implies taking action to eliminate or reduce the effects of stressors (Lazarus & Folkman, 1984; Carver et al., 1989). Specifically, active coping responses such as counseling and planning are types of problem focused coping. Behavioral focused coping refers to a state uncontrolled by lack of appropriate suppression



of emotions or behaviors, and includes symptoms such as aggression and hyperactivity. Emotional focused coping involves the process to reduce emotional pain. The sub-concepts of emotional focused coping include avoidance, minimization, distance, emotional expression, denial, behavioral and mental non involvement (Lazarus & Folkman, 1984).

In the current study, the problem focused coping used “the number of consultations about academic and career progression,” “the number of participation in a career experience camp”, “the number of fitness activities such as football, basketball, baseball, Taekwondo, climbing,” and “volunteer activity” which is a coping type that actively seek help in order to decrease academic stress. Behavioral and emotional focused coping used in this study included a process of an exploratory factor analysis of “Korea-Child Behaviour Checklist (K-CBCL), a translated version (Oh, Lee, Hong, & Ha, 1998) of the original CBCL developed by Achenbach (1991)”, then excluding items that do not agree with extreme problem behavior or conceptual definition (e.g. excluded items for behavioral focused coping = setting a fire, stealing etc on), and concluding with items relevant to behavioral and emotional coping style. Behavioral focused coping was measured by 12 items representing aggression and 6 items representing delinquency. Emotional focused coping was measured by 9 items representing emotional coping<sup>15</sup>). All of the items were measured by three-point Likert scale ranging from ‘1=not at all’ to ‘3=do it often.’ The Cronbach’s alpha of behavioral focused coping in this data is 0.677; emotional focused coping in this data is 0.756. The high scores reflect higher level of problem, behavioral, and emotional focused coping.

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15) Specific items can be found in the appendix.

#### 2.4. Control variables

Variables that are known to be associated with adolescents' subjective well-being and suicide ideation were included in the analyses as covariates: monthly house hold income, gender, and academic year.

Income was measured with disposable income<sup>16)</sup> which is adjusted for family size ( $\frac{Disposable\ income}{\sqrt{Family\ size}}$ ). In the KWPS, since the income-related information is based on the previous year of the survey year, the viewpoint of the income information and the psychological state of the household member do not coincide with each other. Therefore disposable income is used in the eighth wave (2013 year), but actually represents the seventh wave (2012 year) household income. At this time, when estimates are obtained, natural logarithms conversion income value was taken and variables with guaranteed normality are inserted so as to avoid bias in estimation. Gender is measured by whether student is '0=male,' '1=female.' Academic year is measured by whether student grade is '1=10<sup>th</sup> year,' '2=11<sup>th</sup> year,' '3=12<sup>th</sup> year.'

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16) Disposable income = working income + business and sideline business income + property income + private transfer income + public transfer income - taxation and social security burden charge

<Table 2> Measures of variables

Categories		Measurement / Indicator
<b>Coping Resource</b>	Bonding social capital	<ul style="list-style-type: none"> <li>Bonding social capital formed from peers</li> <li>Total score of friends be on good terms with friends, staying with him/her when feeling lonely, and helping him/her with troubles</li> </ul>
	Bonding social capital	<ul style="list-style-type: none"> <li>Bonding social capital formed from parent</li> <li>Parent supervision and participation in education</li> </ul>
<b>Stress</b>	Academic stress	<ul style="list-style-type: none"> <li>Total score of stressed caused by scores, tests, studying</li> </ul>
<b>Cognitive Appraisal</b>	Positive Cognitive Appraisal	<ul style="list-style-type: none"> <li>Self-worth</li> <li>Korean version of Rosenberg Self-Esteem Scale (Rosenberg, 1965)</li> </ul>
	Negative Cognitive Appraisal	<ul style="list-style-type: none"> <li>Self-deprecation</li> </ul>
<b>Coping Style</b>	Problem focused coping	<ul style="list-style-type: none"> <li>Number of consultations about studying, participation in a career experience camp, and fitness activities, volunteer activities</li> </ul>
	Behavioral focused coping	
	Emotional focused coping	<ul style="list-style-type: none"> <li>Variables for behavioral and emotional expression</li> </ul>
<b>Adaptational Outcome</b>	Positive Mental Health	<ul style="list-style-type: none"> <li>Subjective well-being</li> <li>Korean Child Well-Being Index which was revised version of happiness indicators extracted from Health Behavior in School-aged Children Survey (WHO), Program for International Student Assessment (OECD) by Institute for Social Development Studies Yonsei University</li> </ul>
	Negative Mental Health	<ul style="list-style-type: none"> <li>Suicide ideation</li> <li>Reynolds (1988)' Suicidal Ideation Questionnaire (SIQ).</li> </ul>
<b>Control Variable</b>		Disposable income
		Gender (1=female)
		Grade (academic year)

### 3. Analysis Techniques

The aim of the present study is to revise a theoretically valid model for stress coping pathways which overcome the theoretical and empirical limitations of the Lazarus and Folkman (1984b)'s existing stress coping model, and to test its statistical validity. To be specific, this study seeks to examine (1) the effects of bonding social capital and academic stress on subjective well-being and suicide ideation, and (2) whether academic stress, two-dimensional self-esteem, problem, behavioral, and emotional focused coping mediates the relations between bonding social capital and two dimensions of mental health among Korean high school students. For this purpose, data taken from '2012 Children Supplementary Survey of Korean Welfare Panel Study' were analyzed according to the procedures presented below.

First, prior to analyzing the main analyses, a raw data screening and descriptive analyses were conducted using Statistical Package for Social Sciences (SPSS) 21.0. In order to confirm the accuracy of data, the data examined univariate normality, normal distribution of variables by skew and kurtosis. Also, the variance inflation factor (VIF) of all variables was less than 2.5, and the tolerance index (TI) was greater than 4.0. Descriptive analyses were conducted to identify the sample characteristics, and a t-test or one-way analysis of variance was done to examine subjective well-being and suicide ideation similarities or differences due to the socio-demographics level.

Second, identification of the missing value is critical. In order to address the possible biases from these missing values, the data was tested to see if they were missing completely at random (MCAR). Result of Little's MCAR test was significant ( $\chi^2=400.697$ ,  $df=432$ ,  $p=.857$ ), indicating that the variables were MCAR pattern. In order to

deal with missing values, following Hair et al. (2010) recommendation, the Expectation-Maximization approach, which is one of the Maximum Likelihood methods was applied to impute variables. This missing value replacing method can prevent overestimation of significant results and provide consistent results of the variables.

Third, in order to examine the validity of the conceptual model and research hypotheses, the current study employed Structural Equation Modeling (SEM) and using AMOS 21.0 program. SEM, which is a path analysis with latent variables, is a generally utilized method in the behavioral and social sciences that presents dependency (mostly “causal”) relations in multivariate data (McDonald & Ho, 2002, p.64). The merits of SEM<sup>17)</sup> is well suited to analyze the research problems that this study intends to address. That is, (1) simultaneously analyze multiple independent and dependent constructs including one exogenous variable, two independent variables, four mediators, and two dependent variables, (2) evaluate the measurement model, and consider possible errors such as Type I error (by testing complicated hypotheses testing into a single analysis), measurement error, and structural error.

The SEM analysis was conducted in a two-step approach by a test of measurement model first and a test a structural model next (Anderson & Gerbing, 1988). Related to the analysis of the

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17) As these verification methods provide researchers with extensive ways to evaluate and reform theoretical models, this could be one of the reasons (Anderson & Gerbing, 1988). SEM allows researchers to confirm interrelated research questions for single, systematic and comprehensive analysis through structuring the relationships in multiple independent and dependent constructs simultaneously; unlike Linear regression, LOGIT, ANOVA, and MANOVA which are first generation statistical tools that evaluates only one layer of linkages between independent and dependent variables each time (Gerbing & Anderson, 1988; Gefen, Straub, & Boudreau, 2000). Also, the combined analysis of the measurement and the structural model enables: measurement errors of the observed variables to be analyzed as an integral part of the model, and factor analysis to be combined in one operation with the hypotheses testing (Gefen, Straub, & Boudreau, 2000, p5).

measurement model, first, the overall measurement model fit was confirmed. After confirming the overall measurement model fit, the convergent validity and discriminant validity of the model construct was examined according to Hair et al (2010)'s suggestion.

To assess the measurement and structural model fit validity, chi-square value were used (Browne & Cudeck, 1993; Hair, Anderson, Tatham, & Black, 2009; Hu & Bentler, 1999; Kline, 2005). However, chi-square values are easily affected by the sample size, and significant chi-square values do not necessarily indicate poor fits of the models (Bollen & Curran, 2006). Therefore, the present study used indices such as root-mean-square error of approximation (RMSEA; Hu & Bentler, 1999), Tucker-Lewis index (TLI; Tucker & Lewis, 1973), comparative fit index (CFI; Bentler, 1990), and standardized root mean square residual (SRMR; Jöreskog & Sörbom, 1993) to compare model fitness. For the RMSEA, smaller than 0.06 are generally considered as a very good fit, 0.08 or better as a reasonable fit, and greater than 0.10 as indicative of a poor fit (Hu & Bentler, 1999). For the CFI and TLI, values of about 0.90 or higher, and SRMR values of about under 0.80 are generally considered as representative of an acceptable model (Browne & Cudeck, 1993; Hair et al., 2009; Kline, 2005).

To determine the significance of the indirect effect, a bootstrap was performed 1000 times and a 95% confidence interval (Bias-corrected confidence interval) was obtained. However, since there is a multi-level mediation path in this research model, it is difficult to verify the significance of indirect effects which are basically provided by AMOS. Therefore, the significance of the specific indirect effect was identified by using the phantom variables. Phantom variables are virtual latent variable that do not affect the estimation or testing of the latter (model fit and parameters), and help to identify the significance of the specific

path (Macho & Lederman, 2011). In order to use the phantom variables, creating new latent variables as many as the number of mediators and dependent variables, and connecting them in a direct effect is needed<sup>18)</sup>. After that, it is possible to examine the coefficients and the significance of the indirect effect through the analysis (Macho & Lederman, 2011).

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18) The method is as follows. “① Identify the variables and direct effects in the main model making up the specific effect to be tested. ② Add a new latent variable for each variable identified in the first step, and add direct effects between these new latent variables so that the structure of the resulting latent variable model is an exact replicate of that portion of the main model that makes up the specific effect of interest (no residual terms are required). ③ Specify equality constraints on path coefficients of the newly constructed latent variable model: Each path coefficient is restricted to the value of the respective coefficient in the main model. ④ Specify a restriction on the variance of the exogenous variable within the phantom model (e.g., set the variance parameter to 1). Instead of fixing the variance parameter, it is also possible to specify equality constraints between the variance of the exogenous phantom variable and its counterparts in the main model (Macho & Lederman, 2011, p36)”

## CHAPTER V - RESULTS

Chapter V reports the results of the statistical analysis. This chapter consists of three sections: (1) descriptive statistics, (2) analysis of measurement model, and (3) analysis of structural model. In the first section, descriptive statistics and statistical normality assumptions are reported. In the second section, results of the measurement model analysis are reported. In the third section, results of the structural model analysis are reported.

### 1. Descriptive Statistics

In this section, socio-demographic characteristics of participants, and descriptive statistics and statistical normality assumptions of ten major variables are presented.

#### 1.1. Socio-demographic characteristic

Table 3 shows the descriptive statistics of the high school students' socio-demographic characteristics.

<Table 3> The Socio-demographic characteristics

Variable (n=471)	Category	Frequency (%)	Mean (SD)
Gender	Male	237 (50.3)	
	Female	234 (49.7)	
Grade	tenth grade	162 (34.4)	
	eleventh grade	156 (33.1)	
	twelfth grade	153 (32.5)	
Disposable income (10,000 KRW)			2614 (2075.6)



As can be seen, gender is relatively balanced, with 50.3% (237) male students, and 49.7% (234) female students. As for grade, the students were almost equally distributed: 34.4% (162) were in 10<sup>th</sup> grade, 33.1% (156) were in 11<sup>th</sup> grade, and 32.5% (153) were in 12<sup>th</sup> grade.

## **1.2. Distributions of major variables**

Table 4 shows the mean scores, minimum, maximum, skewness, and kurtosis of 34 items measuring ten major variables. First, the mean scores of bonding social capital formed from peer items is 3.20 to 3.26 higher than median value (2.5). The mean scores of bonding social capital formed from parent items is similar to median (2.5) from 2.91 to 2.20. The mean scores of academic stress items is similar to median (2.5) from 2.40 to 2.57. The mean scores of self-worth items is 2.91 to 3.19 higher than median value (2.5). The mean scores of self-deprecation items is 1.79 to 2.68 lower than median value (2.5). The mean scores of problem focused coping items is 0.58 lower than median value (15). The mean scores of behavioral focused coping items is 1.13 to 1.24 lower than median value (1.5). The mean scores of emotional focused coping items is 1.19 to 1.42 lower than median value (1.5). The mean scores of subjective well-being items is 3.58 to 3.90 higher than median value (3). The mean scores of suicide ideation items is 1.25 to 1.34 lower than median value (4).

Next, the current study confirm the univariate normality assumption to confirm that the data is suitable for SEM analysis. If the skewness is less than 3 and kurtosis is less than 10, then the normality assumption is considered acceptable (Kline, 2005). All variables except suicide ideation's v\_2, v\_3, v\_4, v\_5, v\_6 items, problem focused coping item, and behavioral focused coping's v\_1 item had absolute

value of .06 to 2.92 for skewness and .05 to 9.79 for kurtosis, suggesting univariate normality. As the absolute value of skewness and kurtosis of suicide ideation's v\_2, v\_3, v\_4, v\_5, v\_6 items, problem focused coping item, and behavioral focused coping's v\_1 item were larger than the reference value, each items transformed by taking a natural logarithm. In this case, the original value without natural log conversion was used to represent the average score of the main variables, and when estimates are obtained, natural log conversion was taken and variables with guaranteed normality are inserted so as to avoid bias in estimation. Moreover, an assumption-free bootstrap method is employed as it is known to provide the best estimates and standard error (Hair et al., 2010) for path coefficients and testing indirect effects. When the SEM analysis was performed to determine the significance of the estimated path coefficients and indirect effect, a bootstrap was applied 1000 times and a 95% confidence interval (Bias-corrected Confidence Interval) was obtained.

<Table 4> Descriptive statistics of major variables

Variable	Min	Max	Mean	SD	Skewness	SE	Kurtosis	SE	
<b>Bonding social capital_peers</b>	v1_BSC_Pe	1	4	3.20	0.58	-0.45	0.11	1.59	0.22
	v2_BSC_Pe	1	4	3.26	0.57	-0.40	0.11	1.46	0.22
<b>Bonding social capital_parents</b>	v1_BSC_Pa	1	4	2.91	0.59	-0.37	0.11	0.68	0.22
	v2_BSC_Pa	1	4	2.20	0.63	0.22	0.11	-0.10	0.22
<b>Academic stress</b>	v1_AS	1	4	2.46	0.81	-0.24	0.11	-0.53	0.22
	v2_AS	1	4	2.52	0.82	-0.09	0.11	-0.50	0.22
	v3_AS	1	4	2.57	0.91	-0.09	0.11	-0.79	0.22
	v4_AS	1	4	2.40	0.82	0.06	0.11	-0.53	0.22
<b>Self-worth</b>	v1_SEW	1	4	3.19	0.63	-0.58	0.11	1.19	0.22
	v2_SEW	1	4	2.93	0.66	-0.24	0.11	0.15	0.22
	v3_SEW	1	4	2.98	0.61	-0.33	0.11	0.77	0.22
	v4_SEW	1	4	3.03	0.68	-0.37	0.11	0.25	0.22
	v5_SEW	1	4	2.91	0.72	0.41	0.11	0.17	0.22

<b>Self-deprecation</b>	v1_SED	1	4	1.92	0.76	0.38	0.11	- 0.50	0.22
	v2_SED	1	4	2.04	0.75	0.20	0.11	- 0.56	0.22
	v3_SED	1	4	1.79	0.75	0.65	0.11	- 0.13	0.22
	v4_SED	1	4	1.89	0.81	0.46	0.11	- 0.67	0.22
	v5_SED	1	4	2.68	0.81	- 0.47	0.11	- 0.18	0.22
<b>Problem focused coping</b>	v1_PCOP	0	480	28.0	68.0	3.81	0.11	15.58	0.23
<b>Behavioral focused coping</b>	v1_BCOP	1	2.83	1.13	0.23	2.92	0.11	11.76	0.22
	v2_BCOP	1	2.92	1.24	0.31	1.95	0.11	4.80	0.22
<b>Emotional focused coping</b>	v1_ECOP	1	3	1.42	0.42	1.09	0.11	0.87	0.22
	v2_ECOP	1	3	1.19	0.32	2.10	0.11	5.08	0.22
<b>Subjective well-being</b>	v1_SWB	1	5	3.82	0.99	- 0.59	0.11	- 0.13	0.22
	v2_SWB	1	5	3.60	1.01	- 0.42	0.11	- 0.13	0.22
	v3_SWB	1	5	3.58	1.02	- 0.33	0.11	- 0.41	0.22
	v4_SWB	1	5	3.60	1.03	- 0.51	0.11	- 0.05	0.22
	v5_SWB	1	5	3.90	0.91	- 0.41	0.11	- 0.46	0.22
<b>Suicide ideation</b>	v1_SI	1	7	1.44	0.86	2.77	0.11	9.79	0.22
	v2_SI	1	7	1.34	0.74	3.11	0.11	13.37	0.22
	v3_SI	1	7	1.25	0.68	4.27	0.11	23.39	0.22
	v4_SI	1	7	1.33	0.82	3.55	0.11	15.37	0.22
	v5_SI	1	7	1.34	0.80	3.37	0.11	14.24	0.22
	v6_SI	1	7	1.30	0.78	3.73	0.11	16.82	0.22

## 2. Measurement Model

In order to verify the structural model, the validity of the measurement model must be confirmed (Hair et al., 2010). The nine major latent variables in the conceptual model were measured by 33 items. In this section, measurement model fit and construct validity are addressed.

