



***BIOPSYCHOSOCIAL CORRELATES OF LIFE SATISFACTION
AMONG ADOLESCENTS IN SELANGOR, MALAYSIA***

CHIONG HOE NEE

FEM 2015 1



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AMONG ADOLESCENTS IN SELANGOR, MALAYSIA**

By

CHIONG HOE NEE

**Thesis Submitted to the School of Graduate Studies,
Universiti Putra Malaysia, in Fulfillment of the Requirements
for the Degree of Doctor of Philosophy**

April 2015

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

BIOPSYCHOSOCIAL CORRELATES OF LIFE SATISFACTION AMONG ADOLESCENTS IN SELANGOR, MALAYSIA

By

CHIONG HOE NEE

April 2015

Chairman: Siti Nor Yaacob, PhD
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Adolescents who are physically and psychologically healthy are invaluable assets to the nation. However, increasing cases of behavioral problems among adolescents in Malaysia may reflect their dissatisfaction in life. When they are dissatisfied with their life, they get involved in maladjustment behaviors. Thus, it is crucial and necessary to understand adolescents' life satisfaction and its contributing factors. Life satisfaction is influenced by multiple factors such as biological, psychological and social factors. Analyzing "bio", "psycho" and "social" factors concurrently are important in understanding life satisfaction. These three components are regarded as "biopsychosocial" factors. The main objective of this study is to examine biopsychosocial (physical health, body mass index, resilience, locus of control, family economic hardship, connectedness to family, connectedness to friends and connectedness to school) correlates of life satisfaction among adolescents in Selangor.

This study used a quantitative approach and non-experimental correlational research design. The respondents of the current study consisted of 451 secondary school students aged between 14 and 17 years old. They were identified through multi-stage cluster sampling technique from secondary schools in Selangor. The data were collected using self-administered questionnaires in a class setting. Six well-established instruments were used to assess variables of the study. Descriptive, bivariate and multivariate statistics were utilized in data analysis.

Pearson correlation analysis showed that age of the respondents, physical health, resilience, locus of control, family economic hardship, connectedness to family and connectedness to school were significantly correlated to life satisfaction. In addition, physical health, locus of control, family economic hardship, connectedness to family and connectedness to school were significantly related to resilience. The result of the t-test showed that there was no significant difference in life satisfaction between male and female adolescents. Meanwhile, ANOVA showed no differences in life satisfaction between body mass index groups among adolescents.

Multiple regression analysis found that background variables (age, father's education, mother's education and family income) and biopsychosocial variables (physical health, resilience, locus of control, family economic hardship, connectedness to family and connectedness to school) explained 27.2% of variance in adolescents' life satisfaction.

Connectedness to family appeared as the strongest predictor of life satisfaction among adolescents, followed by physical health. Mediation analysis also showed that resilience partially mediated the relationship between physical health, locus of control, connectedness to family and connectedness to school with life satisfaction among adolescents.

The present study highlighted the importance of biopsychosocial factors in promoting life satisfaction among secondary students in Selangor. The contribution of these variables on life satisfaction were indirect through resilience. Relationships between the independent variables and life satisfaction as dependent variable, with resilience as partial mediator implied that life satisfaction among adolescents can be enhanced if they possess personal resources or skills such as resilience in overcoming adversity in life.

This study provides implications for theory and knowledge advancement in the field of human development specifically on life satisfaction among adolescents. It also provides practical implications to practitioners in conducting programs and activities aimed to improve adolescents' life satisfaction.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

HUBUNG KAIT FAKTOR BIOPSIKOSOSIAL DENGAN KEPUASAN HIDUP DALAM KALANGAN REMAJA DI SELANGOR, MALAYSIA

Oleh

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April 2015

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Remaja yang sihat dari segi fizikal dan psikologi adalah aset yang berharga kepada negara. Namun begitu, peningkatan kes tingkah laku dalam kalangan remaja mungkin membayangkan ketidakpuasan mereka dalam hidup. Apabila mereka tidak berpuas hati dengan kehidupan mereka, mereka melibatkan diri dalam tingkahlaku salah penyesuaian. Oleh itu, kajian ini adalah penting dan diperlukan bagi memahami kepuasan hidup remaja dan faktor-faktor penyumbanganya. Kepuasan hidup dipengaruhi oleh pelbagai faktor seperti faktor biologi, psikologi dan sosial. Analisis faktor “bio”, “psiko” dan “sosial” serentak adalah penting dalam memahami kepuasan hidup. Tiga komponen ini dikenali sebagai faktor “biopsikososial”. Tujuan utama kajian ini adalah untuk mengenalpasti hubung kait faktor biopsikososial (kesihatan fizikal, indeks jisim badan, resiliens, lokus kawalan, kesusahan ekonomi keluarga, pertalian dengan keluarga, pertalian dengan rakan dan pertalian dengan sekolah) dengan kepuasan hidup dalam kalangan remaja di Selangor.

Kajian ini menggunakan pendekatan kuantitatif dan reka bentuk kajian korelasi bukan eksperimen. Responden bagi kajian ini terdiri daripada 451 pelajar sekolah menengah yang berumur di antara 14 hingga 17 tahun. Mereka dikenalpasti melalui teknik persampelan kelompok pelbagai tahap dari sekolah menengah di Selangor. Data dikutip dengan menggunakan borang soal selidik yang ditadbir sendiri dalam persekitaran kelas. Enam instrumen yang mantap digunakan untuk pembolehubah-pembolehubah kajian. Statistik deskriptif, bivariat dan multivariat digunakan dalam analisis data.

Analisis korelasi Pearson menunjukkan bahawa umur responden, kesihatan fizikal, resiliens, lokus kawalan, kesusahan ekonomi keluarga, pertalian dengan keluarga dan pertalian dengan sekolah mempunyai perkaitan yang signifikan dengan kepuasan hidup. Di samping itu, kesihatan fizikal, lokus kawalan, kesusahan ekonomi keluarga, pertalian dengan keluarga dan pertalian dengan sekolah berkait secara signifikan dengan resiliens. Hasil ujian-t menunjukkan bahawa tiada perbezaan yang signifikan dalam kepuasan hidup di antara remaja lelaki dan perempuan. Sementara itu, ujian Anova menunjukkan tiada perbezaan dalam kepuasan hidup di antara remaja berlainan kumpulan indeks jisim tubuh.

Analisis regresi berganda mendapati bahawa pembolehubah latar belakang (umur, pendidikan bapa, pendidikan ibu dan pendapatan keluarga) dan pembolehubah biopsikososial (kesihatan fizikal, resiliens, lokus kawalan, kesusahan ekonomi keluarga,

pertalian dengan keluarga dan pertalian dengan sekolah) menerangkan 27.2% varians dalam kepuasan hidup remaja. Pertalian dengan keluarga muncul sebagai prediktor terkuat untuk kepuasan hidup remaja, disusuri oleh kesihatan fizikal. Analisis pengantaraan juga menunjukkan bahawa resiliens merupakan pengantara separa dalam perhubungan antara kesihatan fizikal, lokus kawalan, pertalian dengan keluarga dan pertalian dengan sekolah dengan kepuasan hidup remaja.

Kajian ini menekankan kepentingan faktor biopsikososial dalam meningkatkan kepuasan hidup dalam kalangan pelajar sekolah menengah di Malaysia. Sumbangan pembolehubah ini terhadap kepuasan hidup adalah secara tidak langsung melalui resiliens. Hubungan antara pembolehubah-pembolehubah bebas dan kepuasan hidup sebagai pembolehubah bersandar, dengan resiliens sebagai pengantara separa menunjukkan bahawa kepuasan hidup dalam kalangan remaja boleh dipertingkatkan jika mereka mempunyai sumber atau kemahiran peribadi seperti resiliens dalam mengatasi kesukaran dalam kehidupan.

Kajian ini memberi implikasi bagi teori dan peningkatan pengetahuan dalam bidang pembangunan manusia terutamanya dalam kepuasan hidup remaja. Kajian ini juga memberi implikasi praktikal kepada pengamal dalam mengendalikan program dan aktiviti bertujuan untuk meningkatkan kepuasan hidup remaja.

ACKNOWLEDGEMENTS

Every steps involved in the completion of this research project had been a colossal but great learning journey for me. I would like to take this golden opportunity to thank everyone who had directly or indirectly contributed towards my research's development and accomplishment.

First and foremost, I would like to express my deepest gratitude to my supervisor, Dr. Siti Nor Yaacob for her never ending guidance, encouragement and constructive comments during the whole duration of my study. It was really a meaningful and fun experience to work under her supervision. Her intelligence and kindness are outstanding. Thanks for being my supervisor throughout these challenging years.

My sincere appreciation also goes to the members of my supervisory committee, Professor Dr. Rozumah Baharudin and Dr. Tan Jo-Pei. With their expertise, they provided me with valuable feedback throughout the dissertation process. They gave me the full support and encouragement during my difficult time. A big gratitude to both of you for the time and effort offered to me all these years.

Acknowledgement is also extended to my fellow colleagues and friends from Faculty of Human Ecology, Universiti Putra Malaysia for their infinite aid, support and encouragement. Getting to know you all, working together in the same office to achieve the same goal was really enjoyable. Things became easier when I have you all in my social support system.

Last but not least, I owe more than gratitude to my beloved parents and family members. Words cannot express my heartfelt love and deepest appreciation that I have for all of you. Thanks to all of you for the endless love, support and sacrifice. Thanks for trusting me all the way.

May God bless each and every one of you.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Adolescence is a transition period between childhood and adulthood. At this distinct development phase that all human beings need to go through, physical and psychological changes occur and lead adolescents to see themselves differently than they did as children. The Earth we are living in now is full of challenges. Without adequate skills and good support systems, human beings no matter what ages can be affected by these challenges, let alone adolescents, who are in the phase of exploring for identity. Internal distractions such as depression, anxiety and stress increase during adolescence (Al-Gelban, 2007) and threatened their life satisfaction.

Adolescents who are physically and psychologically healthy are invaluable national assets. They made up of a large proportion of Malaysian population. The 2010 Population and Housing Census of Malaysia shows that children below 15 years old are about 28% of the Malaysian population (Department of Statistics, 2013). It is essential to generate a group of high-quality, human capital of youths to promote the development of the nation according to the Tenth Malaysia Plan (Economic Planning Unit, 2014). To develop optimal development, good well-being is imperative. Good well-being does not only mean the absence of illness but also include emotional and social well-being. Therefore, well-being must be understood subjectively.

Life satisfaction is a subjective measure of well-being and serves as an agent for positive emotion. It also plays an important role in adjustment or adaptation. Life satisfaction is the cognitive appraisal of the quality of a one's overall life or particular aspects of life, for example family, friends and community (Pavot et al., 1991). It incorporates wide-ranging range of functioning (Suldo & Huebner, 2006). It is a vital subjective element for health and it means the cognitive appraisal of the quality of one's life as a whole or with specific domains (Deiner & Diener, 1999). People who perceived higher level of life satisfaction generally experience more positive feelings than negative ones (Suldo & Huebner, 2006). However, life satisfaction is not merely an outcome from negative experiences. It can also be predictive towards psychological distress and maladaptive behavior (Schiff, Nebe & Gilman, 2006).

Life satisfaction has been found to be decreased during adolescence (Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007). In Erik Ericson's developmental theory, adolescence is described as the breakdown of the former framework of life and characterized by a 'crisis'. Adolescents face crisis of identity versus role confusion. During this period, they are constantly searching for identity and many factors can influence their development. If they are unable to develop an identity at this age, role confusion will continue during adulthood. They are uncertain about who they are. Therefore, decreasing in life satisfaction among adolescents becomes a direct outcome when facing crisis.