### 2.1. Overall measurement model fit

The measurement model for this study is assumed as shown in Figure 8. It consists of nine latent variables that appear as observed variables and measurement errors. Factor loadings of the first observed variable on each latent variables were fixed at 1 to set the scale of latent variable.

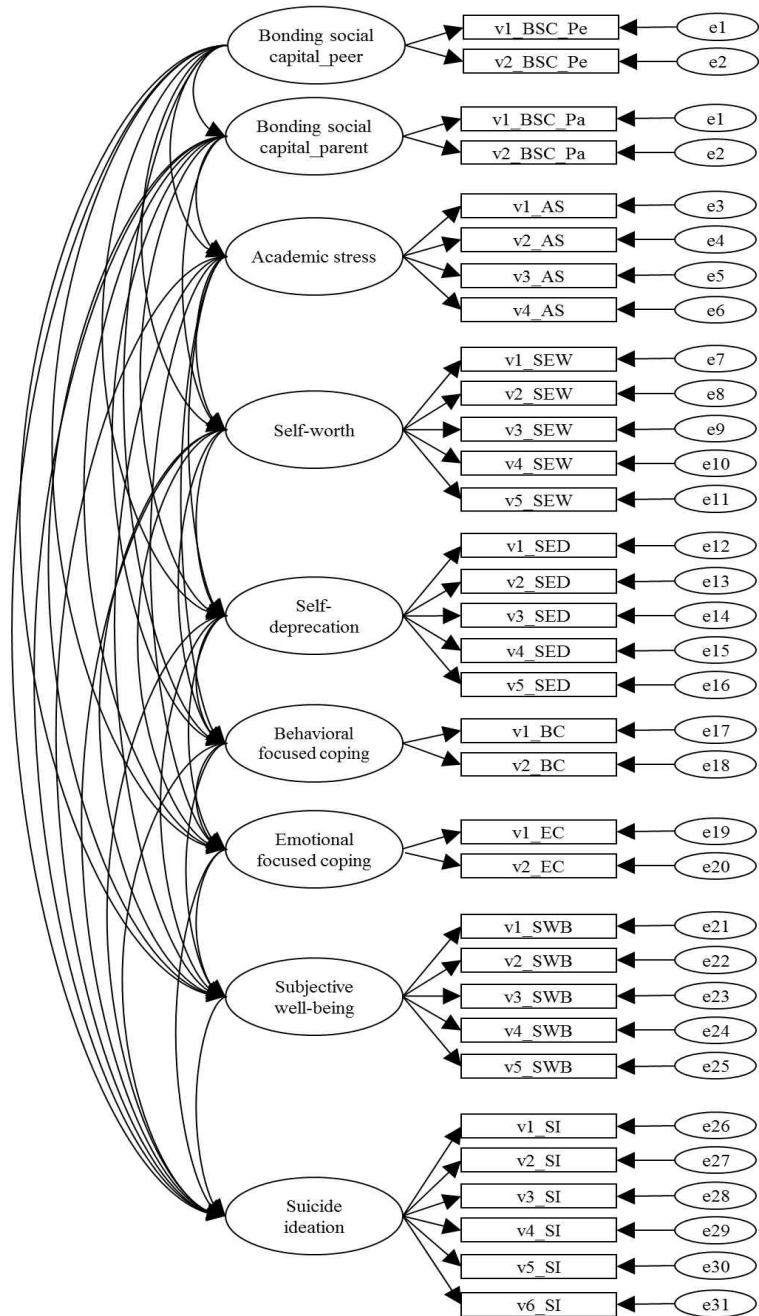


Fig 8. Measurement model

The  $\chi^2$  value of the measurement model was  $\chi^2(df)=915.494(459)$ , which was statistically significant at  $p<.001$ . However, as previously mentioned, using  $\chi^2$  was sensitive to sample size, the present study used indices RMSEA, CFI, and IFI to examine model fitness together. The incremental indices showed acceptable model fit as CFI=.942 and IFI=.942. The absolute index RMSEA was .046. These results indicate that the measurement model reflect the sample data well.

<Table 5> Measurement model fit

$\chi^2$ (DF, P)	CFI	TLI	IFI	RMSEA (90% CI)	SRMR
915.494 (df=459, P<.001)	.942	.933	.942	.046 (.042-.050)	.0433

## 2.2. Construct validity

### 2.2.1. Convergent validity test for each latent variable

After confirming the overall measurement model fit, the convergent validity of each latent variable were examined (Haire et al., 2010). Convergent validity is the degree of compatibility of the observed variables that measure latent variables. If the measurement items are consistently and well measured the concept, there will be a high correlation between the items. In this case, it can be said that there is convergent validity. Convergent validity can be verified by (1) measuring the factor loading between the latent variable and the observational variable, (2) obtaining the average variance extracted (AVE) value, and (3) confirmation of construct reliability (CR)<sup>19</sup>. In this case, convergent

$$19) AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}, \quad CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \epsilon_i)}$$

$\lambda$ =standardized estimate,  $i$ =number of items,  
 $n$ =number of observed variables,  $e$ =measurement error

validity is generally judged when the standardized estimate is 0.5 or more, AVE is 0.5 or more, and CR is 0.7 or more (Fornell & Larcker, 1981; Hair et al., 2010).

<Table 6> Estimate of convergent validity

Variable		Unstandardized Estimate	Standardized Estimate	Measurement Error	AVE	CR
<b>Bonding social capital peers</b>	v1_BSC_Pe	1.000	0.825	0.107	0.743	0.946
	v2_BSC_Pe	1.062	0.897	0.063		
<b>Bonding social capital parents</b>	v1_BSC_Pa	1.000	0.600	0.220	0.522	0.855
	v2_BSC_Pa	1.482	0.827	0.126		
<b>Academic stress</b>	v1_AS	1.000	0.760	0.276	0.520	0.857
	v2_AS	1.085	0.816	0.222		
	v3_AS	0.989	0.666	0.463		
	v4_AS	0.838	0.627	0.409		
<b>Self-worth</b>	v1_SEW	1.000	0.700	0.203	0.533	0.929
	v2_SEW	1.173	0.790	0.162		
	v3_SEW	0.989	0.717	0.180		
	v4_SEW	1.103	0.722	0.218		
	v5_SEW	1.171	0.717	0.253		
<b>Self-deprecation</b>	v1_SED	1.000	0.642	0.335	0.473	0.871
	v2_SED	1.097	0.707	0.282		
	v3_SED	1.293	0.832	0.175		
	v4_SED	1.376	0.821	0.215		
	v5_SED	0.486	0.291	0.599		
<b>Behavioral focused coping</b>	v1_BC	1.000	0.701	0.005	0.652	0.991
	v2_BC	4.116	0.901	0.018		
<b>Emotional focused coping</b>	v1_EC	1.000	0.624	0.106	0.557	0.942
	v2_EC	1.039	0.851	0.028		
<b>Subjective well-being</b>	v1_SWB	1.000	0.605	0.626	0.533	0.853
	v2_SWB	1.295	0.775	0.403		
	v3_SWB	1.441	0.850	0.287		
	v4_SWB	1.213	0.709	0.527		
	v5_SWB	1.042	0.689	0.434		
<b>Suicide ideation</b>	v1_SI	1.000	0.871	0.180	0.710	0.990
	v2_SI	0.294	0.918	0.009		
	v3_SI	0.255	0.893	0.009		
	v4_SI	0.249	0.748	0.027		
	v5_SI	0.259	0.775	0.025		
	v6_SI	0.266	0.835	0.017		

As shown in Table 6, the standardized factor loadings of most variables were over 0.5, AVE value of 0.5 or more, and CR value of 0.7 or more which proved to have convergent validity. However, the standardized factor loading of the v5\_SED variable was less than 0.5 and the AVE value was less than 0.5<sup>20</sup>). Therefore, it is considered appropriate to exclude v5\_SED observational variables, and this observational variable is excluded from the final model. As a result, the AVE and CR value of SED was changed to 0.570 and 0.900, indicating have convergent validity. Also, the overall measurement model fit was improved ( $\chi^2=863.873$  (df=428,  $p<.001$ ), RMSEA=.047, CFI=.944, TLI=.935, IFI=.945).

### ***2.2.2. Discriminant validity of each latent variable***

The discriminant validity is a measure of the difference between different latent variables. If there is a low correlation between latent variables, it is judged that there is discriminant validity. On the other hand, if there is a high correlation between latent variables, there is no discriminant validity between latent variables because there is no difference between the two concepts. The method of evaluating the discriminant validity is to judge whether or not to reject the hypothesis that the concepts are the same ( $\phi = 1.0$ ). In other words, if  $\phi \pm 2 \times \text{standard error}$  is not 1 in the 95% confidence interval, there is a discriminant validity (Anderson & Gerbing, 1988). In this study, behavioral focused coping and emotional focused coping, which showed the highest correlation, were checked for discriminant validity. As a result, it was confirmed that the value of  $\phi \pm 2 \times \text{standard error}$  was

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20) The specific content of the v5\_SED is "I wish I should respect myself more." The reason for the low factor loading and AVE value is that the v5\_SED item was translated incorrectly as 'meaning both positive and negative states' when translated into Korean.

0.660 ~ 0.740, which did not include 1, so that the discriminant validity was confirmed.

<Table 7> Estimates of correlation

	BSC_Pe	BSC_Pa	AS	SEW	SED	BCOP	ECOP	SWB	SI
BSC_Pe	1	.233***	-.023	.296***	-.231***	-.201***	-.251***	.378***	-.149**
BSC_Pa		1	-.098	.388***	-.318***	-.285***	-.321***	.469***	-.176**
AS			1	-.285***	.386***	.222***	.246***	-.312***	.198***
SEW				1	-.696***	-.192***	-.421***	.657***	-.297***
SED					1	.294***	.513***	-.569***	.311***
BCOP						1	.700***	-.282***	.403***
ECOP							1	-.515***	.537***
SWB								1	-.346***
SI									1

\*\*\*p<.001

Note1: BSC\_Pe=bonding social capital from peer; BSC\_Pa=bonding social capital from parent; AS=academic stress; SEW=self-worth; SED=self-deprecation; BCOP=behavioral focused coping; ECOP=emotional focused coping; SWB=subjective well-being; SI=suicide ideation.

Note2: Correlation involving PCOP can be found in appendix.

Considering the convergent validity and discriminant validity comprehensively, and the acceptable fit of the overall measurement model; the results indicate that the items that measure the major latent variables of the study adequately reflect the latent variables. This means that the measurement model is appropriate. Therefore, structural model analysis will be conducted based on the measurement model of this study.



### 3. Structural Model

According to the theoretical rationale and correlation estimates in Table 8, it can be seen that the major variables have a meaningful relationship. Therefore, in this section, to examine the structural relationship between the major variables, the structural model is analyzed and confirm the results of hypothesis testing.

#### 3.1. Overall structural model fit

The structural model for this study is assumed as shown in Figure 9. It consists of ten major variables that appear as observed variables.

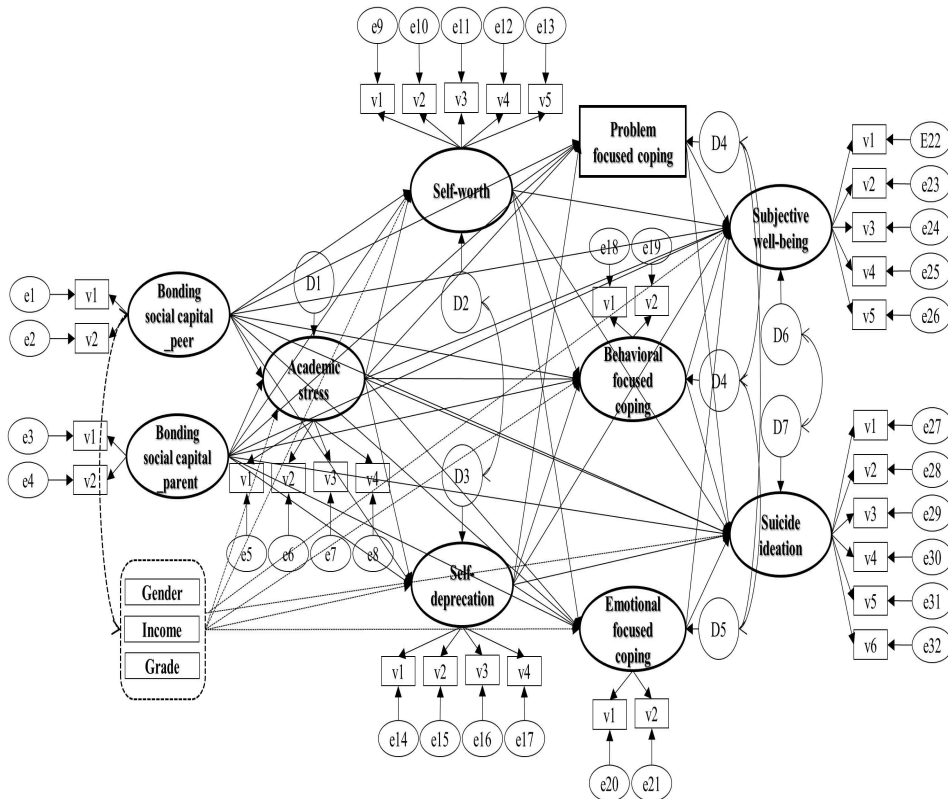


Fig 9. Structural model

In this structural model, the bonding social capital formed from peers and parents are hypothesized to directly influence academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, emotional focused coping, subjective well-being, and suicide ideation. Also, academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, and emotional focused coping are each hypothesized to directly influence subjective well-being, and suicide ideation.

The  $\chi^2$  value of the structural model was  $\chi^2(df)=1019.661(520)$ , which was statistically significant at  $p<.001$ . However, as previously mentioned, using  $\chi^2$  was sensitive to sample size, the present study used indices RMSEA, CFI, and IFI to examine model fitness together. The incremental indices showed acceptable model fit as CFI=.937 and IFI=.938. The absolute index RMSEA was .045. These results indicate that the structural model reflect the sample data well.

<Table 8> Structural model fit

$\chi^2$ (DF, P)	CFI	TLI	IFI	RMSEA (90% CI)	SRMR
1019.661 (df=520, P<.001)	.937	.923	.938	.045 (.041-.049)	.0416

Next, the squared multiple correlation (SMC) means the amount that the endogenous variable is explained by the variables directly affecting its endogenous variables. As a result of SMC, academic stress is explained by peer and parent bonding social capital by 7.8%; self-worth is explained by peer and parent bonding social capital and academic stress by 27.7%; self-deprecation is explained by peer and parent bonding social capital and academic stress by 27.2%; problem focused coping is explained by peer and parent bonding social capital

and academic stress, self-worth, and self-deprecation by 3.5%; behavioral focused coping is explained by peer and parent bonding social capital and academic stress, self-worth, and self-deprecation by 18.4%; emotional focused coping is explained by peer and parent bonding social capital and academic stress, self-worth, and self-deprecation by 33.4%; subjective well-being is explained by peer and parent bonding social capital and academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, and emotional focused coping by 60.3%; suicide ideation is explained by peer and parent bonding social capital and academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, and emotional focused coping by 30.3%.

<Table 9> Estimates of squared multiple correlation

Variable	Squared multiple correlation
Academic stress	.078
Self-worth	.277
Self-deprecation	.272
Problem focused coping	.035
Behavioral focused coping	.184
Emotional focused coping	.334
Subjective well-being	.603
Suicide ideation	.303

### 3.2. Parameter estimation

Given that the validity of the structural model was established, individual path coefficient and their statistical significance was examined. The results are presented in Table 10 and Figure 10. In this figure, significant coefficients are represented by a solid line, while insignificant coefficients are not represented.

The direct effects of peer bonding social capital on subjective

well-being is positively significant ( $\beta=.160$ ,  $p<.01$ ) and the direct effects of peer bonding social capital on suicide ideation is not significant ( $\beta=.001$ ,  $p=.986$ ), suggesting that high school students having better peer bonding social capital show higher subjective well-being. The direct effects of peer bonding social capital on problem focused coping ( $\beta=.030$ ,  $p=.612$ ), behavioral focused coping ( $\beta=-.131$ ,  $p=.056$ ), and emotional focused coping ( $\beta=-.117$ ,  $p=.101$ ) are not significant. The direct effects of peer bonding social capital on self-worth is positively significant ( $\beta=.209$ ,  $p<.01$ ) and the direct effects of peer bonding social capital on self-deprecation is negatively significant ( $\beta=-.158$ ,  $p<.01$ ), suggesting that high school students having better peer bonding social capital show higher self-worth and lower self-deprecation. The direct effects of peer bonding social capital on academic stress is not significant ( $\beta=.008$ ,  $p=.877$ ).

The direct effects of parent bonding social capital on subjective well-being is positively significant ( $\beta=.222$ ,  $p<.01$ ) and the direct effects of parent bonding social capital on suicide ideation is not significant ( $\beta=.002$ ,  $p=.982$ ), suggesting that high school students having better parent bonding social capital show higher subjective well-being. The direct effects of parent bonding social capital on problem focused coping ( $\beta=.106$ ,  $p<.10$ ), behavioral focused coping ( $\beta=-.257$ ,  $p<.01$ ), and emotional focused coping ( $\beta=-.179$ ,  $p<.05$ ) are significant, which signifies that high school students having better parent bonding social capital have more problem focused coping, and have less behavioral and emotional focused coping. The direct effects of parent bonding social capital on self-worth is positively significant ( $\beta=.337$ ,  $p<.01$ ) and the direct effects of parent bonding social capital on self-deprecation is negatively significant ( $\beta=-.260$ ,  $p<.01$ ), suggesting that high school students having better parent bonding social capital show higher self-worth and lower self-deprecation.

The direct effects of parent bonding social capital on academic stress is negatively significant ( $\beta=-.142$ ,  $p<.05$ ), which signifies that high school students having better parent bonding social capital have less academic stress.

The direct effects of academic stress on subjective well-being ( $\beta=-.092$ ,  $p=.118$ ) and suicide ideation ( $\beta=.040$ ,  $p=.532$ ) is not significant, suggesting that in the current model, there is no 'direct effect' of academic stress on subjective well-being and suicide ideation. The direct effects of academic stress on problem focused coping ( $\beta=.064$ ,  $p=.235$ ) and emotional focused coping ( $\beta=.042$ ,  $p=.600$ ) is not significant. On the other hand, the direct effects of academic stress on behavioral focused coping ( $\beta=.127$ ,  $p<.05$ ) is positively significant, which signifies that high school students having higher academic stress have more behavioral focused coping. The direct effects of academic stress on self-worth is negatively significant ( $\beta=-.229$ ,  $p<.01$ ) and the direct effects of academic stress on self-deprecation is positively significant ( $\beta=.350$ ,  $p<.01$ ), suggesting that high school students having higher academic stress show lower self-worth and higher self-deprecation.

The direct effects of self-worth on subjective well-being is positively significant ( $\beta=.353$ ,  $p<.01$ ) and the direct effects of self-worth on suicide ideation is not significant ( $\beta=-.097$ ,  $p=.243$ ), suggesting that high school students having higher self-worth show higher subjective well-being. On the other hand, the direct effects of self-deprecation on subjective well-being ( $\beta=-.073$ ,  $p=.354$ ) and suicide ideation ( $\beta=-.015$ ,  $p=.876$ ) are not significant. That is, among self-worth and self-deprecation, only self-worth had an effect on subjective well-being. The direct effects of self-worth on problem focused coping ( $\beta=-.112$ ,  $p=.200$ ), behavioral focused coping ( $\beta=.155$ ,  $p=.169$ ), and emotional focused coping ( $\beta=-.023$ ,  $p=.897$ ) are not significant. On the other hand,

the direct effects of self-deprecation on problem focused coping ( $\beta = -.126$ ,  $p = .184$ ) is not significant, but the direct effects of self-deprecation on behavioral focused coping ( $\beta = .222$ ,  $p < .01$ ) and emotional focused coping ( $\beta = .371$ ,  $p < .01$ ) are positively significant, suggesting that high school students having higher self-deprecation show higher behavioral and emotional focused coping. That is, among self-worth and self-deprecation, only self-deprecation had an effect on behavioral and emotional focused coping.

The direct effects of problem focused coping on subjective well-being ( $\beta = .083$ ,  $p < .05$ ) is positively significant, but the direct effects of problem focused coping on suicide ideation ( $\beta = .060$ ,  $p = .172$ ) is not significant, suggesting that high school students having higher problem focused coping show higher subjective well-being. On the other hand, the direct effects of behavioral focused coping on subjective well-being ( $\beta = .109$ ,  $p = .177$ ) and suicide ideation ( $\beta = .074$ ,  $p = .520$ ) is not significant. Finally, the direct effects of emotional focused coping on subjective well-being is negatively significant ( $\beta = -.239$ ,  $p < .01$ ) and the direct effects of emotional focused coping on suicide ideation is positively significant ( $\beta = .441$ ,  $p < .01$ ), suggesting that high school students having higher emotional focused coping show lower subjective well-being and higher suicide ideation.

<Table 10> Estimates of relations among major variables

		Unstandardized estimate	Standardized estimate	S.E.	P-value
AS	← BSC_Pe	0.010	0.008	0.078	0.877
	← BSC_Pa	-0.224	-0.142	0.114	0.035
SEW	← BSC_Pe	0.189	0.209	0.055	0.003
	← BSC_Pa	0.383	0.337	0.091	0.002
	← AS	-0.164	-0.229	0.042	0.002
SED	← BSC_Pe	-0.157	-0.158	0.056	0.006
	← BSC_Pa	-0.326	-0.260	0.095	0.002

		Unstandardized estimate	Standardized estimate	S.E.	P-value
PCOP	← AS	0.278	0.350	0.055	0.002
	← BSC_Pe	0.116	0.030	0.226	0.612
	← BSC_Pa	0.508	0.106	0.343	0.094
	← AS	0.196	0.064	0.179	0.235
	← SEW	-0.474	-0.112	0.370	0.200
	← SED	-0.484	-0.126	0.333	0.184
BCOP	← BSC_Pe	-0.018	-0.131	0.011	0.056
	← BSC_Pa	-0.044	-0.257	0.016	0.002
	← AS	0.014	0.127	0.007	0.036
	← SEW	0.024	0.155	0.017	0.169
ECOP	← SED	0.031	0.222	0.014	0.007
	← BSC_Pe	-0.062	-0.117	0.037	0.101
	← BSC_Pa	-0.119	-0.179	0.054	0.011
	← AS	0.018	0.042	0.028	0.600
	← SEW	-0.014	-0.023	0.064	0.897
	← SED	0.196	0.371	0.060	0.003
SWB	← BSC_Pe	0.197	0.160	0.071	0.002
	← BSC_Pa	0.345	0.222	0.115	0.003
	← AS	-0.090	-0.092	0.053	0.118
	← SEW	0.482	0.353	0.131	0.003
	← SED	-0.090	-0.073	0.106	0.354
	← PCOP	0.027	0.083	0.013	0.024
	← BCOP	0.977	0.109	0.816	0.177
	← ECOP	-0.557	-0.239	0.278	0.008
SI	← BSC_Pe	0.001	0.001	0.086	0.986
	← BSC_Pa	0.004	0.002	0.123	0.982
	← AS	0.049	0.040	0.079	0.532
	← SEW	-0.164	-0.097	0.146	0.243
	← SED	-0.024	-0.015	0.137	0.876
	← PCOP	0.024	0.060	0.018	0.172
	← BCOP	0.826	0.074	1.398	0.520
	← ECOP	1.282	0.441	0.487	0.001

Note: P-values are reported as bias-corrected two-tailed significance.

BSCpe=peer bonding social capital; BSCpa=parent bonding social capital; AS=academic stress; SEW=self-worth; SED=self-deprecation; PCOP=problem focused coping; BCOP=behavioral focused coping; ECOP=emotional focused coping; SWB=subjective well-being; SI=suicide ideation

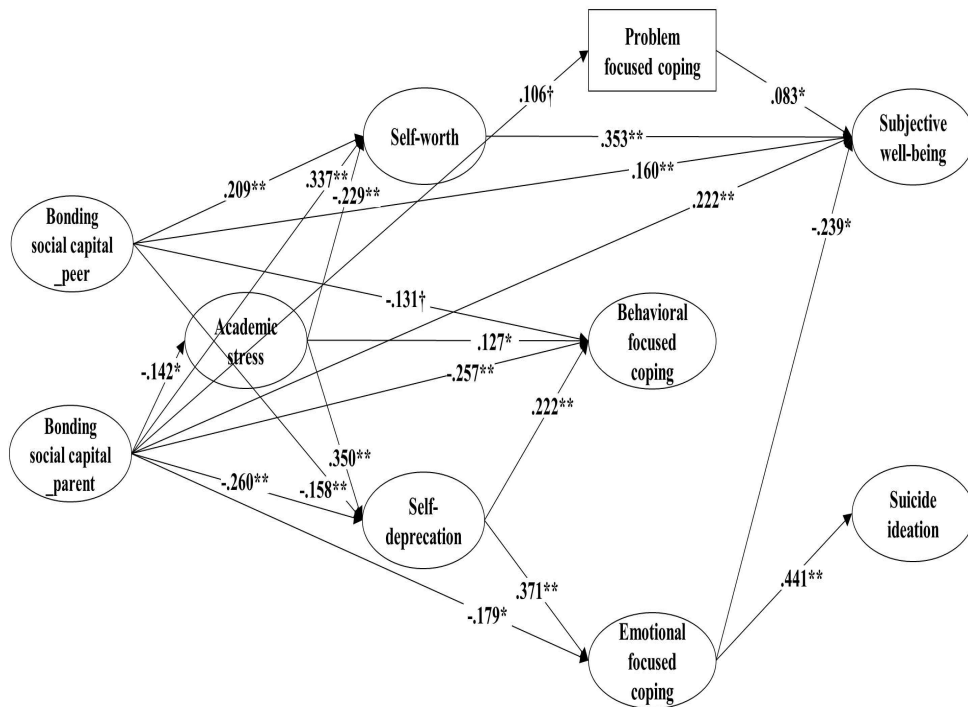


Fig 10. Standardized estimates  
 †p<.10, \*p<.05, \*\*p<.01, \*\*\*p<.001

On the other hand, the effects of gender, income, and grade which is control variables on endogenous variables are reported in Table 11. Major findings are as below. Girls have higher academic stress ( $\beta = .200$ ,  $p < .01$ ), self-deprecation ( $\beta = .088$ ,  $p < .10$ ), behavioral focused coping ( $\beta = .123$ ,  $p < .05$ ), emotional focused coping ( $\beta = .183$ ,  $p < .01$ ), and lower self-worth ( $\beta = -.117$ ,  $p < .05$ ), problem focused coping ( $\beta = -.086$ ,  $p < .10$ ), and subjective well-being ( $\beta = -.120$ ,  $p < .01$ ) than boys. Higher income families' students have higher academic stress ( $\beta = .172$ ,  $p < .01$ ) than lower income families' students. Higher grade (academic year) students have lower subjective well-being ( $\beta = -.094$ ,  $p < .05$ ) than lower grade (academic year) students.



<Table 11> Estimates of relations between major and control variables

		Unstandardized estimate	Standardized estimate	S.E.	P-value
AS	← Gender	0.246	0.200	0.064	0.002
SEW		-0.103	-0.117	0.044	0.013
SED		0.086	0.088	0.048	0.084
PCOP		-0.321	-0.086	0.176	0.052
BCOP		0.016	0.123	0.007	0.019
ECOP		0.094	0.183	0.027	0.001
SWB		-0.145	-0.120	0.051	0.002
SI		0.046	0.031	0.069	0.503
AS		← Income	0.142	0.172	0.043
SEW	-0.005		-0.009	0.029	0.861
SED	-0.019		-0.029	0.042	0.621
PCOP	0.163		0.065	0.107	0.109
BCOP	0.004		0.050	0.004	0.166
ECOP	0.003		0.008	0.015	0.844
SWB	-0.026		-0.032	0.035	0.496
SI	0.028		0.027	0.041	0.420
AS	← Grade		0.050	0.067	0.039
SEW		0.026	0.048	0.025	0.262
SED		-0.046	-0.078	0.028	0.110
PCOP		0.067	0.029	0.106	0.521
BCOP		-0.004	-0.050	0.004	0.259
ECOP		-0.004	-0.012	0.014	0.708
SWB		-0.069	-0.094	0.029	0.011
SI		0.018	0.019	0.035	0.560

Note: P-values are reported as bias-corrected two-tailed significance.

### 3.3. Decomposition of effects

#### 3.3.1. Decomposition of effects (total, direct, and indirect effect)

To test research hypotheses, the total effects of bonding social capital formed from peers and parents on subjective well-being and suicide ideation, and academic stress on subjective well-being and suicide ideation were decomposed into direct and indirect effects with bootstrap method. The results are presented in Table 12.

<Table 12> Estimates of total, direct, and indirect effects

		Total effect				Direct effect				Indirect effect			
		B	$\beta$	SE	p	B	$\beta$	SE	p	B	$\beta$	SE	p
SWB	←BSC_pe	.338	.275	.084	.002	.197	.160	.071	.002	.141	.114	.046	.002
SI	←BSC_pe	-.159	-.103	.098	.095	.001	.001	.086	.986	-.160	-.104	.061	.003
SWB	←BSC_pa	.680	.438	.140	.003	.345	.222	.115	.003	.335	.216	.077	.001
SI	←BSC_pa	-.359	-.186	.125	.001	.004	.002	.123	.982	-.363	-.188	.115	.001
SWB	←AS	-.214	-.219	.057	.002	-.090	-.092	.053	.118	-.124	-.126	.038	.002
SI	←AS	.183	.150	.085	.033	.049	.040	.079	.532	.134	.110	.052	.008

Note: P-values are reported as bias-corrected two-tailed significance.

B: unstandardized estimate;  $\beta$ : standardized estimate; SE: standard error; P: p-value; BSCpe=peer bonding social capital, BSCpa=parent bonding social capital; AS=academic stress SWB=subjective well-being; SI=suicide ideation

**① Research Question 1: Does bonding social capital have an effect on subjective well-being and suicide ideation, among Korean high school students?**

Related to bonding social capital formed from peers, the total effect of peer bonding social capital on subjective well-being was positively significant ( $\beta=.275$ ,  $p<.01$ ). This result support the **hypothesis 1-1: ‘bonding social capital formed from peer will influence subjective well-being.’** The total effect of peer bonding social capital on suicide ideation was not significant ( $\beta=-.103$ ,  $p=.095$ ). This result does not support the **hypothesis 1-2: ‘bonding social capital formed from peer will influence suicide ideation.’**

Related to bonding social capital formed from parent, the total effect of parent bonding social capital on subjective well-being was positively significant ( $\beta=.438$ ,  $p<.01$ ). Also, the total effect of parent bonding social capital on suicide ideation was negatively significant ( $\beta =-.186$ ,  $p<.01$ ). These results support the **hypothesis 1-3: ‘bonding social capital formed from parent will influence subjective well-being,’** and

**hypothesis 1-4: ‘bonding social capital formed from parent will influence suicide ideation.’**

**② *Research Question 2: Does academic stress have an effect on subjective well-being and suicide ideation, among Korean high school students?***

Related to academic stress, the total effect of academic stress on subjective well-being was negatively significant ( $\beta=-.129$ ,  $p<.01$ ). Also, the total effect of academic stress on suicide ideation was positively significant ( $\beta=.150$ ,  $p<.05$ ). These results support the **hypothesis 2-1: ‘academic stress will influence subjective well-being.’** and **hypothesis 2-2: ‘academic stress will influence suicide ideation.’**

**③ *Research Question 3: Do Korean high school students’ coping factors mediate the effect of bonding social capital and academic stress on subjective well-being and suicide ideation, among high school students?***

Related to bonding social capital formed from peer, the indirect effect of peer bonding social capital on subjective well-being was positively significant ( $\beta=.114$ ,  $p<.01$ ). Also, the indirect effect of peer bonding social capital on suicide ideation was negatively significant ( $\beta=-.104$ ,  $p<.01$ ). These results support the **hypothesis 3-1: ‘academic stress, self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of peer bonding social capital on subjective well-being,’** and the **hypothesis 3-2: ‘academic stress, self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of peer bonding social capital on suicide ideation.’** At this time, the indirect effects of peer bonding social capital on subjective well-being, mediating effects are a

‘partial mediation;’ and the indirect effects of peer bonding social capital on suicide ideation, mediating effects are a ‘full mediation.’