Longitudinal studies have revealed that low levels of life satisfaction forecast internalising and externalising behaviors and also peer victimization experiences in the future (Haranin, Huebner, & Suldo, 2007; Martin, Huebner, & Valois, 2008). Life satisfaction was also found to be negatively correlated to problem behavior such as

substance abuse and delinquency (Sun & Shek, 2010). As poor life satisfaction contributes to problems in adolescents, understanding the predictors that contribute to life satisfaction would be beneficial to the development of healthy adolescents. Life satisfaction among adults has been studied broadly whereas the life satisfaction of children and adolescents has only received attention few years back (Proctor, Linley, & Maltby, 2009).

Past researchers have studied many contributing factors to the life satisfaction of adolescents and the factors are individual factors and the interactions with multiple environment contexts. Individual factors include individual attributes or characteristics such as physical health and emotional health (Benyamini, Leventhal, & Leventhal, 2004; Zullig, Valois, Huebner, & Drane, 2005; Suldo & Shaffer, 2008; Swami et al., 2007), body mass index (Tabak, Mazur, Oblacinska, & Jodkowska, 2007; Hudson & Farrell, 2009), resilience (Abolghasemi & Varaniyab, 2010; Extremera, Durán, & Rey, 2009), locus of control (Giman & Huebner, 2006; Rigby & Huebner, 2005), personality (Rigby & Huebner, 2005; Ho, Cheung & Cheung, 2008) and self-esteem (Arslan, Hamarta, & Uslu, 2010). For example, adolescents who have higher emotional stability are likely to make adaptive attributes to achieve higher life satisfaction (Rigby & Huebner, 2005) whereas self-esteem is positively linked to life satisfaction (Arslan, Hamarta, & Uslu, 2010).

Besides these personal factors, environmental contexts also have influences on life satisfaction. Studies on environmental contexts in relation to life satisfaction have primarily focused on the quality of microsystem such as family, peer and school (Suldo, Huebner, Friedrich, & Gilman, 2009). Family factors can be family structure and family functioning. Adolescents not living with both parents had greater risk of life dissatisfaction (Kwan, 2008; Zullig et al., 2005). A dysfunctional family is more likely to have their children having low life satisfaction (Shek, 2005). Meanwhile, relationship with peers has positive correlations with life satisfaction (Perrone, Webb, & Jackson, 2007; Nickerson & Nagle, 2004). Academic achievement also correlates with students' life satisfaction positively (Suldo, Riley, & Shaffer, 2006).

In correlational studies, age was found to be negatively correlated with life satisfaction (Goldbeck et al., 2007; Park, 2005; Chang, McBride-Chang, Stewart, & Au, 2003; cited in Proctor, Linley, & Maltby, 2009). It implies that as children grow older, they become less satisfied with their lives. There are gender differences between boys and girls. Boys reported significantly higher level of life satisfaction than girls (Goldbeck et al., 2007). Meanwhile, socioeconomic status was found to be positively correlated with life satisfaction (Ash & Huebner, 2001). Students with lower socioeconomic status reported lower life satisfaction. In summary, there are many factors that may lead to life dissatisfaction. The factors can be combined and named as "biopsychosocial" factors.

The "biopsychosocial" term was first introduced by a psychiatrist, George Engel on 1977. He refers it as the approach stating that body (bio), mind (psycho) and environment (social), each as systems of the body, play a significant role in human functioning. This biopsychosocial model has been used as a broader view of well-being instead of the usual biomedical approach. Biomedical approach views well-being in terms of deviation from normal biological functioning, and health is understood solely in terms of biological factors (Miles, 2013). Engel believed that combinations of

biological, psychological and social factors were important in understanding health and not purely biological terms.

By applying the concept of “systems”, the whole person can be conceptualized. Each system is dynamic entity with components that are continuously interrelated, such as exchanging energy, substances and information (Sarafino, 2002). For example, our body is a system that includes the organs, tissues and cells, performing various life processes. Simpler systems are placed within larger and more complex ones, and can affect another system at another level. Santrock (2007) noted that biological component of biopsychosocial approach looks into how well-being is affected by functioning of one’s body. The psychological component seeks potential roots of problems for example lack of self-control whereas the social part looks into social factors for instance socioeconomic status or culture.

Upadhyay and Singh (2010) mentioned that biopsychosocial approach does not provide a straightforward or a testable model to explain the interactions or causal influences by each of the components (biological, psychological, and social). Rather, it is a general framework to guide theoretical and empirical exploration. The “biopsychosocial” term is often used in medicine, psychiatry, sociology and health psychology fields. For example, McGill (2011) took biopsychosocial approach to correlate biological factors, psychological factors and social factors into account of depression, and the three components of “biopsychosocial” were analyzed separately. Each component can have different set of variables.

The biopsychosocial perspective resonates strongly with holistic perspectives such as ‘person-in-environment’ and ‘psychosocial’ approaches (Taylor, 2006). It focuses on achieving change within individual and immediate environment. An underlying tenet of this approach is because an individual does not always have control over broader factors that influence their well-being. The variables were chosen based on this approach and guided by three theories, which were bioecological theory of human development, self-determination theory and resilience theory.

In biological component, physical health and body mass index were chosen because biological aspect looks into functioning of one’s body which might be genetically inherited. For psychological component, resilience and locus of control were selected as these two personal traits are internal mental abilities of adapting successfully despite adversity (Cummings, Davies, & Campbell) and having control over life events (Vijayashree & Jagdishchandra, 2011) respectively. Resilient people have sense of meaningful life and willpower to go forward and thus can cope with life events successfully (Wagnild, 2010) whereas people who have internal locus of control have positive thinking and work hard for achievement (Kaya, 2007).