Related to bonding social capital formed from parent, the indirect effect of parent bonding social capital on subjective well-being was positively significant ( $\beta=.216$ ,  $p<.01$ ). Also, the indirect effect of parent bonding social capital on suicide ideation was negatively significant ( $\beta =-.188$ ,  $p<.01$ ). These results support the **hypothesis 3-3: ‘academic stress, self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of parent bonding social capital on subjective well-being,’** and the **hypothesis 3-4: ‘academic stress, self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of parent bonding social capital on suicide ideation.’** At this time, the indirect effects of parent bonding social capital on subjective well-being, mediating effects are a ‘partial mediation;’ and the indirect effects of parent bonding social capital on suicide ideation, mediating effects are a ‘full mediation.’

Related to academic stress, the indirect effect of academic stress on subjective well-being was negatively significant ( $\beta=-.126$ ,  $p<.01$ ). Also, the indirect effect of academic stress on suicide ideation was positively significant ( $\beta=.110$ ,  $p<.01$ ). These results support the **hypothesis 3-5: ‘self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of academic stress on subjective well-being,’** and the **hypothesis 3-6: ‘self-worth, self-deprecation, and problem, behavioral, and emotional focused coping will mediate the effect of academic stress on suicide ideation.’** At this time, the indirect effects of academic stress on subjective well-being and suicide ideation, mediating effects are a ‘full mediation.’

### 3.3.2. *Specific indirect paths and their significance*

In this study, it was confirmed that the indirect effects of bonding social capital (peer and parent) on subjective well-being and suicide ideation are significant. In this case, indirect effects of bonding social capital (peer and parent) on subjective well-being and suicide ideation are various. Among these, we used phantom variables to determine which indirect pathways are significant. The results are presented in Table 13 and Table 14.

First, related peer bonding social capital, among the indirect paths of peer bonding social capital to subjective well-being and suicide ideation, ‘BSC\_Pe→SEW→SWB (B=.091, p=.002, 95% CI=.035~.174),’ ‘BSC\_Pe→SED→ECOP→SWB (B=.017, p=.011, 95% CI=.002~.060),’ and ‘BSC\_Pe→SED→ECOP→SI (B=-.040, p=.004, 95% CI=-.122~-0.09)’ were significant.

Next, related parent bonding social capital, among the indirect paths of parent bonding social capital to subjective well-being and suicide ideation, ‘BSC\_Pa→ECOP→SWB (B=.066, p=.010, 95% CI=.012~.236),’ ‘BSC\_Pa→SEW→SWB (B=.184, p=.001, 95% CI=.091~.322),’ ‘BSC\_Pa→SED→ECOP→SWB (B=.036, p=.005, 95% CI=.006~.116),’ ‘BSC\_Pa→AS→SEW→SWB (B=.018, p=.019, 95% CI=.002~.047),’ ‘BSC\_Pa→AS→SED→ECOP→SWB (B=.007, p=.017, 95% CI=.001~.027),’ ‘BSC\_Pa→ECOP→SI (B=-.152, p=.009, 95% CI=-.416~-0.029),’ ‘BSC\_Pa→SED→ECOP→SI (B=-.082, p=.001, 95% CI=-.242~-0.021),’ and ‘BSC\_Pa→AS→SED→ECOP→SI (B=-.016, p=.015, 95% CI=-.060~-0.003)’ were significant.

<Table 13> Specific indirect paths and their significance of peer bonding social capital

Subjective well-being		B	SE	P	95% CI		Suicide ideation		B	SE	P	95% CI	
					L	U						L	U
BSC Pe→	PCOP→SWB	.003	.007	.425	-.007	.026	BSC Pe→	PCOP→ SI	.003	.007	.444	-.007	.025
BSC Pe→	BCOP→SWB	-.018	.020	.105	-.086	.003	BSC Pe→	BCOP→ SI	-.015	.029	.351	-.105	.023
BSC Pe→	ECOP→SWB	.034	.029	.051	.000	.124	BSC Pe→	ECOP→ SI	-.079	.059	.054	-.261	.001
BSC Pe→	SEW→ SWB	.091	.037	.002	.035	.174	BSC Pe→	SEW→ SI	-.031	.031	.235	-.100	.020
BSC Pe→	SEW→PCOP→SWB	-.002	.003	.094	-.012	.000	BSC Pe→	SEW→PCOP→ SI	-.002	.003	.120	-.015	.000
BSC Pe→	SEW→BCOP→SWB	.004	.006	.134	-.001	.026	BSC Pe→	SEW→BCOP→ SI	.004	.008	.309	-.005	.031
BSC Pe→	SEW→ECOP→SWB	.001	.009	.715	-.014	.023	BSC Pe→	SEW→ECOP→ SI	-.003	.018	.799	-.040	.031
BSC Pe→	SED→ SWB	.014	.018	.271	-.019	.055	BSC Pe→	SED→ SI	.004	.024	.831	-.039	.058
BSC Pe→	SED→PCOP→SWB	.002	.002	.068	.000	.009	BSC Pe→	SED→PCOP→ SI	.002	.002	.132	.000	.011
BSC Pe→	SED→BCOP→SWB	-.005	.006	.081	-.025	.001	BSC Pe→	SED→BCOP→ SI	-.004	.008	.316	-.028	.007
BSC Pe→	SED→ECOP→SWB	.017	.015	.011	.002	.060	BSC Pe→	SED→ECOP→ SI	-.040	.028	.004	-.122	-.009
BSC Pe→ AS→	SWB	-.001	.009	.743	-.026	.014	BSC Pe→ AS→	SI	.000	.008	.750	-.010	.024
BSC Pe→ AS→	PCOP→SWB	.000	.001	.554	-.001	.002	BSC Pe→ AS→	PCOP→ SI	.000	.001	.553	-.001	.003
BSC Pe→ AS→	BCOP→SWB	.000	.001	.614	-.002	.005	BSC Pe→ AS→	BCOP→ SI	.000	.002	.557	-.002	.007
BSC Pe→ AS→	ECOP→SWB	.000	.002	.797	-.004	.002	BSC Pe→ AS→	ECOP→ SI	.000	.004	.812	-.005	.010
BSC Pe→ AS→ SEW→	SWB	-.001	.007	.826	-.019	.011	BSC Pe→ AS→ SEW→	SI	.000	.003	.627	-.004	.012
BSC Pe→ AS→ SEW→PCOP→	SWB	.000	.000	.533	.000	.001	BSC Pe→ AS→ SEW→PCOP→	SI	.000	.000	.505	.000	.001
BSC Pe→ AS→ SEW→BCOP→	SWB	.000	.000	.506	-.002	.000	BSC Pe→ AS→ SEW→BCOP→	SI	.000	.001	.487	-.003	.000
BSC Pe→ AS→ SEW→ECOP→	SWB	.000	.001	.785	-.002	.001	BSC Pe→ AS→ SEW→ECOP→	SI	.000	.001	.809	-.002	.004
BSC Pe→ AS→ SED→	SWB	.000	.003	.675	-.009	.004	BSC Pe→ AS→ SED→	SI	.000	.003	.740	-.012	.005
BSC Pe→ AS→ SED→PCOP→	SWB	.000	.000	.574	-.001	.000	BSC Pe→ AS→ SED→PCOP→	SI	.000	.000	.541	-.002	.000
BSC Pe→ AS→ SED→BCOP→	SWB	.000	.001	.573	-.001	.003	BSC Pe→ AS→ SED→BCOP→	SI	.000	.001	.568	-.001	.005
BSC Pe→ AS→ SED→ECOP→	SWB	.000	.003	.741	-.009	.004	BSC Pe→ AS→ SED→ECOP→	SI	.001	.007	.776	-.011	.018

Note: P-values are reported as bias-corrected two-tailed significance.

B: unstandardized estimate; SE: standard error; L: lower bounds; U: upper bounds;

BSC\_Pe=peer bonding social capital; AS=academic stress; SEW=self-worth; SED=self-deprecation; PCOP=problem focused coping;

BCOP=behavioral focused coping; ECOP=emotional focused coping; SWB=subjective well-being; SI=suicide ideation

<Table 14> Specific indirect paths and their significance of parent bonding social capital

Subjective well-being		B	SE	P	95% CI		Suicide ideation		B	SE	P	95% CI	
					L	U						L	U
BSC Pa→	PCOP→SWB	.014	.012	.050	.000	.057	BSC Pa→	PCOP→SI	.012	.015	.147	-.003	.061
BSC Pa→	BCOP→SWB	-.043	.044	.119	-.172	.013	BSC Pa→	BCOP→SI	-.037	.073	.469	-.239	.070
BSC Pa→	ECOP→SWB	.066	.046	.010	.012	.236	BSC Pa→	ECOP→SI	-.152	.095	.009	-.416	-.029
BSC Pa→	SEW→SWB	.184	.060	.001	.091	.322	BSC Pa→	SEW→SI	-.063	.060	.222	-.197	.045
BSC Pa→	SEW→PCOP→SWB	-.005	.005	.096	-.027	.001	BSC Pa→	SEW→PCOP→SI	-.004	.006	.156	-.029	.001
BSC Pa→	SEW→BCOP→SWB	.009	.012	.121	-.002	.064	BSC Pa→	SEW→BCOP→SI	.007	.016	.308	-.010	.054
BSC Pa→	SEW→ECOP→SWB	.003	.018	.745	-.030	.042	BSC Pa→	SEW→ECOP→SI	-.007	.039	.810	-.084	.074
BSC Pa→	SED→SWB	.029	.036	.280	-.037	.107	BSC Pa→	SED→SI	.008	.047	.886	-.079	.110
BSC Pa→	SED→PCOP→SWB	.004	.004	.088	-.001	.018	BSC Pa→	SED→PCOP→SI	.004	.005	.139	-.001	.021
BSC Pa→	SED→BCOP→SWB	-.010	.011	.088	-.052	.002	BSC Pa→	SED→BCOP→SI	-.008	.015	.350	-.052	.015
BSC Pa→	SED→ECOP→SWB	.036	.026	.005	.006	.116	BSC Pa→	SED→ECOP→SI	-.082	.053	.001	-.242	-.021
BSC Pa→ AS→	SWB	.020	.016	.061	-.001	.061	BSC Pa→ AS→	SI	-.011	.020	.412	-.065	.021
BSC Pa→ AS→	PCOP→SWB	-.001	.002	.119	-.008	.000	BSC Pa→ AS→	PCOP→SI	-.001	.002	.142	-.009	.000
BSC Pa→ AS→	BCOP→SWB	-.003	.003	.062	-.018	.000	BSC Pa→ AS→	BCOP→SI	-.003	.005	.238	-.024	.002
BSC Pa→ AS→	ECOP→SWB	.002	.004	.297	-.003	.018	BSC Pa→ AS→	ECOP→SI	-.005	.010	.327	-.036	.009
BSC Pa→ AS→	SEW→SWB	.018	.011	.019	.002	.047	BSC Pa→ AS→	SEW→SI	-.006	.007	.134	-.027	.002
BSC Pa→ AS→	SEW→PCOP→SWB	.000	.001	.066	-.003	.000	BSC Pa→ AS→	SEW→PCOP→SI	.000	.001	.096	-.004	.000
BSC Pa→ AS→	SEW→BCOP→SWB	.001	.001	.093	.000	.007	BSC Pa→ AS→	SEW→BCOP→SI	.001	.002	.234	-.001	.008
BSC Pa→ AS→	SEW→ECOP→SWB	.000	.002	.642	-.002	.005	BSC Pa→ AS→	SEW→ECOP→SI	-.001	.004	.674	-.011	.006
BSC Pa→ AS→	SED→SWB	.006	.007	.198	-.005	.028	BSC Pa→ AS→	SED→SI	.001	.009	.777	-.015	.024
BSC Pa→ AS→	SED→PCOP→SWB	.001	.001	.087	.000	.004	BSC Pa→ AS→	SED→PCOP→SI	.001	.001	.100	.000	.006
BSC Pa→ AS→	SED→BCOP→SWB	-.002	.002	.076	-.013	.000	BSC Pa→ AS→	SED→BCOP→SI	-.002	.003	.273	-.014	.002
BSC Pa→ AS→	SED→ECOP→SWB	.007	.006	.017	.001	.027	BSC Pa→ AS→	SED→ECOP→SI	-.016	.013	.015	-.060	-.003

Note: P-values are reported as bias-corrected two-tailed significance.

B: unstandardized estimate; SE: standard error; L: lower bounds; U: upper bounds;

BSC\_Pa=parent bonding social capital; AS=academic stress; SEW=self-worth; SED=self-deprecation; PCOP=problem focused coping;

BCOP=behavioral focused coping; ECOP=emotional focused coping; SWB=subjective well-being; SI=suicide ideation

#### **4. Summary**

In this chapter, the results of the statistical analysis to address the research questions of this study have been reported. The results support the research questions on (1) the effects of bonding social capital on subjective well-being and suicide ideation, (2) the effects of academic stress on subjective well-being and suicide ideation, (3) the mediating effects of academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, and emotional focused coping. In conclusion, major results are as follows:

(1) Peer and parent bonding social capital have significantly positive relation with subjective well-being which is positive mental health. Also, Parent bonding social capital have significantly negative relation with suicide ideation which is negative mental health. On the other hand, peer bonding social capital did not have a significantly direct effect on suicide ideation. However, the indirect effect of peer bonding social capital on subjective well-being and suicide ideation was significant. This means that peer bonding social capital had an effect on subjective well-being and suicide ideation through indirect paths.

(2) Academic stress did not have a direct relation with both subject well-being as well as suicide ideation. However, the total effect and indirect effect of academic stress on subjective well-being and suicide ideation was significant.

(3) Adolescent's academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, and emotional focused coping were found to partially mediate the effects of peer and parent bonding



social capital on subjective well-being. Also, adolescent's academic stress, self-worth, self deprecation, problem focused coping, behavioral focused coping, and emotional focused coping were found to fully mediate the effects of peer and parent bonding social capital on suicide ideation.

## CHAPTER VI - DISCUSSION

In Chapter VI, discussions based on research questions and analysis results are conducted. This chapter is composed of six sections: In the first section, major findings from the multi-dimensional stress coping model testing are summarized, and discussions are addressed. In the second, third, and fourth section, theoretical, practical, and political implications for the Korean adolescents are stated. In the fifth section, limitations and directions for future research are suggested. In the sixth section, conclusion of this study are suggested.

### 1. Findings

The purpose of this study was to examine (1) the effects of bonding social capital on subjective well-being and suicide ideation, (2) the effects of academic stress on subjective well-being and suicide ideation, and (3) whether the coping factors mediate the relations between 'bonding social capital and academic stress' and 'subjective well-being and suicide ideation' among Korean high school students. For this purpose, based on the stress coping theory and empirical evidence, the research model for multi-dimensional stress coping model was developed. This research model was tested by analyzing the Children Supplementary Survey of Korean Welfare Panel Study which is a nationally representative data of high school students in 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> grade. In this section, three major findings from the multi-dimensional stress coping model testing are summarized. Based on the previous research and the current studies' results, discussions are addressed.

### **1.1. Validity of multi-dimensional stress coping model**

This study asserts the necessity of extension for the existing stress coping model in three domains. First, the importance of two dimensionality of mental health, rather than the uni-dimensionality; second, the necessity of additional setting for coping resource; third, the importance of cognitive appraisals' two dimensionality, rather than the uni-dimensionality. As a result of analyzing the model of this study, it was found that all the model fit was acceptable for CFI, IFI, RMSEA, and SMC. This verifies that the multi-dimensional stress coping model of this study is valid.

As mentioned earlier, 'positive mental health' and 'negative mental health' exists independently from each other (Veit & Ware, 1983; Seligman & Csikszentmihalyi, 2000; Keyes, 2002; Huppert & Whittington, 2003; Seligman, 2004). However, without considering this, many previous studies have limited the possibility of distorting the actual adaptation state by setting only one of the subjective well-being or suicide ideation as the adaptational outcome (Wilson et al., 1995; Fabricatore et al., 2000; Shin & Khu, 2001; Moon & Jwa, 2008; Uğurlu, & Ona, 2009; Kim & Cho, 2011; Suh, 2011; Zhanga et al., 2012; Ko, 2014; Lee, 2013b; Kim, & Suh, 2014; Park, 2015). Also, previous studies used 'coping resource' and 'coping style' as one abstract 'coping' concept, and set them as 'mediators or moderators' in the coping process without distinguishing between the two concepts. In order to clearly identify the stress coping processes, it is necessary to distinguish between 'coping resource' and 'coping style.' Lastly, the 'positive cognitive appraisal' and the 'negative cognitive appraisal' exists independently from each other (Owens, 1993, 1994; Sheasby et al., 2000; Wright et al., 2000; Kahng and Mowbray, 2004; Kahng and Mowbray, 2005a; Kahng, 2006). However, without considering this,

many previous studies have limited the possibility of distorting the cognitive appraisal by setting up the model uni-dimensionally.

Considering these limitations, this study is based on the multi-dimensional stress coping model that extended the existing stress coping model in areas such as the ‘two-dimensionality of mental health, additional setting of coping resource, and two-dimensionality cognitive appraisal’ to set up the research model. The analysis showed that the fit of the current research model based on the multi-dimensional stress coping model was acceptable. This result implies that a more multi-dimensional approach is needed to examine the stress coping process, and this consideration contributes to a multi-dimensional stress coping model that could develop a deeper understanding of the stress coping process of adolescents.

## **1.2. Effect of multi-dimensional stress coping variables**

### ***1.2.1. Bonding social capital as coping resource***

Bonding social capital was found to have direct effects on academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, emotional focused coping, and subjective well-being among Korean high school students. These results are consistent with the previous studies that a better bonding social capital formed from peer and parent predict higher subjective well-being, self-esteem, problem focused coping, lower behavioral focused coping, emotional focused coping, and academic stress (Buist et al., 2004; Crosnoe, 2004; Lee & Kim, 2007; Bosacki et al., 2007; Yoo, 2015; Yoo, Kang, & Kim, 2017, Yoo, in press). These results suggest that bonding social capital, which is a concept of ‘coping resource’ not considered in the existing stress coping model, should be considered

precedently in the stress coping process (Lazarus & Folkman, 1984b, p158; Berkman, Kawachi, & Glymour, 2014; Yoo, in press).

Specifically, (1) Bonding social capital, especially formed from parent, had a negative relation with academic stress. This is consistent with the finding that bonding social capital reduces stress through emotional support (Berkman & Syme, 1979; Veenstra, 2001) and that bonding social capital had a positive role in reducing academic stress (Yoo, in press). On the other hand, the direct effect of peer bonding social capital on academic stress was not significant. This is because peer bonding social capital and academic stress can have opposite effects depending on the grade (Yoo, in press). Therefore, when the whole grade is targeted, the significant influence can disappear because the opposite effects that may occur depending on the grade are canceled out. Accordingly, additional validation of the interaction effects by grade is needed.

(2) Bonding social capital formed from peer and parent had a significantly positive relation with self-worth, and significantly negative relation with self-deprecation. This is consistent with the Sociometer Theory, which argues that self-esteem is an indicator to monitor the quality of interpersonal relationships. According to the Sociometer Theory, the evaluation of how integrated or alienated from other people makes a positive evaluation or negative evaluation of oneself, and this evaluation has an important influence on the formation and maintenance of self-esteem (Leary et al., 2001). In fact, adolescents with positive peer relationships have higher self-esteem (Crosnoe 2004; Lee & Kim 2007). Also, according to Coopersmith (1981), adolescents with a high level of interest from their parent and good parent-child relationship, have a high level of self-esteem. In the study of Chung (2007) and Yoo (2017b), self-esteem of children was higher when parent-child relationship and parent supervision were high. These studies confirm that

peer and parent bonding social capital are an important protective factor for adolescents' positive and negative self-esteem.

(3) Bonding social capital formed from peer had negative effect on behavior focused coping. This is consistent with the previous results that positive peer relationships were significantly related to behavioral expressions. According to Catalano et al (2004), majority of programs in the United States which centered on adolescent's development achieved a successful result when concentrated on developing social capital of adolescents. Furthermore, these programs prevent problem behaviors and improve positive actions of adolescents. Several studies confirm the positive effect of social capital on problem behaviors and psychological adaptation of adolescents (Curran, 2007; Lim, 2013; Seo, 2013). Related to the emotional focused coping, direct effect of bonding social capital on emotional focused coping was not significant, but total effect and indirect effect were significant<sup>21</sup>). This result indicate that the higher the peer bonding social capital, the less the use of emotional focused coping through the indirect path. This result is consistent with the findings that the experiences of peer alienation cause sadness, loneliness, depression and anxiety of adolescents (Leary, Koch & Hechenbleikner, 2001; Bosacki, Dane, Marini & Ylc-Cura, 2007). On the other hand, in this study, bonding social capital formed from peer did not affect problem focused coping. This result is similar to those of the previous study, in which the degree of peer relationship had no effect on problem focused coping (Kim et al., 2002). This could mean that peer relationships in Korean adolescents do not help to use problem focused coping. This can be related to the features of problem focused coping. In order to use problem focused coping, adolescents have to pay for it, and there

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21) Total effect: BSC→ECOP( $\beta=-.179$ ,  $p<.01$ ); Indirect effect: BSC→ECOP( $\beta=-.062$ ,  $p<.05$ )

should be an institution that can be easily accessed by adolescents. This is not something that can be solved by having a good peer relationship. These results are consistent with the conclusion that self-esteem is not related to problem focused coping use. It is also consistent with the result that parent bonding social capital had a positive effect on problem focused coping although it is a weak relation. Therefore, additional research is needed on the relationship between peer bonding social capital and problem focused coping.

Next, bonding social capital formed from parent, had positive effect on problem focused coping, and had negative effect on behavioral focused coping and emotional focused coping. This is consistent with the previous results that positive parent relationships are significantly related to problem, behavioral, and emotional focused coping (Buist et al., 2004; Kim et al., 2008; Choi & Lee, 2011; Kim & Kim, 2014; Park et al, 2016). According to previous studies (Kim et al., 2008; Choi & Lee, 2011; Kim & Kim, 2014; Park et al, 2016), positive parent-child relationships increase the use of problem focused coping. Also, according to Buist et al (2004), good parental attachment reduce adolescent's emotional and behavioral expressions.

(4) Peer and parent bonding social capital have significantly positive relation with subjective well-being which is positive mental health. These results support the finding that bonding social capital formed from peer and parent relationship are important protective factors that continuously affect the happiness of adolescents over time (Yoo, Kahng, & Kim, 2017). On the other hand, peer and parent bonding social capital did not have a significantly direct effect on suicide ideation. These results are not consistent with the previous studies that the suicidal ideation of adolescents decreases as the peer and parent bonding social capital increases (Bostik & Everall, 2007; Lee & Jang,

2011). However, to look at the more explicit relations between ‘bonding social capital’ and ‘subjective well-being and suicide ideation,’ we should look at both the total effect and the indirect effect together. These relations will be observed in the discussions on indirect effects.

The result can be summarized as follows. These results show the importance of bonding social capital which means inward-looking bonds, relationships, networks centered on trust and interrelations that link within groups, can be found in emotionally close, tightly-knit relationships like family and close friends (Holland et al., 2007). Experiences with peers during adolescence affects identity formation (Erikson, 1980), social adjustment, social skills (Ishiyama, 1984; Dusek, 1991), and plays an important role in increasing psychological adaptation. Lee et al (1993) noted that compared to the shallow and general relationships with peer groups, relationships with intimate friends can determine not only the emotional and social development but the future of adolescents. In addition, ties with parents are a fundamental resource for emotional support, financial support, and life guidance for children (Kim, 2008). Above all, these results are in line with recent trends that focus on positive assets. Recently, research has begun to search for ‘protective or positive factors’ that have a positive effect on adolescent adaptational outcomes (Lee & Kim, 2007). In previous studies, the focus was set on negative phenomenon or pathology, however, recently more focus is set on identifying and developing positive factors. Silbereisen and Lerner (2007) introduces the concept of adolescents’ developmental asset, and argues for the importance of developmental resources necessary for healthy growth of adolescents.

In sum, good bonding social capital formed from peer and parent relationship can be considered as one of the essential coping resources for developing positive stress coping abilities of Korean adolescents.



### ***1.2.2. Academic stress as stressor***

Academic stress was found to have direct effect on self-worth, self-deprecation, and behavioral focused coping among Korean high school students. These results are consistent with the previous studies that higher academic stress predicts lower self-esteem and higher behavioral expressions (Burt et al., 1988; Mo & Kim, 2009; Conley & Lehman, 2012; Kim, Lee, & Jang, 2013; Yang, Won, & Kim, 2013; Statistics Korea, 2014; Yoo & Kahng, 2015). These results support the argument of previous studies (Hong et al., 1994; Choi, Lee, & Lee, 2010) that academic stress is a very dangerous factor for Korean adolescents.

Specifically, (1) academic stress had a negatively significant relation with self-worth, and a positively significant relation with self-deprecation. This is consistent with the previous study that experience with success and failure in academic problems may have a significant impact on self-esteem, which assesses their abilities positively or negatively (Burt et al., 1988).

(2) The direct effect of academic stress on problem focused coping was not significant. These results are consistent with the findings that academic stress and problem focused coping were not significantly associated (Lee, 2013b; Ahn, 2014; Park, 2017). Furthermore, these results may be related to different ways of coping depending on the type of stress experienced by adolescents. Park (2017) analyzed the effects of stress on coping strategies of adolescents. As a result, the higher the academic stress, the more emotional focused coping was used. On the other hand, the higher the stress related to appearance, the more problem focused coping was used. Related to the relation between academic stress and behavioral focused coping, academic stress had a significantly positive relation with the behavioral focused coping. These

results are consistent with the study that the higher the academic stress, the higher the use of aggressive coping (Ahn, 2014), and the study that showed the group with high academic stress had an increase in aggressiveness (Jang, 2011). Related to the emotional focused coping, academic stress did not have a direct effect on the emotional focused coping, but academic stress was found to have total and indirect effect on emotional focused coping.<sup>22)</sup> This result means that the higher the academic stress, there is an increase in the usage of emotional focused coping through indirect paths. This result is consistent with the previous studies that academic stress increased emotional responses such as internalization (Yoo et al., 2014).

To summarize the previous research and the current study in relations between academic stress and coping styles; the results indicate that the higher the ‘academic stress’ in Korean adolescents, the more behavioral and emotional focused coping is used than the problem focused coping.

(3) Academic stress did not have a direct relation with both subject well-being as well as suicide ideation. However, the total effect and indirect effect of academic stress on subjective well-being and suicide ideation was significant. This means that academic stress had an effect on subjective well-being and suicide ideation through indirect paths.

Specifically, academic stress had a negatively significant indirect relation with subjective well-being, and a positively significant relation with suicide ideation. This supports the results of the studies (Mo & Kim, 2009; Statistics Korea, 2014; Yoo & Kahng, 2015; Yoo et al., 2017) that academic stress is the most influential factor in happiness and suicide ideation of adolescents, which is an important risk factor

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22) Total effect: AS→SWB( $\beta=-.219$ ,  $p<.01$ ), AS→SI( $\beta=.150$ ,  $p<.05$ ); Indirect effect: AS→SWB( $\beta=-.126$ ,  $p<.01$ ), AS→SI( $\beta=.110$ ,  $p<.01$ )

that persists over time. Korean National Youth Policy Institute and National Statistics Korea asked high school students about the reasons for not being happy and thinking about suicide. As a result, academic stress was found to be the greatest reason. These results show the importance of academic stress which means an uncomfortable state such as mental burden, tension, fear, and anxiety due to feeling too burdened, annoyed of school study or grades. In fact, academic stress has been found to be negatively related to adolescents' emotions (Lee & Cho, 2004). In addition, severe academic encouragement can become a serious stressor and emotional problems can arise (Kim, 2003).

In sum, high academic stress can be considered as one of the essential stressors that deteriorates the mental health of Korean adolescents. Therefore, it is necessary for schools to give appropriate assignments and academic encouragements considering the condition of the adolescents to avoid excessive academic stress. Furthermore, in the case of students with poor or burdened academic performance, interventions such as active academic and career counseling are needed to reduce the stress they are currently experiencing.

### ***1.2.3. Self-worth and self-deprecation as cognitive appraisal***

Self-worth was found to have significant effects on subjective well-being. Self-deprecation was found to have direct effects on behavior focused coping, emotional focused coping, and was found to have total effects on suicide ideation among Korean high school students.

Specifically (1) self-worth did not directly affect behavioral focused coping and emotional focused coping. On the other hand, self-deprecation had significantly positive relations with behavioral focused coping and emotional focused coping. These results are consistent with the previous studies and claims of Lazarus and Folkman

(Kim, 2007a; Seo, 2012b; Yoo et al., 2014). According to Lazarus and Folkman (1984b), secondary cognitive appraisal which is an outcome expectation and efficiency expectation, has a direct effect on adaptational outcome, but also on the choice of coping style. For example, if you think that you can control the situation, you are more likely to choose a more problem focused coping, and if you think that you can not control the situation, you will be more likely to choose an emotional focused coping (Anderson, 1977; Folkman & Moskowitz, 2004). This supports the findings of this study that behavioral focused coping and emotional focused coping increases with higher self-deprecation, which means that situation control is difficult. However, self-worth, which means evaluating that the situation can be controlled well, was not related to problem focused coping. This result is different from stress coping theory. These results may be because the use of problem focused coping is related to environmental support and systems needed to use such coping strategies. In other words, even if adolescents want to use problem focused coping, it may become difficult to do so if parent, surrounding support and system are insufficient. Therefore, further study is needed.

(2) Self-worth had a significantly positive relation with subjective well-being, but the direct effect of self-worth on suicide ideation was not significant. On the other hand, self-deprecation was not related to subjective well-being, but self-deprecation had a significant total effect on suicide ideation. These results indicate that positive self-esteem is related to positive mental health, and negative self-esteem is related to negative mental health. In addition, these results can be interpreted in the same context as the precedent study (Lee, Chung, & Back, 2014) that positive factors such as self-esteem are related to positive results; and negative factors such as depression and stress are related to negative results.

Taken together, these results imply that these two types of self-esteem function independently of each other when affecting coping styles and adaptation outcomes (Boduszek et al, 2013; Supple et al., 2013). These results are new findings that two-dimensional self-esteem are independent predictors of stress coping process. The current study made simultaneous settings with two dimensions of ‘self-worth and self-deprecation’ rather than the uni-dimension of ‘global self-esteem.’ This studies’ results verify that for adolescents, self-worth has a positive protective effect on subjective well-being, while self-deprecation has a negative risk function to increase behavioral focused coping, emotional focused coping, and suicide ideation. In addition, these results indicate that self-worth and self-deprecation functions independently. These results show the importance of two-dimensional self-esteem which means a subjective judgment or evaluation of one’s own personality, intellectual, and physical characteristics.

In sum, self-worth and self-deprecation can be considered as one of the essential cognitive appraisal affecting the stress coping process of Korean adolescents. Therefore, intervention on self-worth and self deprecation respectively is necessary. Considering this, factors related to self-worth include peers and teacher relationship, achievement, income, and satisfaction with life (Robinson, 1995; Harter, 1999; Yoo, 2017b). Factors related to self-deprecation include presence of disease, parental over interference, peer alienation, negative emotions and stigma (Blankertz et al., 1999; Ang, 2006; Choi et al., 2015; Yoo, 2017b).

#### *1.2.4. Problem, behavioral, and emotional focused coping as coping style*

Problem focused coping had a significantly positive relation with subjective well-being. While, the effect of problem focused coping on suicide ideation was not significant. On the other hand, the emotional focused coping had a significantly negative relation with subjective well-being and had a significantly positive relation with suicide ideation. These results are consistent with Lazarus and Folkman's claim (1984b) and previous studies (Karremans, Van Lange, Ouwerkerk, & Kluwer, 2003; Cho & Doo, 2004; Choo & Jang, 2005; Hildingh & Baigi, 2010; Lee & Lee, 2012b; Lee, 2013; Park & Ko, 2014; Yoo & Kim, 2014; Lee, 2015).

According to the stress coping theory (Lazarus & Folkman, 1984b), problem focused coping have positive functions and emotional focused coping have negative functions. Also, according to Lee and Lee (2012), Career Journal Program had a positive effect on the mental health of 12th grade students, and Park and Ko (2014) presented that adolescents' subjective well-being was significantly higher for those who participated in the positive psychology counseling than those who did not participate. According to Choo and Jang (2005), mental health levels of students who participated in working out in the gym, swimming, tennis, and table tennis were significantly better to those who did not. Yoo and Kim (2014)'s research revealed that those who exercised in physical education class more than three times a week were more happy than those who did not. On the other hand, Lee (2013b) stated that those who used emotional focused coping such as denial and avoidance, had a significantly increase in suicide ideation.