Meanwhile, family economic hardship, connectedness to family, connectedness to friends and connectedness to school were chosen to represent social factors as family, friends and school are the immediate environments of an adolescent. According to Bernat and Resnick (2009), connectedness acts as protective factor in life. People with sense of connectedness tend to perceive higher support that may lead to positive life satisfaction.

In the current study, “biopsychosocial” is the term used to refer to all the independent variables pertaining to adolescents’ life satisfaction. The variables are physical health,

body mass index, resilience, locus of control, family economic hardship, connectedness to family, connectedness to friends and connectedness to school. As subjective well-being has constantly been identified as a significant psychological aspect linked with health, positive growth and well-being in adults (Diener & Diener, 2009), it is important to understand life satisfaction in adolescents and increase their life satisfaction. Therefore, current study examined the influence of biological (physical health and body mass index), psychological (resilience and locus of control), and social (family economic hardship, connectedness to family, connectedness to friends and connectedness to school) factors of life satisfaction among adolescents as major risks to good life satisfaction because human development involves interactions between one self and social environments.

Besides, the role of resilience as mediator between biopsychosocial correlates and life satisfaction were also examined. The concept of proximal was taken into account. A proximal factor rather than a distal factor was chosen. Resilience is a proximal cause which is purely psychological, closely linked with individual and also easier to intervene. The effect of the correlates on life satisfaction may be mediated by resiliency one possesses. Research on resilience had particularly focused on specific populations or people at-risk. However, it is not peculiar to study resilience on normal population. Some researchers conducted study on resilience among normal schooling adolescents (Sharkey, You, & Schnobelen, 2008) and young people (Beltman & MacCallum, 2006).

1.2 Problem Statement

Conduct behavior problems among youths in the country have increased alarmingly. Number of cases of children involving in crime throughout the nation had increased from 3862 in 2009 to 5584 cases in 2013 (Department of Social Welfare, 2014). According to Lee Lam Thye (2014), police statistics revealed that year 2013 saw a 47% jump in nationwide violent crime among minors, aged between 12 and 17 years old. Some of them were even involved in murder and rape. These behavior problems may be reflecting dissatisfaction in life among adolescents. Adolescents who are not satisfied with their life have poor coping strategies and thus develop negative emotions and behavior (Kim & Kim, 2008).

Data from the Malaysia Global School-based Health Survey (GSHS) in 2012 revealed that 17.7% of respondents, or almost 1 in 5 Malaysian adolescents had depressive symptoms, (Kaur et al., 2014). On a local study on subjective well-beings among children aged 12 to 14 years old, the results showed that they scored between 68.1 and 77.1 out of 100 points on subjective well-beings which include happiness with life achievement, future security, health and personal safety (Clark, Amar-Singh, & Hashim, 2014). These statistics can portray the image that the level of life satisfaction among adolescents is not excellent.

Various maladjustment behaviors also occur when adolescents experience dissatisfaction with life. Adolescents who have low levels of life satisfaction are predicted to exhibit internalising and externalising behaviors in the future (Haranin, Huebner, & Suldo, 2007). They also tend to involve themselves more in substance abuse and delinquency (Sun & Shek, 2010). Life satisfaction was also a major predictor of suicidal ideation among adolescents (Park, Koo, & Schepp, 2005). Some adolescents even attempted suicide when they are dissatisfied with their life (Valois, Zullig, Huebner, & Drane, 2004). The suicide rate for Malaysia was 1.18 over 100,000

population (NSRM Ministry of Health Malaysia, 2011) and the range of the victims was 14 to 94 years old.

Past researches have indicated that there are various factors that influence adolescents' life satisfaction which include biological, psychological and social factors. Physical health (Sawatzky, Ratner, Johnson, Kopec, & Zumbo 2010; Shaffer-Hudkins, Suldo, Loker, & March, 2010), resilience (Abolghasemi & Varaniyab, 2010; Extremera et al., 2009), connectedness to family (Perrone et al., 2007; Nickerson & Nagle, 2004), connectedness to friends (Helliwell & Putnam, 2004; Leung, Cheung, & Liu, 2011) and connectedness to school (Van Ryzin, Gravely & Roseth, 2009; You et al., 2008) were positively correlated with life satisfaction among adolescents. Meanwhile, body mass index (Tabak et al., 2007; Hudson & Farrell, 2009) and family economic hardship (Raboteg-Saric, Brajsa-Zganec, & Sakic, 2008; Ash & Huebner, 2001) negatively influenced life satisfaction whereas adolescents who have internal locus of control reported higher life satisfaction control (Giman & Huebner, 2006; Rigby & Huebner, 2005).

Life satisfaction was found to have links with these biopsychosocial correlates. However, most of the studies (Piko & Hamvai, 2010; Abolghasemi & Varaniyab, 2010; Extremera et al., 2009) were carried out in Western countries. There is research gap to be filled as studies outside Western culture is still in infancy. Studies on these biopsychosocial factors are lacking as there are only limited studies in this topic in Malaysia. Only several studies have studied life satisfaction among Malaysian and studies among adolescents is even rare.

Based on database search in Scopus, Springerlink, Obschost, Sage, European Journal, Google Scholar and Google, local studies focused on medical students' physical health and depression on life satisfaction (Viren et al., 2007), staffs' demographic variables on life satisfaction (Jusoff, Hussien, Ju & Din, 2009), Chinese Malaysian adults' gender difference in marital and life satisfaction (Ng, Loy, Gudmunson, & Cheung, 2009) and older adults' stress and resources on life satisfaction (Ong & Phillips, 2003).