The results of the current study also showed positive functions that the higher the problem focused coping such as academic counseling,

participation in career experience camp, fitness and volunteer activities; there is an increase in subjective well-being. However, the higher the emotional focused coping such as being intimidated, avoidance, and denial; the subjective well-being decreased and suicide ideation increased. It is interesting to note that not only in the current study but also previous studies show that problem focused coping has a significant impact on happiness, but not on suicide ideation (Kim & Cho, 2011; Lee, 2013). These results are similar to previously noted self-worth and self-deprecation; where positive factors are more related to positive adaptation outcomes, and negative factors are more related to negative adaptation outcomes. Similar context was found in Lee et al (2014)'s study. These results suggest that independent interventions are needed to improve the multi-dimensional mental health of Korean adolescents. In other words, problem focused coping should be used actively to improve subjective well-being, while emotional focused coping should be used less to reduce suicide ideation.

Related to the behavioral focused coping, the effect of behavioral focused coping on subjective well-being and suicide ideation were not significant. So far, this behavioral expression have been emphasized differently according to the researcher's point of view which may be both negative and positive, and it is true that there is confusion in understanding adaptive and maladaptive aspects. The reason why behavioral focused coping had no significant impact on mental health in this study is probably related to this controversy. Another possibility is that since the correlation of behavioral focused coping and emotional focused coping is high, behavioral focused coping may not have a significant impact on subjective well-being and suicide ideation. Therefore, additional follow-up studies on the function of behavioral focused coping are needed.

### **1.3. Indirect effect of bonding social capital on subjective well being and suicide ideation**

Adolescent's academic stress, self-worth, self-deprecation, problem focused coping, behavioral focused coping, and emotional focused coping were found to partially mediate the effects of peer and parent bonding social capital on subjective well-being. Also, adolescent's academic stress, self-worth, self deprecation, problem focused coping, behavioral focused coping, and emotional focused coping were found to fully mediate the effects of peer and parent bonding social capital on suicide ideation. These results support and complement the 'Stress Coping Model' proposed by Lazarus and Folkman (1984b). Also, these findings provide important evidence on the unhealthy mechanisms underlying bonding social capital to subjective well-being and suicide ideation, among Korean high school students.

#### ***1.3.1. Verification of the importance of coping process***

As mentioned earlier, according to how adolescents cope to academic stress makes the difference resulting in positive or negative developmental condition. In other words, although the stress level may be similar, the level of suicide ideation or subjective well-being may be different according to the coping strategies (Lazarus & Folkman, 1984b). The results of this study support the importance of Lazarus and Folkman's 'Stress Coping Model', and it could help us understand how the stress that adolescents experience through bonding social capital and academic work affects their subjective well-being and suicide ideation indirectly. In particular, the direct effect of bonding social capital on suicide ideation; and the direct effect of academic stress on subjective well-being and suicide ideation were not significant, indicating that these pathways were fully mediated. These results indicate that although



bonding social capital and academic stress are important factors affecting subjective well-being and suicide ideation, they do not affect directly.

These results are consistent with the previous studies that coping strategies developed during adolescence are closely related to mental health such as subjective well-being and suicide ideation (Headey, & Wearing, 1990; Wilson et al., 1995; Fabricatore et al., 2000; Shin & Khu, 2001; Uğurlu, & Ona, 2009; Suh, 2011; Zhanga et al., 2012; Kim, & Suh, 2014). But the current study has unique advantages over the previous studies: The model of this study newly confirmed that the stressor is also influenced by bonding social capital, which is the preceding leading resource factor, and the stressor can be included in the coping process. Existing studies have been limited to identify the role of mediators of stress by setting stress as an exogenous variable. However, in this study, we have confirmed how the coping process can be a positive mediating process if the stress factor as the mediator is reduced by adding the coping resource concept. Specifically, when parent bonding social capital is high, academic stress decreases, self-deprecation decreases, emotional focused coping decreases, and eventually subjective well-being increases and suicide ideation decreases.

### ***1.3.2. Using unhealthy coping strategies***

Next, related to the mechanisms underlying bonding social capital to subjective well-being and suicide ideation among Korean high school students, it can be seen that the coping process used by Korean adolescents is not healthy. As mentioned earlier, coping with stress is especially important during adolescence. Shin and Khu (2001) found that upon entering adolescence, the development of coping strategies is important in successfully adapting new challenges and growth into adults. Coping strategies developed during adolescence are closely related

to mental health (Spence et al., 2002; Daughters et al., 2009). Specifically, according to Daughters et al (2009), repeated use of ineffective coping during adolescence may lead to psycho-pathological symptoms as adolescents grow up. These studies suggest that it is important to help develop healthy coping strategies during adolescence.

This study has the advantage of clearly confirming the specific stress coping mechanisms of Korean adolescents and the unfortunate fact that it supports Daughter and his colleague's (2009) claim. According to the results of this study, while the coping path used by Korean adolescents goes through 'emotional focused coping,' there are few paths that affect 'problem focused coping (See figure 10).' It can be seen that most of the significant indirect pathways identified using phantom variables are only 'emotional focused coping.' The results of this study are consistent with the results of the previous research confirming that the coping styles related to academic stress are not related to problem focused coping and are related to emotional focused coping (Lee, 2013; Ahn, 2014; Park, 2017). Lee (2013) carried on a research that examined 1,196 middle, high school students in Chungcheongnam do; and discovered the relations between academic stress and various types of coping. As a result, academic stress had no relation to problem focused coping, but showed a significant relation with emotional focused coping. In Ahn's (2014) study of 176 gifted students and 164 general students who were educated at gifted education institution under the Gyeonggi Provincial Office of Education; results showed that the higher the academic stress, the less the problem focused coping was used, and the more emotional focused coping was used. According to Park(2017)'s study, the type of coping used varied depending on the type of stress. Specifically, academic stress influenced emotional focused coping without affecting problem focused coping, whereas appearance stress influenced problem focused coping.

These results show two points related to the mental health of Korean adolescents. First, it shows the ‘cause’ of high suicide problem and low happiness problem in Korean adolescents; second, it shows clearly where to ‘intervene.’ According to Lazarus and Folkman’s theory and various previous studies, while problem focused coping positively affects adaptation outcomes, emotional focused coping negatively affects adaptation outcomes. The argument of stress coping theory and the previous studies are consistent with the results of this study. According to this study: happiness increased when problem focused coping was carried out; whereas there was a decrease in happiness and increase in suicide ideation when emotional focused coping was carried out. Therefore, the use of problem focused coping is encouraged and the use of emotional focused coping should be avoided. However, as can be seen from the results of this study, many pathways of Korean adolescents go through emotional focused coping. On the other hand, there are few paths that affect problem focused coping, and these results are also supported by the results of prior studies (Lee, 2013; Ahn, 2014; Park, 2017).

This signifies that high suicide problems and low happiness in Korean adolescents may be due to the use of unhealthy coping strategies. In other words, the unhealthy coping style of adolescents in Korea is finally emerging in actual reality. Therefore, it is recommended that adolescents be able to use and develop problem focused coping. Also appropriate intervene is needed in order to avoid emotional focused coping. Fortunately, a possible method to decrease emotional focused coping has been found. Parents bonding social capital and other factors could be used to help, yet there is no individual dimension that could increase the problem focused coping. Therefore, national intervention such as schools and government need to have an institutional approach to enable adolescents to use problem focused coping in a more active and intentional manner.

## **2. Theoretical Implications**

This study may be one of the initial studies in Korea to develop a theoretical model for multi-dimensional stress coping process and the validity was verified by representative data. The current section states the theoretical implications of the present study.

### **2.1. Need to address positive and negative mental health simultaneously**

This study has led to the need for research on positive and negative mental health simultaneously. Perspective of WHO, and various scholars about mental health is significant in that the concept of mental health extends to a positive state from the viewpoint of the absence of disease. However, the limitations of these studies are that they focused only on the 'positive' state. According to recent studies, the 'positive mental health' and the 'negative mental health' exists independently from each other (Veit & Ware, 1983; Seligman & Csikszentmihalyi, 2000; Keyes, 2007; Huppert & Whittington, 2003; Seligman, 2004). This means that reducing the negative condition does not automatically increase the positive condition. Greenspoon and Saklofske (2001) also suggested that an integrated assessment of positive well-being and negative psychopathology is needed when assessing school-based mental health. Therefore, mental health should be considered together with the positive and negative states.

Among the factors affecting subjective well-being and suicide ideation, the significant variables at the level of total effect at p value .05 are as follows. (1) factor that only affect suicide ideation is self-deprecation, (2) factors that only affect subjective well-being are peer bonding social capital, self-worth, and problem focused coping (3)

factors influencing subjective well-being and suicide ideation at the same time are parent bonding social capital, academic stress, and emotional focused coping. These results imply that concerning the intervention of subjective well-being and suicide ideation, the factors affecting each area are different. Therefore, individual intervention for subjective well-being and suicide ideation is required simultaneously. Also, parent bonding social capital, academic stress, and emotional focused coping are important factors affecting subjective well-being and suicide ideation at the same time, therefore, intervention for these factors could be important.

## **2.2. Need to focus on positive coping resource**

This study attempts to focus on bonding social capital which are positive factors rather than stressor which are negative factors. Many studies using stress coping model have set 'stress' as an exogenous variable not necessarily because stress must be an exogenous variable, but in order to identify 'risk or negative factors' that negatively affect adolescents' adaptational outcomes. However, these studies that are based on a problem-centered view of adolescents are criticized. Research has begun to search for 'protective or positive factors' that have a positive effect on adolescent adaptational outcomes (Lee & Kim, 2007). Silbereisen and Lerner (2007) also introduces the concept of adolescents' developmental asset, and argues for the importance of developmental resources necessary for the healthy growth of adolescents.

The current study focuses on positive factors by complementing the concept of 'coping resource' in the existing stress coping model. In general, 'coping resources' refers to the resources that I already have. This characteristic of the coping resource can be found in the Conservation of Resources Theory of Hobfoll (1989). According to

Hobfoll (1989), humans try to secure and preserve things that are valuable to them. Further on, individuals with sufficient resources do not lead to stress and exhaustion, rather, they experience them in a relatively lower state of stress.

This study extends the existing stress coping model, and confirms that bonding social capital corresponding to coping resource is an important factor in the stress coping process. This implies that more positive factors should be considered when studying stress coping process of adolescents.

### **2.3. Need to address positive and negative coping factors simultaneously**

This study confirms some unusual points in the stress coping process of Korean adolescents. The results show it is likely that positive coping factors are linked to positive adaptation outcomes through positive coping pathways; and negative coping factors are likely to be associated with negative adaptation outcomes through negative coping pathways. Specifically, (1) self-worth, which is a positive factor, is related to subjective well-being, which is a positive outcome; but not to emotional focused coping and suicide ideation, which are negative factors. On the other hand, self-deprecation, which is a negative factor, is associated with emotional focused coping and suicide ideation, which are also negative outcome; but self-deprecation was not associated with problem focused coping and subjective well-being, which are positive outcome. In addition, (2) problem focused coping, which is a positive factor, was related to subjective well-being, which is a positive outcome; but problem focused coping was not related to suicide ideation, which is a negative outcome. However, emotional focused coping, which is a negative factor, affects suicide ideation and subjective well-being. At this

time, the size of ‘emotional focused coping→suicide ideation’ was significantly larger than that of ‘emotional focused coping→subjective well-being.’<sup>23)</sup>

These results have something in common with the findings that positive mental health and negative mental health are distinct from each other and exist independently of each other. In other words, interventions on positive coping factors and negative coping factors must be done individually and simultaneously, just as individual and simultaneous interventions on the positive dimension and negative dimension of mental health should be made. Therefore, when studying the stress coping process, it is necessary to have an independent view on the ‘positive dimension’ and ‘negative dimension.’

### **3. Practice Implications**

#### **3.1. Implications for parents**

This study verified that parent bonding social capital had a positive function. In addition, we confirmed that parent bonding social capital had a positive effect on mental health of adolescents through various indirect routes. These results point out that parental bonding social capital is crucial in developing healthy coping strategies as well as mental health of adolescents.

Parents think of their child as the future, and hope for their happiness as well as their healthy mental development. However, due to the social structure in which the utility of education level has a crucial influence and cause a competitive academic environment; Korean

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23) The critical ratio for difference between the direct effects of ‘ECOP→SWB’ and ‘ECOP→SI’ was 2.182.

adolescents spend a considerable amount of time and effort in order to achieve only good academic performance, especially in the College Scholastic Ability Test of Korea. Accordingly, Korean parents are mostly interested in the ‘academic achievement’ of their children and focus on how they can study well. However, these parental approaches may be negative. In fact, according to Oh and Shin (2017) research, adolescents in Korea are said to be overloaded by their parents pressure concerning academics. Also, according to previous studies, it can be confirmed that the relationship between parents and children in Korea decline over time (Han, 2014; Yoo, 2017a). This reality indicates how weak the parent-child relationships are today.

However, according to this study, if parents are interested in ‘the child’ such as whether there is any difficulty in the school life or whether friendship is okay rather than ‘academic achievement’; parents will be able to better attain their children’s happiness that they hoped for. In this context, the results of this study are of crucial significance in that the parental bonding social capital has a significant impact on not only mental health but also various indirect pathways, and significantly gives effect only on the problem focused coping. Therefore, although the academic achievement of their children is important, parents need to be interested more in the children themselves.

## **3.2. Implications for adolescents**

### ***3.2.1. Implications on individual level***

This study points out to the importance of the peer bonding social capital as a positive and developmental resource for adolescents. It is noteworthy that the results of this study show that peer bonding social capital directly and indirectly affects not only subjective well-being and



suicide ideation of adolescents, but also have a significantly positive relation with self-worth as well as significantly negative relation with self-deprecation, behavioral focused coping, and emotional focused coping.

Therefore, it is important that adolescents themselves recognize the importance of peer relations. It is essential to let them know that trust, will, belief, and emotional support with peers are just as important if not more valuable than values such as being first in academic grades. It is also necessary to ensure that students have an appropriate academic achievement goal orientation. Achievement goal orientation is the reason or purpose for which students are performing their studies (Ames, 1992). This achievement goal orientation is divided into Academic mastery goal orientation, Academic performance goal orientation, and Academic performance avoidance goal orientation. Students with Academic mastery goal orientation would say, 'I like challenging homework to learn new things;' Academic performance goal orientation, 'My goal is to get better grades than other friends;' and Academic performance avoidance goal orientation, 'I study because I do not want lower grades than other friends.' At this time, students with higher Academic mastery goal orientation had better peer relations quality, while higher Academic performance goal orientated students had lower peer relations quality (Yeom & Lee, 2015). Therefore, adolescents should know that the purpose for the achievement goal of adolescents should be to succeed by pursuing individual development and value of learning new things. As adolescent themselves become aware of the value and importance of peer relationships, they will be able to achieve healthier development.

### ***3.2.2. Implications on the environment level***

There was no era in the history of mankind where competition did not exist, and it is clear that it has played a positive role in promoting development in many areas of our society. Korea has received envy and praise from many countries around the world for its high education and excellent human capital. However, if the center of this excellence stands ‘competitiveness’ which consists of selfish competition as the best value and not good competition that presupposes ‘cooperation’, whether this is in actuality a positive development may be questionable. Professor Robert H. Frank (2011) talks about competition that causes the destruction of society as a whole in his book ‘The Darwin Economy.’ Roughly summarizing, he speaks of competition where the relative positional competence cannot be finalized and according to these results (rank) the difference in reward is enormous. The College Scholastic Ability Test of our children may holds such a competition.

Such over competition and excessive achievement oriented environments prevent the development of ‘peer bonding social capital,’ which is a very important resource or protection factor for the happiness and mental health of adolescents. In fact, according to the ‘Korean assessment of the key competencies of youth’ published by the Korean Youth Policy Institute in 2011 (Kim, & Jang, 2011), reports that our adolescents’ “actively participate as a member of the community, have good relationships with friends and colleagues, and have the ability to cooperate with others culturally and socioeconomically” was the lowest among the 31 countries compared. Cho and Kim (2009) analyzed peer relationships in the overall framework of entrance examination culture. As a result, it showed that Korean entrance examination culture structured adolescent’s life and peer relationship. Specifically, Korean

adolescents were worried about the grade (academic achievement) difference with their friends, and they submitted to the interference of their parents about making friends in relation to their grades (academic achievement). These results may be due to the social atmosphere in which Korean adolescents concentrate on their own academic activities without positive relationships with their peers.