The studies (Jusoff, Hussien, Ju & Din, 2009; Ng et al., 2009) were also more descriptive in nature and only direct relationships were taken into account. The underlying mechanism of the relationships between these factors and life satisfaction is yet to be explored. These contributing factors may be stressors in life when adolescents perceive them as negative experiences, which influence life satisfaction among adolescents. As resilient people are confident to themselves and are able recognize their own abilities, regain balance and move forward regardless of any adversity (Wagnild, 2010), this study extends existing research by looking at resilience as a potential mediator. It is hypothesized that resilience acts as a mediator between biopsychosocial correlates and life satisfaction.

So, this study aims to examine the influence of biopsychosocial correlates (biological, psychological and social factors) on life satisfaction among adolescents in Selangor, Malaysia. Specifically, this study aims to examine the relationships between biological factor (physical health and body mass index), psychological factors (resilience and locus of control) and social factors (family economic hardship, connectedness to family, connectedness to friends and connectedness to school) which are all related to life satisfaction among adolescents. In addition, the indirect relationships between biopsychosocial correlates with life satisfaction through resilience were examined.

Based on the problem discussed above, the present study addressed the following research questions:

1. What are the nature of biological (physical health and body mass index), psychological (resilience and locus of control) and social (family economic hardship, connectedness to family, connectedness to friends and connectedness to school) factors with life satisfaction among adolescents in Selangor?
2. Are there any differences in life satisfaction between male and female adolescents in Selangor?
3. Are there any differences in life satisfaction between body mass index groups among adolescents in Selangor?
4. What are the unique predictors of life satisfaction among adolescents in Selangor?
5. To what extent resilience mediates the relationship between biopsychosocial predictors and life satisfaction among adolescents in Selangor?

1.3 Objective of the Study

1.3.1 General Objective

The general objective of the present study was to examine biopsychosocial correlates (biological factors – physical health, body mass index; psychological factors – resilience, locus of control; social factors – family economic hardship, connectedness to family, connectedness to friends, connectedness to school) of life satisfaction among adolescents in Selangor.

1.3.2 Specific Objectives

1. To describe personal characteristics (age, gender, ethnic and religion), parents' characteristics (parents' age, education level, family income and marital status), family context (types of household, number of household, number of siblings and family structure), and the main variables of the study (physical health, body mass index, resilience, locus of control, family economic hardship, connectedness to family, connectedness to friends and connectedness to school) among adolescents in Selangor.
2. To describe the relationships between age, biological (physical health and body mass index), psychological (resilience, locus of control), social (family economic hardship, connectedness to family, connectedness to friends and connectedness to school) correlates and life satisfaction among adolescents in Selangor.
3. To compare the differences in life satisfaction between male and female adolescents in Selangor.
4. To compare the differences in life satisfaction between body mass index groups among adolescents in Selangor.
5. To determine the unique predictors of life satisfaction among adolescents in Selangor.
6. To determine the mediating effect of resilience on the relationships between biopsychosocial correlates and life satisfaction among adolescents in Selangor.

1.4 Hypotheses

Consistent with the specific objectives from 3 to 6, hypotheses were formulated as following:

Objective 3: To compare the differences in life satisfaction between male and female adolescents in Selangor.

H_{a1}: Female respondents have lower life satisfaction compared to male respondents.

Objective 4: To compare the differences in life satisfaction between body mass index groups among adolescents in Selangor.

H_{a2}: Respondents who do not have normal body mass index have lower life satisfaction.

Objective 5: To determine the unique predictors of life satisfaction among adolescents in Selangor.

H_{a3}: All selected variables entered into the regression model significantly predict adolescents' life satisfaction.

Objective 6: To determine the mediating effect of resilience on the relationships between biopsychosocial correlates and life satisfaction among adolescents in Selangor.

H_{a4}: Physical health indirectly influences adolescents' life satisfaction through resilience.

H_{a5}: Locus of control indirectly influences adolescents' life satisfaction through resilience.

H_{a6}: Family economic hardship indirectly influences adolescents' life satisfaction through resilience.

H_{a7}: Connectedness to family indirectly influences adolescents' life satisfaction through resilience.

H_{a8}: Connectedness to school indirectly influences adolescents' life satisfaction through resilience.

1.5 Significance of Study

Results from this study are significant for both theoretical and practical purposes. It is beneficial to fellow researchers, practitioners and policy makers of this area of study, as well as parents, teachers and adolescents. The first theoretical significance would be this study can contribute to knowledge advancement in the field of human development specifically on life satisfaction among adolescents. Studies in this area are lacking so current research can add to existing body of knowledge based on scientific study. With this current study, the relationships between biopsychosocial correlates and life satisfaction among Selangor adolescents can be figured out.

The second theoretical significance is the findings of the study can support the theories which were bioecological theory of human development, self-determination theory and resilience theory used to guide the present study. It can strengthen the existing theories which were used in the study. It also can be a basis or reference for other researchers. Additional variables can be added and the results can be compared with future research. The results can give contribution in creating a deeper understanding of life satisfaction among adolescents in Malaysia. Life satisfaction of adolescents can be promoted to maximal from the knowledge gained.

In terms of practical significance, the study is helpful to practitioners as potential input in conducting programs and activities aimed to improve adolescents' life satisfaction. The findings can be made public and shared with interested parties. Through the understanding of contributing factors of life satisfaction achieved from this study, experts can develop, initiate or implement appropriate programs or workshops for students, parents as well as teachers. For example, school curriculum can be designed for the best syllabus for adolescents to handle adolescents' dissatisfaction in life. The positive personal attributes can be incorporated into school curriculum so they learn how to manage their life better. It is crucial for parents to understand their children and possess good parenting skills, and communicate well with them. Teachers, on the other hand, also play a vital role in educating adolescents in terms of attitude in life as they spend many hours in school environment on weekdays. It would also be beneficial to adolescents who want to increase their life satisfaction.

1.6 Definition of Terms

Definition of terms in this section provides conceptual and operational definitions of variables used in the study. Conceptual definitions are based on previous researchers and operational definitions are based on instruments used in the study.