This situation may have formed due to the high level of social utility in South Korea. Several studies point out that the social utility of education level in Korea drives the adolescents to perceive their friends as competition and rival. (Han, 2005; Jeong & Kim, 2008; Mo, 2010). In addition, economic and non-economic effects of education level and academic cliques actually exist. Several studies report that there is evidence of difference in wage discrimination based on academic cliques (Lee & Kim, 2007; Kim & Lee, 2010), and in addition to these economic areas, non-economic areas such as life satisfaction were also found to vary according to academic background (Kim, 2015). These results lead us to conclude that the excessive tendency of pursuing higher education within our society can not be regarded as simply a 'virtual image.' In the end, to overcome the excessive competition for entrance exams in our society, diagnosis and approach at a more structural level is required. This includes increasing the likelihood of success in the labor market for high school graduates, a significant improvement in social discrimination based on academic background, and mid to long term alleviation of rigid college ranking systems. If these environmental changes are made; Korean adolescents will build deep trusting relationship with their peers, create more memories, and eventually help increase their happiness and mental health.

#### 4. Policy Implications

This study highlights the need for attention on (1) interventions on the positive dimension and negative dimension of mental health, (2) system concerning the utilization of problem focused coping type.

First, it is necessary to supplement the mental health examination of Korean adolescents. The current study showed that subjective well-being which is positive mental health, and suicide ideation which is negative mental health, are affected at the same time in stress coping process. Therefore, in order to promote the mental health of adolescents, intervention for the improvement of subjective well-being level should be carried out at the same time, in addition to reducing the suicide ideation.

In order to do this, it is necessary to change the direction of students' mental health assessment (screening) system. According to the two-dimensional mental health model, complete mental health means not only the absence of mental illness but also the good state of well being. In other words, the two-dimensional mental health model can also explain students whose psycho-social function is poor yet are not identified by traditional screening tests that focus only on risk factors. Therefore, it is necessary to change the direction in mental health assessment (screening test) of students. For example, currently in Korea, a school-based mental health screening system (Adolescent Personality and Mental Health Problems Screening Questionnaire: AMPQ. 학생정서 행동특성검사) is being used. The contents of this test focus on negative factors such as psychological burden (self-harm, suicide, school violence); mood problems (depression, bipolar disorder, somatization); anxiety problems (fear of test and social situations, anxiety disorder); and self-control (poor learning, attention deficit hyperactivity disorder,

Internet or smart phone addiction). This is due to the unidimensional model, which regards the absence of mental illness or psychological pain as equivalent to mental well-being (Keyes, 2007). However, approaches that promote various developmental assets known to predict healthy development contribute not only to health promotion but also to the prevention of mental illness (Kia-Keating, Dowdy, Morgan, & Noam, 2011). Therefore, indicators for positive development assets need to be supplemented.

Next, it is necessary to establish an activation system for problem focused coping type. The current study showed that Korean adolescents are using unhealthy stress coping strategies. Therefore, in order to promote the mental health of adolescents, it is necessary to provide help to carry out healthy coping strategies. However, according to the results of this study, it is difficult to find a path of personal dimension that can increase problem focused coping. This means that it can be difficult to find the solution through individual efforts. Therefore, it is necessary to build systems and structures that enable adolescents to utilize problem focused coping at a national level, such as schools and the government. It is also necessary to confirm whether or not students use problem focused coping, and for those students who have not used them, it is necessary to identify the reasons.

Currently, there are Wee centers provided by the District Office of Education and various adolescent counseling welfare centers in the city and province. Furthermore, there are health centers, mental health centers, health home support centers and other institutions that offer free consultation; however, there is a need to improve the quality and quantity of services. First, problem focused coping includes academic counseling, entrance training camps, and active athletic activities. Therefore, school and social welfare institutions need to improve the

quality and quantity of these programs. Additionally, all schools should retain professional social workers so that students may have as much access to counseling whenever needed. It is also important to educate and actively promote students to learn that there are various types of healthy coping methods.

## **5. Limitations and Suggestions**

Despite the theoretical, political and practical implications, the current study has the following limitations.

First, further studies comparing different populations are needed. In this study, out-of-school adolescents were not considered. There may also be dynamics according to the grade, and may vary depending on the type of school, such as special purpose high schools and general high schools. Furthermore, this study emphasized the importance of parent bonding social capital, but did not consider the adolescent group that cannot form parent bonding social capital due to family structure. For example it may be difficult for a non two parent family to form parent bonding social capital. In this case bridging social capital may be more effective rather than bonding social capital. Therefore, in future studies, it will be necessary to conduct a multi-group analysis that verifies differences among these various subtype groups.

Second, the ‘Stress Coping Model’, which is the basis of this study, explains the stress coping process over time. Also, ‘Children Supplementary Survey of Korean Welfare Panel Study,’ which is used in this study, is a panel data that can be analyzed longitudinally. However, subjective well-being and suicide ideation, the main variables of this study, were newly surveyed in the seventh wave and information has

not yet accumulated. As a result, in the empirical analysis in this study, cross-sectional analysis was made using only the seventh wave of the panel data. Therefore, if information on subjective well-being and suicide ideation acquired as the panel data is accumulated later, 'longitudinal analysis' is needed to confirm the causal relationship.

Third, the model of this study may have important omitted variables that can explain the mental health of adolescents. As can be seen from the squared multiple correlation (SMC) index, much of the subjective well-being variance is explained by this model (60.3%). However, the suicide ideation variance is explained only by 30.3%. That is, there may be an important variable that can further explain suicide ideation. For example, bonding social capital was used as a coping resource and academic stress as a stressor in adolescent stress coping model. However, there can be different kinds of coping resources and stressors. Also, depending on the level of academic achievement, stress coping processes can vary. In other words, students with high academic achievement levels and students with low academic achievement levels may have different levels of stress. In addition, a more standardized measure should be used when measuring problem focused coping and emotional focused coping (e.g. The 'coping style scale' made by Lazarus and Folkman (1984)). Therefore, in future studies, it will be necessary to carry out studies using important coping resources and stressors, as well as standardized scale for adolescents' mental health.

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## APPENDIX 1.

<Table 15> Estimates of total, direct, and indirect effects

	Total effect				Direct effect				Indirect effect			
	B	$\beta$	SE	p	B	$\beta$	SE	p	B	$\beta$	SE	p
SWB $\leftarrow$ BSC	.338	.275	.084	.002	.197	.160	.071	.002	.141	.114	.046	.002
SI $\leftarrow$ BSC	-.159	-.103	.098	.095	.001	.001	.086	.986	-.160	-.104	.061	.003
PCOP $\leftarrow$ BSC	.104	.027	.213	.663	.116	.030	.226	.612	-.012	-.003	.066	.805
BCOP $\leftarrow$ BSC	-.018	-.132	.011	.057	-.018	-.131	.011	.056	.000	-.001	.003	.984
ECOP $\leftarrow$ BSC	-.094	-.179	.036	.004	-.062	-.117	.037	.101	-.033	-.062	.017	.027
SEW $\leftarrow$ BSC	.187	.207	.053	.003	.189	.209	.055	.003	-.002	-.002	.014	.845
SED $\leftarrow$ BSC	-.155	-.155	.059	.009	-.157	-.158	.056	.006	.003	.003	.023	.841
AS $\leftarrow$ BSC	.010	.008	.078	.877	.010	.008	.078	.877	-	-	-	-
SWB $\leftarrow$ BSC <sub>p</sub>	.680	.438	.140	.003	.345	.222	.115	.003	.335	.216	.077	.001
SI $\leftarrow$ BSC <sub>p</sub>	-.359	-.186	.125	.001	.004	.002	.123	.982	-.363	-.188	.115	.001
PCOP $\leftarrow$ BSC <sub>p</sub>	.454	.094	.302	.111	.508	.106	.343	.094	-.055	-.011	.134	.607
BCOP $\leftarrow$ BSC <sub>p</sub>	-.049	-.286	.015	.003	-.044	-.257	.016	.002	-.005	-.030	.006	.359
ECOP $\leftarrow$ BSC <sub>p</sub>	-.205	-.308	.054	.002	-.119	-.179	.054	.011	-.086	-.129	.028	.003
SEW $\leftarrow$ BSC <sub>p</sub>	.420	.369	.093	.002	.383	.337	.091	.002	.037	.032	.021	.022
SED $\leftarrow$ BSC <sub>p</sub>	-.389	-.310	.100	.002	-.326	-.260	.095	.002	-.062	-.050	.034	.028
AS $\leftarrow$ BSC <sub>p</sub>	-.224	-.142	.114	.035	-.224	-.142	.114	.035	-	-	-	-
SWB $\leftarrow$ AS	-.214	-.219	.057	.002	-.090	-.092	.053	.118	-.124	-.126	.038	.002
SI $\leftarrow$ AS	.183	.150	.085	.033	.049	.040	.079	.532	.134	.110	.052	.008
PCOP $\leftarrow$ AS	.139	.046	.163	.353	.196	.064	.179	.235	-.057	-.019	.074	.439
BCOP $\leftarrow$ AS	.018	.169	.007	.005	.014	.127	.007	.036	.005	.042	.003	.130
ECOP $\leftarrow$ AS	.074	.177	.029	.011	.018	.042	.028	.600	.057	.135	.016	.002
SEW $\leftarrow$ AS	-.164	-.229	.042	.002	-.164	-.229	.042	.002	-	-	-	-
SED $\leftarrow$ AS	.278	.350	.055	.002	.278	.350	.055	.002	-	-	-	-

Note: P-values are reported as bias-corrected two-tailed significance.

B: unstandardized estimate;  $\beta$ : standardized estimate; SE: standard error; P: p-value; BSC=peer bonding social capital, BSC<sub>p</sub>=parent bonding social capital; AS=academic stress SWB=subjective well-being; SI=suicide ideation

## APPENDIX 2.

<Table 16> Correlations of ten major variables

	BSC_Pe	BSC_Pa	AS	SEW	SED	PCOP	BCOP	ECOP	SWB	SI
BSC_Pe	1	.232***	-.023	.295***	-.231***	.040	-.202***	-.251***	.378***	-.149**
BSC_Pa		1	-.098	.388***	-.318***	.102†	-.287***	-.321***	.470***	-.176**
AS			1	-.285***	.386***	.032	.221***	.246***	-.312***	.198***
SEW				1	-.697***	.019	-.193***	-.422***	.658***	-.297***
SED					1	-.077	.294***	.513***	-.569***	.310***
PCOP						1	-.069	-.080	.135**	.022
BCOP							1	.702***	-.283***	.404***
ECOP								1	-.515***	.537***
SWB									1	-.346***
SI										1

†p<.10, \*p<.05, \*\*p<.01, \*\*\*p<.001

Note: BSC\_Pe=bonding social capital from peer; BSC\_Pa=bonding social capital from parent; AS=academic stress; SEW=self-worth; SED=self-deprecation; PCOP=problem focused coping; BCOP=behavioral focused coping; ECOP=emotional focused coping; SWB=subjective well-being; SI=suicide ideation



## APPENDIX 3.

### Korean Version Questionnaire

#### 1. Bonding social capital\_peer

	전혀 그렇지 않다	거의 그렇지 않다	그런 편이다	항상 그렇다
그 친구들은 지난 1년 동안 아래와 같은 행동을 얼마나 자주 했습니까?				
내 친구들은 내가 외롭거나 힘들 때 나와 함께 있어준다	1	2	3	4
내 친구들은 도움이 필요할 때 나를 도와준다	1	2	3	4

#### 2. Bonding social capital\_parent

		전혀 그렇지 않다	거의 그렇지 않다	그런 편이다	항상 그렇다
다음은 부모님이나 부모님 역할을 하시는 어른에 대한 질문입니다. 해당하는 칸에 표시해 주십시오					
교육 참여	부모님과 나는 학교 생활이나 친구에 대해 대화한다	1	2	3	4
	우리 부모님은 학교 선생님(들)과 이야기하기 위해 학교에 찾아가신다	1	2	3	4
	우리 부모님은 학교가 주최하는 학부모회 모임 등과 같은 행사에 참석하신다	1	2	3	4
	우리 부모님은 내가 숙제를 다 했는지 관심을 가지고 확인한다	1	2	3	4
지도 감독	부모님은 내가 집에 없을 때 어디에 누구와 함께 있는지 알고 계신다	1	2	3	4
	부모님은 내가 몇 시에 들어오는지 알고 계신다	1	2	3	4
	부모님은 내가 집에 없을 때 무엇을 하는지 알고 계신다	1	2	3	4
	부모님은 내가 어른 없이 집에 있을 때 전화를 하신다	1	2	3	4

### 3. Academic stress

학업이나 성적에 대한 자신의 생각이나 행동과 일치하는 정도를 표시해주세요. 여러분의 생각과 같은 정도에 따라 부터 중 하나만 표시해주세요.	전혀 그렇지 않다	거의 그렇지 않다	그런 편이다	항상 그렇다
학교성적이 좋지 않아서 스트레스를 받는다	1	2	3	4
숙제나 시험 때문에 스트레스를 받는다	1	2	3	4
대학입시에 대한 부담으로 스트레스를 받는다	1	2	3	4
공부가 지겨워서 스트레스를 받는다	1	2	3	4

### 4. Positive Self-esteem (self-worth)

다음은 지난 1년 동안 여러분이 자신을 어떻게 보고 있는지에 관한 것입니다. 각각을 읽고 여러분의 생각과 같은 정도에 따라 ①부터 ④ 중 하나만 표시해주세요	전혀 그렇지 않다	거의 그렇지 않다	그런 편이다	항상 그렇다
내가 적어도 다른사람만큼은 가치있는사람이다	1	2	3	4
내가 좋은 자질을 많이 가지고 있다고 느낀다	1	2	3	4
남들이 하는 만큼 뛰든지 할 수 있다	1	2	3	4
긍정적인 태도를 지니고 있다	1	2	3	4
나 자신에 만족한다	1	2	3	4

### 5. Negative Self-esteem (self-deprecation)

다음은 지난 1년 동안 여러분이 자신을 어떻게 보고 있는지에 관한 것입니다. 각각을 읽고 여러분의 생각과 같은 정도에 따라 ①부터 ④ 중 하나만 표시해주세요	전혀 그렇지 않다	거의 그렇지 않다	그런 편이다	항상 그렇다
내가 실패자라고 느끼는 경향이 있다	1	2	3	4
나는 자랑스러워 할만한 것이 별로 없다고 느낀다	1	2	3	4
때때로 나 자신이 쓸데없는 존재라고 느낀다	1	2	3	4
때때로 유능하지 않다고 생각한다	1	2	3	4
나 자신을 좀 더 존중할 수 있으면 하고 바란다	1	2	3	4

## 6. Problem focused forms of coping

다음은 여러분이 참여하는 활동이나 받고 있는 도움에 관한 내용입니다. 2011년 1년 (2011. 1.1~2011.12.31) 동안의 경험에 비추어 해당되는 칸에 몇 회 표시해 주세요.	몇 회
진학, 취업 등 진로상담(졸업 후 진학, 취업과 관련된 진로 상담) 횟수 (년)	
직장, 직업캠프 (청년직장체험, 직업캠프 등 취업과 관련된 프로그램 참여)	
체력단련, 모험활동 (축구, 야구, 농구, 태권도, 유도, 검도, 등산 등)	

## 7. Emotion focused forms of coping

다음 각 문항을 자세히 읽어보고 자신에게 해당되는 번호에 표시해주십시오.		전혀 아니다	그런 편이다	자주 그렇다
정서1	혼자 있는 것을 좋아한다	1	2	3
	말을 하지 않으려 한다	1	2	3
	숨기는 것이 많고 남에게 속을 털어 놓지 않는다	1	2	3
	수줍거나 소심하다	1	2	3
	멍하니 허공을 응시하곤 한다	1	2	3
정서2	자주 뻘로통해진다.	1	2	3
	비활동적이고 행동이 느리며 기운이 없다	1	2	3
	불행하다고 생각하거나 슬피하고 우울해 한다	1	2	3
	위축되서 남들과 어울리지 않으려고 한다	1	2	3

## 8. Behavior focused forms of coping

다음 각 문항을 자세히 읽어보고 자신에게 해당되는 번호에 표시해주십시오.		전혀 아니다	그런 편이다	자주 그렇다
행동1	나쁜 일을 저지르고도 아무렇지 않게 생각한다	1	2	3
	나쁜 친구들과 어울려 다닌다	1	2	3
	거짓말을 하거나 남들을 속인다	1	2	3
	나보다 나이가 많은 애들과 노는 것을 더 좋아한다	1	2	3
	욕을 하거나 상스러운 말을 쓴다	1	2	3
	학교를 빼먹는다(무단결석)	1	2	3
행동2	말다툼을 자주한다	1	2	3
	허풍치고 자랑을 많이 한다	1	2	3
	나에게 관심을 많이 가져주기를 요구한다	1	2	3
	집에서 말을 안듣는다	1	2	3
	샘을 잘 낸다	1	2	3
	고함을 지른다	1	2	3
	으시대거나 남을 웃기려고 싱거운 짓을 한다	1	2	3
	고집이 세고 시무룩해지거나 성질을 부린다	1	2	3
	감정이나 기분이 갑자기 변하곤 한다	1	2	3
	지나치게 수다스럽다	1	2	3
	남을 잘 놀린다	1	2	3
	성미가 급하고 제 뜻대로 안되면 데굴데굴 구른다	1	2	3