Biopsychosocial

Conceptual definition: Biopsychosocial is the approach concerning with the body, mind and environment aspects (Engel, 1977).

Operational definition: Biopsychosocial refers to respondent's physical health, body mass index, resilience, locus of control, family economic hardship, connectedness to family, connectedness to friends and connectedness to school.

Physical Health

Conceptual definition: Physical health is defined as the capacity to perform activities of daily living (Brussel et al., 2006).

Operational definition: Physical health refers to the scores obtained by respondent on the 5-item physical health subscales of Duke Health Profile (Parkerson et al., 1990). A higher score indicates better physical health.

Body Mass Index

Conceptual definition: Body mass index refers to an approximate measure of whether someone is over- or underweight (Riaz et al., 2014).

Operational definition: Body mass index is computed via the formula of $BMI = \text{height} \times \text{height (in meter)} \div \text{weight (kg)}$. BMI below 18.5 is categorized as underweight, BMI between 18.5 and 22.9 is classified as normal weight, BMI between 23 and 27.4 is overweight, and BMI of more or equal to 27.5 is regarded as obese.

Resilience

Conceptual definition: Resilience is defined as dynamic processes of physiological functioning which cultivate greater positive outcomes and decrease negative outcomes in spite of adversity (Cummings, Davies, & Campbell, 2000). It refers to protective factors that promote adaptation rather than as an outcome.

Operational definition: Resilience refers to respondent's score measured by 25-item of the Resilience Scale (Wagnild & Young, 1993) that covers numerous characteristics of resilience which include meaningful life, perseverance, equanimity, self-reliance and existential aloneness. Higher score indicating higher resilience.

Locus of Control

Conceptual definition: Locus of control refers to the extent of individual's beliefs on who is responsible for events (Vijayashree & Jagdishchandra, 2011).

Operational definition: Locus of control refers to total number of items out of 40 answered by respondents in an externally controlled direction by using *Children's Nowicki-Strickland Internal-External Locus of Control (CNSIE)* by Nowicki and Strickland (1973). Higher score expresses external locus of control while lower score are an indication of internal locus of control.

Family Economic Hardship

Conceptual definition: Family economic hardship refers to a family situation when they cannot satisfy the basic needs of daily living due to inadequate financial possessions such as having troubles paying bills, providing food and clothing, or having insufficient housing (Butterworth, Rodgers & Windsor, 2009).

Operational definition: Family economic hardship refers to respondents' score on a 10-item Economic Hardship Questionnaire (EHQ) (Lempers, Clark-Lempers & Simons, 1989). A higher score indicates of more economic hardship within family.

Connectedness to Family

Conceptual definition: Connectedness to family refers to the sense of belonging and closeness to one's family (Bernat & Resnick, 2009).

Operational definition: Connectedness to family refers to the respondent's total score of 11 items obtained from parent and sibling dimensions in The Hemingway Measure of Adolescent Connectedness (Karcher, 2003). Higher scores mean higher connectedness to family.

Connectedness to Friends

Conceptual definition: Connectedness to friends refers to the extent to which one person feels close to and spends time with friends (Karcher & Lee, 2002).

Operational definition: Connectedness to friends refers to the respondents' total score of 6 items obtained from friends dimensions in The Hemingway Measure of Adolescent Connectedness (Karcher, 2003). Higher scores mean higher connectedness to friends.

Connectedness to School

Conceptual definition: Connectedness to school refers to the viewpoint of a student on how adults in their school concern about him or her as a student and as an individual (Blum & Libbey, 2004).

Operational definition: Connectedness to school refers to the respondents' total score of 12 items obtained from school and teacher dimensions in The Hemingway Measure of Adolescent Connectedness (Karcher, 2003). Higher scores mean higher connectedness to school.

Life Satisfaction

Conceptual definition: Life satisfaction is defined as cognitive appraisal of the quality of one's overall life or specific facet of life, such as family, friends and community (Pavot, Diener, Colvin & Sandvik, 1991).

Operational definition: Life satisfaction refers to respondent's score measured on a 7-item version of Huebner's Students' Life Satisfaction Scale (SLSS) (1991). Higher score means the respondent has better life satisfaction.

1.7 Theoretical Background

Three theories were adopted to guide this current research. They were Bronfenbrenner's bioecological theory of human development, self-determination theory and resilience theory. These theories suggest that human development is strongly influenced by the person himself (Bronfenbrenner, 2005) and the social contexts in which human live and life satisfaction is determined by the desired needs that he set in biopsychosocial aspects of life (Ryan & Deci, 2000). Resilience, on the other hand, mediates the relationships between life stressors and life satisfaction (Hunter and Chandler, 1999).

Bioecological Theory of Human Development

The main theory used in this study is bioecological theory of human development. As human beings are interdependent to one another to survive in an ecosystem, the bioecological theory by Urie Bronfenbrenner (2005) suggests that human development is strongly influenced by the person himself and the social contexts in which human live. The person is used as a reference point for the centre of the ecological model. It pertains to a holistic system of the interactions that happen between an individual (their biological being) and the multifaceted, interconnected systems surrounding them in their activities daily. These interactions are identified as proximal processes.

According to the bioecological theory (Bronfenbrenner, 2005), development is continuous and refers to alteration in the biopsychological characteristics of human beings. Bioecological resources which include experience and skills of a person have been added to previous ecological theory for the effective functioning of proximal processes. Process-Person-Context-Time Model (PPCT) is the essence of the bioecological model. Proximal process is regarded as the primary mechanism for development. 'Person' is the function of personal characteristics in interactions with others. 'Context' involves five interconnected systems in one's surrounding. The last aspect, 'Time' has a crucial role in this developmental model.

Bioecological theory also highlights the importance of context of one's life. It is postulated that the development of an individual takes place in five contextual systems which influences the individual with different levels respectively. The five interlocking systems are:

- i. *Microsystem*, referring to the social and physical settings where the developing person experiences interactions. For example, the nuclear family and friends are parts of microsystem.
- ii. *Mesosystem*, referring to links between two or more microsystems. For example, the relationship between a child's family and the child's school is mesosystem.
- iii. *Exosystem*, referring to two or more settings which the developing person is not active participating in. For example, parental employment settings and health care.
- iv. *Macrosystem*, referring to all the settings that have a consistent influence on all the other systems. For examples, government, culture and media are macrosystem.
- v. *Chronosystem*, referring to the effects of time.

The adolescent functions within these systems with own sets of rules, norms and roles, and exploring to learn from each of them (Swick & Williams, 2006). All of these influence the psychological development of the individual. If the relationships in the immediate microsystem shatter, a child will be short of the tools to explore other components of his or her environment. The immediate microsystems included in this research are family, friends and also school. Each system is important and includes tasks, norms and set of laws that can shape adolescents powerfully. Within the family system, both intra-subsystemic (parent-child and sibling subsystem) and inter-subsystemic (between two subsystems) interactions occur. Friendship is important during adolescence as poor peer acceptance would lead to low life satisfaction and maladjustment behaviors. Meanwhile, adolescents spend most of their day time in school thus school system can powerfully influence them (Refer Figure 1.1).

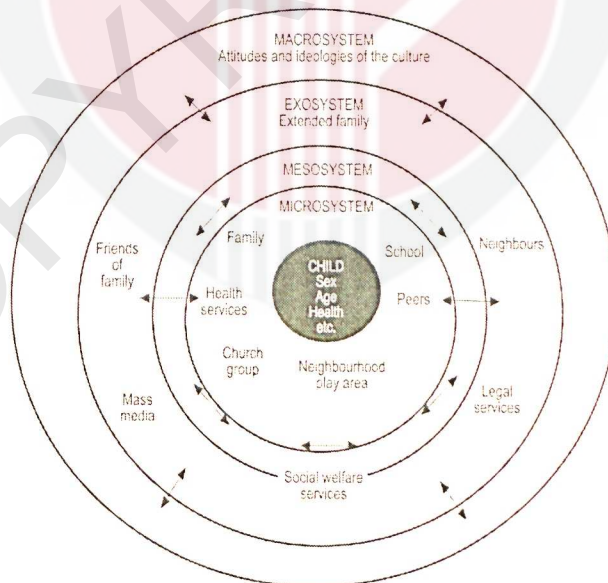


Figure 1.1. Bioecological theory of human development (from Dockrell & Messer, 1999).

Self-determination Theory

Desired needs suggest how individuals gain a sense of satisfaction. When desired needs are fulfilled, one will gain satisfaction. Self-determination theory (Ryan & Deci, 2000) believes that human beings are active organisms with natural and intensely evolved tendencies toward psychological growth. From birth, human beings have natural tendency to seek challenges and opportunities to learn. With that, it is clearly shown that intrinsic motivation which initiates an activity for its own sake is natural.

However, these tendencies need specific supports and nutriments from one's social environment. Self-determination theory proposes that there are three basic psychological needs that need to be fulfilled in order to promote well-being (Ryan & Deci, 2000). These are essential for psychological growth, integrity and wellness. The three needs are autonomy, relatedness and competence.

Autonomy refers to the intrinsic desire to experience a sense of choice, control and freedom over their own behavior (Ryan & Deci, 2000). Autonomy may be controlled by external rewards but is intrinsically motivated (Vansteenkiste, Lens & Deci, 2006). For example, students study mainly because they know that their parents will reward them if they do well in studies. Other external factors that influence human beings include evaluations, or opinions that they afraid others have on them (Ryan & Deci, 2000) or from within, by interests or curiosity. All these motivations can sustain passion, creativity and sustained efforts.

Relatedness is the desire to be connected, interact and also being loved and cared by others around them (Ryan & Deci, 2000). Relatedness is considered bidirectional, one person does not only seek to give or care, but also to receive or being cared by others. Components of relatedness include feeling of being understood, participating in meaningful conversation and having pleasure moments with others. Their needs can be satisfied if they develop close relationships with other people.

Competence means the effectiveness dealing with the environment and to obtain desired outcomes with it (Ryan & Deci, 2000). It is important in individuals' tendency to discover and influence the environment and to vigorously seek challenges to expand one's skills (Van den Broeck, Vansteenkiste, De Witte, Soenens & Lens, 2010).

Self-determination theory is a macro theory of human motivation, development and wellness (Deci & Ryan, 2008). It represents the underlying motivation mechanism that directs one behavior. Self-determination theory addresses basic issues such as personality development, self-regulation, universal psychological needs and life goals and aspirations as well as the impact of social environments on motivation, effect, behavior and well-being.

Resilience Theory

Resilience is belief in the ability of every person to overcome adversity if important protective factors are present in that person (Krovetz, 1999). Benard (1995) proposed that resilient children usually have four attributes in general which are social competence, problem-solving skills, autonomy and a sense of purpose and future. Most people have some of each of these attributes. However, the attributes might not be

strong enough to help individuals in coping with adversity they face in their lives. The attributes depend on protective factors in families, schools, and communities.

Resiliency, or resilience, is frequently explained and studied in context of a two-dimensional construct pertaining to the exposure of adversity and the positive adjustment outcomes of that adversity (Luther & Cicchetti, 2000). Resilience arises from the interactions of a dynamic system as it deals with a dynamic context (Lerner, 2006). Inside a person who behaves and feels reasonably well in spite of exposure to adversity, there are functional neural and stress response systems that enable her or him to mobilize attention, behavior, and emotion in the service of successful adaptation. The person may have supportive individuals in social context that instill her or him with a sense of predictability to deal better in adversity.