## 9. Subjective well-being

다음 각 문항을 자세히 읽어보고 자신에게 해당되는 번호에 표시해주십시오.	전혀 그렇지 않다	별로 그렇지 않다	보통이다	다소 그렇다	매우 그렇다
나는 건강하다고 생각한다	1	2	3	4	5
나는 학교생활을 매우 좋아한다	1	2	3	4	5
나는 삶에 만족한다	1	2	3	4	5
나는 내가 속한 집단에 소속감을 느낀다	1	2	3	4	5
나는 주변사람과 잘 어울린다	1	2	3	4	5

## 10. Suicide ideation

다음은 사람들이 때때로 할 수 있는 생각들이 제시되어 있습니다. 얼마나 자주 그런 생각을 했는지를 해당되는 번호에 표시해주십시오.	전혀 없다	지난달 없다	한 달 1번	한 달 2-3번	일주일 1번	일주일 2-3번	거의 매일
자살을 할까 생각했다	1	2	3	4	5	6	7
어떻게 자살할 것인가에 대해 생각해 봤다	1	2	3	4	5	6	7
언제 자살할 것인가에 대해 생각해 봤다	1	2	3	4	5	6	7
내가 죽어버리면 모든 문제가 해결될 것이라고 생각했다	1	2	3	4	5	6	7
사람들이 자살하는 방법에 대해 생각했다	1	2	3	4	5	6	7
나는 더 이상 살아갈 이유가 없다고 생각했다	1	2	3	4	5	6	7

## English Version Questionnaire

### 1. Bonding social capital\_peer

Over the past year, how often did you think about the following statements?	from disagree to agree			
My friends are with me when I am lonely or going through a hard time	1	2	3	4
My friends help me when I need help	1	2	3	4

### 2. Bonding social capital\_parent

The following are questions concerning your parents or adults with parental roles. Please check the number that fits you the most.	from disagree to agree			
My parents and I talk about school life and friends.	1	2	3	4
My parents visits my school teacher(s) to talk to them about me.	1	2	3	4
My parents attend school hosted events such as parent association meetings ect.	1	2	3	4
My parents care about getting my homework done and check that I do.	1	2	3	4
My parents know who I am with and where I am whenever I am not at home.	1	2	3	4
My parents know what time I come home.	1	2	3	4
My parents know what I am doing when I am not at home.	1	2	3	4
My parents call(telephone) me when I am home without an adult.	1	2	3	4

### 3. Academic stress

Please indicate the extent to which you agree with your thoughts or actions about your academics.	from disagree to agree			
I'm stressed because my scores are not good	1	2	3	4
I'm stressed because of homework or tests	1	2	3	4
I'm stressed because I'm sick of studying	1	2	3	4
I'm stressed because of college entrance examination	1	2	3	4

### 4. Positive Self-esteem (self-worth)

The following are statements concerning how you have thought of yourself over the past year. Please read each one and mark only one of ① to ④ according to your thoughts.	from disagree to agree			
I am as valuable a person as others	1	2	3	4
I have a lot of talent	1	2	3	4
I can do anything	1	2	3	4
I do my best even though I'm not good at first	1	2	3	4
I am satisfied with myself	1	2	3	4

### 5. Negative Self-esteem (self-deprecation)

The following are statements concerning how you have thought of yourself over the past year. Please read each one and mark only one of ① to ④ according to your thoughts.	from disagree to agree			
I felt like a loser	1	2	3	4
I don't have anything to boast about	1	2	3	4
I often feel useless	1	2	3	4
I feel unable to do things	1	2	3	4
I wish I should respect myself more	1	2	3	4

## 6. Problem focused forms of coping

Here are the activities you are involved in and the help you are receiving. Please indicate in the appropriate column about your experience during the past year of 2011 (2011. 1.1-2011.12.31)	How many times
the number of consultations about academic and career progression	
the number of participation in a career experience camp	
the number of fitness activities such as football, basketball, baseball, Taekwondo, climbing,” and “volunteer activity	

## 7. Emotion focused forms of coping

Please read each of the following questions carefully and mark the number that fits you the most.		Not at all	A little bit	Often
emotion1	I like to be alone.	1	2	3
	I do not like to talk.	1	2	3
	I hide a lot of things and do not like to share my thoughts with others.	1	2	3
	I am shy and timid.	1	2	3
	I stare blankly in the air.	1	2	3
emotion2	I become sulky.	1	2	3
	I am non active, slow and have no energy.	1	2	3
	I am unfortunate, sad and depressed.	1	2	3
	I am intimidated and do not get along with others.	1	2	3



## 8. Behavior focused forms of coping

Please read the following statements carefully and mark the number that fits you the most.		Not at all	A little bit	Often
Behavior 1	I do something bad but don't feel anything about it.	1	2	3
	I hang out with bad friends.	1	2	3
	I lie and deceive others.	1	2	3
	I like to hang out with kids that are older than me.	1	2	3
	I curse and use foul language.	1	2	3
	I skip school (truancy)	1	2	3
	I argue often.	1	2	3
Behavior 2	I bluff a lot and bragg often.	1	2	3
	I seek a lot of attention.	1	2	3
	I do not do as I am told at home.	1	2	3
	I am often jealous.	1	2	3
	I shout/scream often.	1	2	3
	I show off, or do something silly to make people laugh.	1	2	3
	I am stubborn, broody, and have a bad temper.	1	2	3
	My feelings and mood changes suddenly.	1	2	3
	I am too talkative.	1	2	3
	I make fun of others a lot.	1	2	3
	I have a short temper, and if things don't go my way, I roll over on the floor.	1	2	3

## 9. Subjective well-being

Please read the following statements carefully and mark the number that fits you the most.	from disagree to agree				
	1	2	3	4	5
I think I'm healthy	1	2	3	4	5
I like school very much	1	2	3	4	5
I am satisfied with life	1	2	3	4	5
I feel a sense of belonging to my group	1	2	3	4	5
I get along with those around me	1	2	3	4	5

## 10. Suicide ideation

The following are thoughts that people can have from time to time. Please indicate the number that corresponds the amount of time you have had these thoughts.	Never	Not this past month	Once a month	2-3 times a month	Once a week	2-3 times a week	Everyday
I thought about suicide	1	2	3	4	5	6	7
I thought about how to commit suicide	1	2	3	4	5	6	7
I thought about when to commit suicide	1	2	3	4	5	6	7
I thought that if I died, all the problems would be solved	1	2	3	4	5	6	7
I thought about how people commit suicide	1	2	3	4	5	6	7
I thought I had no reason to live anymore	1	2	3	4	5	6	7

# 국문초록

## 청소년의 학업스트레스와 정신건강: 다차원 스트레스 대처 모델 검증

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본 연구의 목적은 기존의 단일차원 스트레스 대처 모형의 한계를 극복하고 확장시킨 다차원 스트레스 대처 모형을 검증하는 것에 있다. 구체적으로 첫째, 청소년의 또래 및 부모 결속형 사회적 자본이 청소년의 주관적 행복감과 자살생각에 미치는 영향을 확인하고, 둘째, 청소년의 학업스트레스가 청소년의 주관적 행복감과 자살생각에 미치는 영향을 확인하며, 셋째, 청소년의 또래 및 부모 결속형 사회적 자본이 청소년의 주관적 행복감과 자살생각에 미치는 영향이 학업스트레스, 이원적 자아 존중감, 문제중심·행동중심·정서중심 대처에 의해 매개되는지 검증하는 것이다.

청소년기는 자아를 형성하는 중요한 발달단계이다. 많은 학자와 연구에 따르면, 청소년기에 형성된 정신건강의 정도는 자기 자신에 대한 자아형성뿐만 아니라 성인이 된 이후에도 지속적으로 영향을 주는 것으로 나타났다. 그러나 안타깝게도 우리나라 청소년들의 행복도는 OECD 국가들 중 최하위이고, 자살문제는 가장 높은 것으로 확인되었다. 그리고 이러한 낮은 행복감과 높은 자살문제에 가장 큰 영향을 주는 요인은 ‘학업스트레스’인 것으로 확인되었다. 그렇지만 학업스트레스가 모든 청소년

년에게 부정적인 영향을 주는 것은 아니다. 스트레스 대처 이론에 따르면 학업스트레스를 어떻게 대처하는지에 따라서 그 영향이 달라질 수 있다. 특히 청소년기에 형성되는 스트레스 대처 전략은 정신건강과 밀접한 관련이 있다. 이에 따라서 Lazarus와 Folkman의 스트레스 대처 이론에 기반하여 많은 연구가 진행되었다. 그러나 이러한 연구들은 첫째, 정신건강의 긍정적·부정적 차원의 독립적 특성을 고려하지 못하고, 둘째, 문제중심·행동중심·정서중심 대처라는 ‘대처유형’과 결속형 사회적 자본이라는 ‘대처자원’을 구분하지 못했으며, 셋째, 인지적 평가에 해당하는 자아존중감의 긍정적·부정적 차원의 독립적 특성을 고려하지 못했다는 한계를 가진다. 다양한 선행연구에 따르면 또래 및 부모와의 결속형 사회적 자본이 학업스트레스를 감소시키고 청소년들의 스트레스 대처 능력을 향상시키며, 결국 청소년의 주관적 행복과 자살생각 등의 정신건강에 긍정적 영향을 주는 것으로 확인되었다. 이에 따라서 본 연구에서는 기존 스트레스 대처 연구에서 고려하지 못했던 부분을 보완·확장하여 다차원 스트레스 대처 모델을 개발하고 모델을 검증하였다.

구체적인 연구문제는 다음과 같다. (1) 결속형 사회적 자본이 청소년의 주관적 행복감과 자살생각에 영향을 주는가? (2) 학업스트레스가 청소년의 주관적 행복과 자살생각에 영향을 주는가? (3) 스트레스 대처 요인들이 결속형 사회적 자본이 주관적 행복감과 자살생각에 미치는 영향을 매개하는가?

다차원 스트레스 대처모형과 연구문제를 검증하기 위해서 본 연구는 ‘2012년 한국복지패널의 아동부가조사’에 참여한 고등학교 1, 2, 3학년 417명의 설문조사 자료를 활용하여 구조방정식모형을 실시하였다. 분석결과, 본 연구에서 설정한 다차원 스트레스 대처 모형이 전반적으로 한국 청소년들의 다차원 스트레스 대처 경로를 설명하는데 타당한 것으로 확인되었다. 구체적인 연구결과는 다음과 같다. 첫째, 연구모형의 적합도가 모두 적합한 것으로 확인되었다. 이러한 결과는 정신건강의 이원적 특성에 대한 추가적인 고려, 인지적 평가의 이원적 특성에 대한 추가적인 고려, 그리고 대처자원 개념을 새롭게 설정함으로써 기존의 단일차원 스트레스 대처모형을 ‘다차원’으로 확장시킨 연구모형이 현재 우리나라 청소년들의 스트레스 대처 과정을 잘 설명하고 있음을 의미한다.

둘째, 대처자원으로서의 결속형 사회적 자본, 스트레스 요인으로서의 학업스트레스, 인지적 평가로서의 이원적 자아존중감, 대처유형으로서의 문제중심·행동중심·정서중심 대처, 그리고 주관적 행복감과 자살생각이 한국 청소년들의 다차원 스트레스 대처 능력을 증진 또는 감소시키는데 중요한 요인으로 확인되었다. 구체적으로 우리나라 청소년의 정신건강에 긍정적인 영향을 주는 보호요인은 또래 및 부모 결속형 사회적 자본, 긍정적 자아존중감, 문제중심대처가 있고, 우리나라 청소년의 정신건강에 부정적인 영향을 주는 위험요인은 학업스트레스, 부정적 자아존중감, 정서중심대처가 있다. 셋째, 학업스트레스, 이원적 자아존중감, 문제중심·행동중심·정서중심 대처가 결속형 사회적 자본이 주관적 행복감과 자살생각에 미치는 영향을 매개하는 것으로 나타났다. 구체적으로 우리나라 청소년의 경우 대부분 ‘문제중심대처’ 경로를 거치는 대처전략보다는 ‘정서중심대처’ 경로를 거치는 대처전략을 사용하고 있다. 이러한 결과는 우리나라 청소년의 높은 자살문제와 낮은 행복감 문제가 어떠한 경로를 통해서 나타나고 있는지를 보여주고, 동시에 어떠한 지점에 개입해야 하는지를 명확하게 보여주고 있다.

위의 연구결과들을 바탕으로 한 본 연구의 논의 및 함의는 다음과 같다. 첫째, 이론적 함의는 다음과 같다. 본 연구의 결과는 (1) 정신건강의 긍정적 측면인 주관적 행복감과 부정적 측면인 자살생각에 대한 동시적 접근의 필요성을 확인하였고, (2) 긍정적 발달자산이 될 수 있는 대처자원인 ‘결속형 사회적 자본’의 중요성을 확인함으로써 기존의 문제 중심적 관점의 연구흐름에서 벗어나 보다 긍정적 발달자산에 초점을 두는 관점의 변화를 도모하였으며, (3) 스트레스 대처요인들의 ‘긍정적 차원’과 ‘부정적 차원’의 요인들이 서로 독립적이면서 동시에 어느 정도 상호 역동적인 관계를 가짐을 확인함으로써 스트레스 대처연구에 있어서 ‘다차원’적인 접근의 중요성을 확인했다는 의의를 가진다. 둘째, 실천적 함의는 다음과 같다. 본 연구의 결과는 (1) 부모의 결속형 사회적 자본이 청소년들의 정신건강에 매우 중요한 보호요인인 것을 확인하였다. 이에 따라서 부모가 자녀의 정신건강을 위해서 단순히 학업성취에만 관심을 갖는 것이 아니라 청소년 삶의 다양한 영역 그 자체에 관심을 가지고 청소년 자녀와 긍정적인 관계를 맺고 유지하는 것이 필요함을 확인

했고 이와 관련된 개입이 필요하다. (2) 또래의 결속형 사회적 자본 또한 청소년들의 정신건강에 매우 중요한 보호요인이다. 따라서 청소년들의 결속형 사회적 자본 향상을 위한 개입이 필요하다. 개인적 차원의 개입에는 청소년들 스스로가 또래를 경쟁자나 라이벌로 인식하기 보다는 상호 신뢰, 믿음, 정서적 지지의 중요성에 대해 인지할 수 있도록 하는 개입이 필요하고, 환경적 차원의 개입에는 경쟁적인 학업환경 구조에 대한 개입을 함으로써 청소년들이 건강한 또래관계를 맺을 수 있도록 하는 개입이 필요하다. 셋째, 정책적 함의는 다음과 같다. 본 연구의 결과는 (1) 우리나라 청소년의 정신건강을 향상시키기 위해서는 긍정적 차원에 대한 개입과 부정적 차원에 대한 개입이 동시에 이루어져야 함을 확인하였다. 그러나 현재 우리나라 학교에서 진행되고 있는 정신건강검사인 ‘학생정서행동특성검사’는 그 내용이 심리적 부담, 기분문제, 불안문제 등 부정적인 측면에만 초점을 맞추고 있다. 따라서 삶의 만족도, 삶의 안녕감, 긍정적 자아존중감, 행복감 등의 긍정적 차원을 확인할 수 있도록 하는 보완이 필요하다. (2) 우리나라 청소년들의 문제 중심적 대처와 같은 건강한 스트레스 대처전략을 잘 사용할 수 있도록 환경적 차원의 보완이 시급하다. 본 연구의 결과에 따르면, 청소년들이 문제 중심적 대처를 사용할 경우 정신건강에 긍정적인 영향을 주었고, 정서 중심적 대처를 사용할 경우 정신건강에 부정적 영향을 주었다. 그러나 중요한 것은 우리나라 청소년들이 문제 중심적 대처와 같은 건강한 스트레스 대처전략을 사용하지 못하고 정서 중심적 대처와 같은 건강하지 못한 스트레스 대처전략을 사용하고 있다. 이것은 문제 중심적 대처에 해당하는 학업상담, 진로상담, 취업캠프, 다양한 운동프로그램 및 관련 시설 등을 이용하고 있지 못하고 있음을 의미한다. 따라서 청소년들이 이러한 서비스와 프로그램을 보다 쉽게 사용할 수 있도록 접근용이성, 비용문제, 관련 제반시설 및 인력의 확충과 같은 환경적 차원의 개입이 보완되어야 한다.

**주요어:** 다차원 스트레스 대처 모형, 정신건강, 결속형 사회적 자본, 학업스트레스, 긍정적·부정적 자존감, 대처유형, 주관적 행복감, 자살생각

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