Hunter and Chandler (1999) describe the Continuum of Resilience in Adolescents which suggest that resilience among adolescents is dynamic and exist along a continuum of risk and healthy adaptation. This model suggests that resilience is a mediator between the relationship of risks and the outcome of stress. With resilience one possesses, the effect of risks maybe reduced because resilience people are able to cope well in adversity. An individual may be influenced by the internal and external factors such as developmental and moral processes. The model incorporates resilience along a continuum, as it is a premise of the authors that this construct can be positive or negative.

Risk factors are individual, family, school, peer, and community influences that increase the likelihood that a child will experience problems (Jenson & Fraser, 2015). Specifically, risk factors are related to any event, condition, or experience that increases the probability of chance or the likelihood that a problem behavior will occur at a later point in time. For example, risk factors are early onset of behavioural problems, punitive child-rearing, peer rejection and impoverished neighborhood.

Meanwhile, resilience can be enhanced by encouraging positive environments within families, schools and communities such as positive parent-child relationship, positive peer modelling and positive social norms in the community which can be referred as the protective factors. Knowledge of risk, protection and resilience often informs the development of early intervention strategies.

Integration of Theories

Bronfenbrenner's bioecological theory of human development, self-determination theory and the resilience theory are integrated to represent a theoretical framework for this present study (Figure 1.2). Biological factors look into the factors that might be genetically inherited from parents such as physical health and body mass index. Psychological factors that are related to life satisfaction are autonomy and competence according to self-determination theory which is also the self part of bioecological theory. In this study, locus of control and resilience would be the psychological factors of life satisfaction. For social factors, relatedness in self-determination theory would be measured in terms of the family economic hardship, connectedness to family, connectedness to friends and connectedness to school, the microsystems of adolescent's development. One's life satisfaction is the outcome of interactions between biological system, psychological system and also social system. Besides looking at the direct effect of these factors on life satisfaction, the current study also

explored the indirect effect of them. The resilience theory which suggests that resilience is a mediator between the relationship of risks and the outcome of stress, explore the role of resilience, to determine if it mediates the relationships between all these biopsychosocial correlates and life satisfaction.

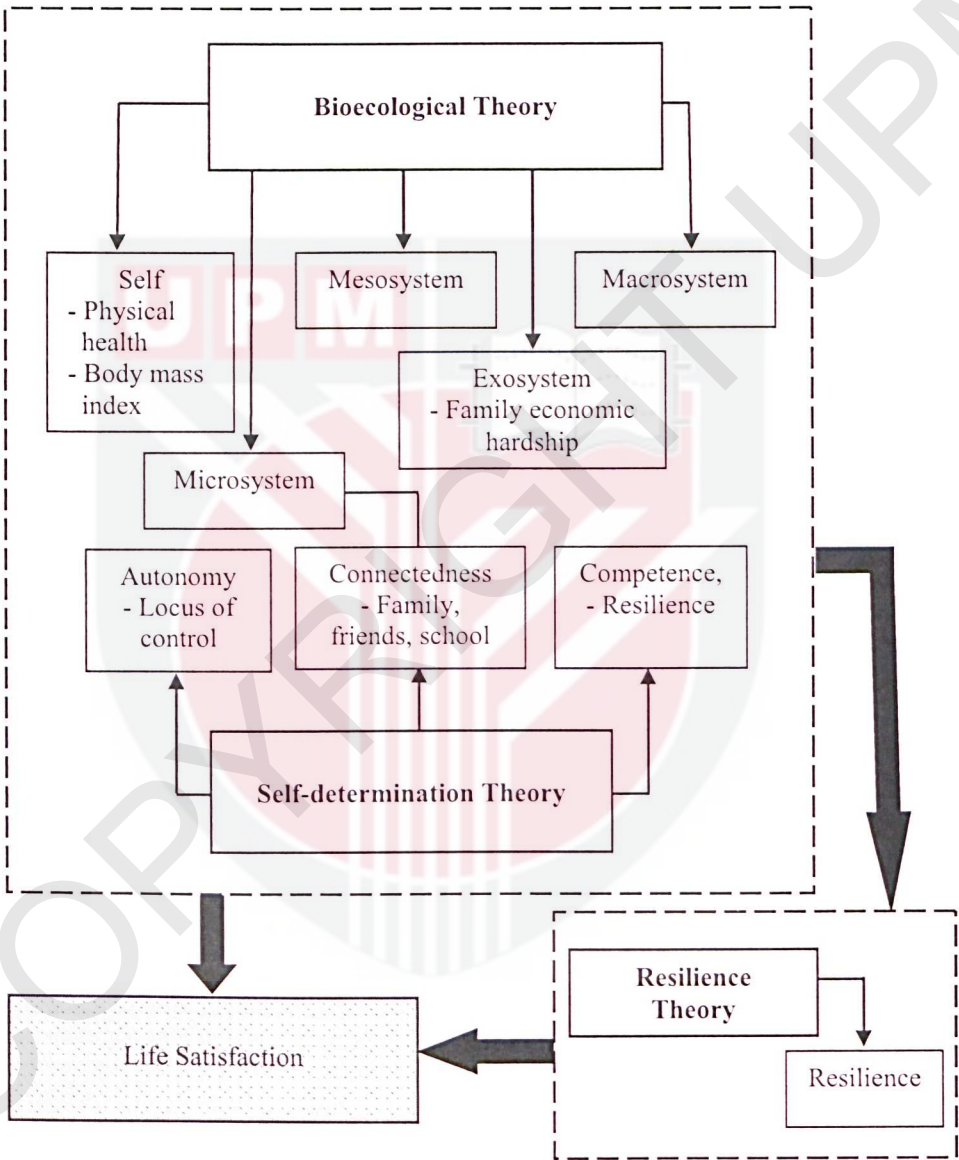


Figure 1.2. Integrated theoretical framework.

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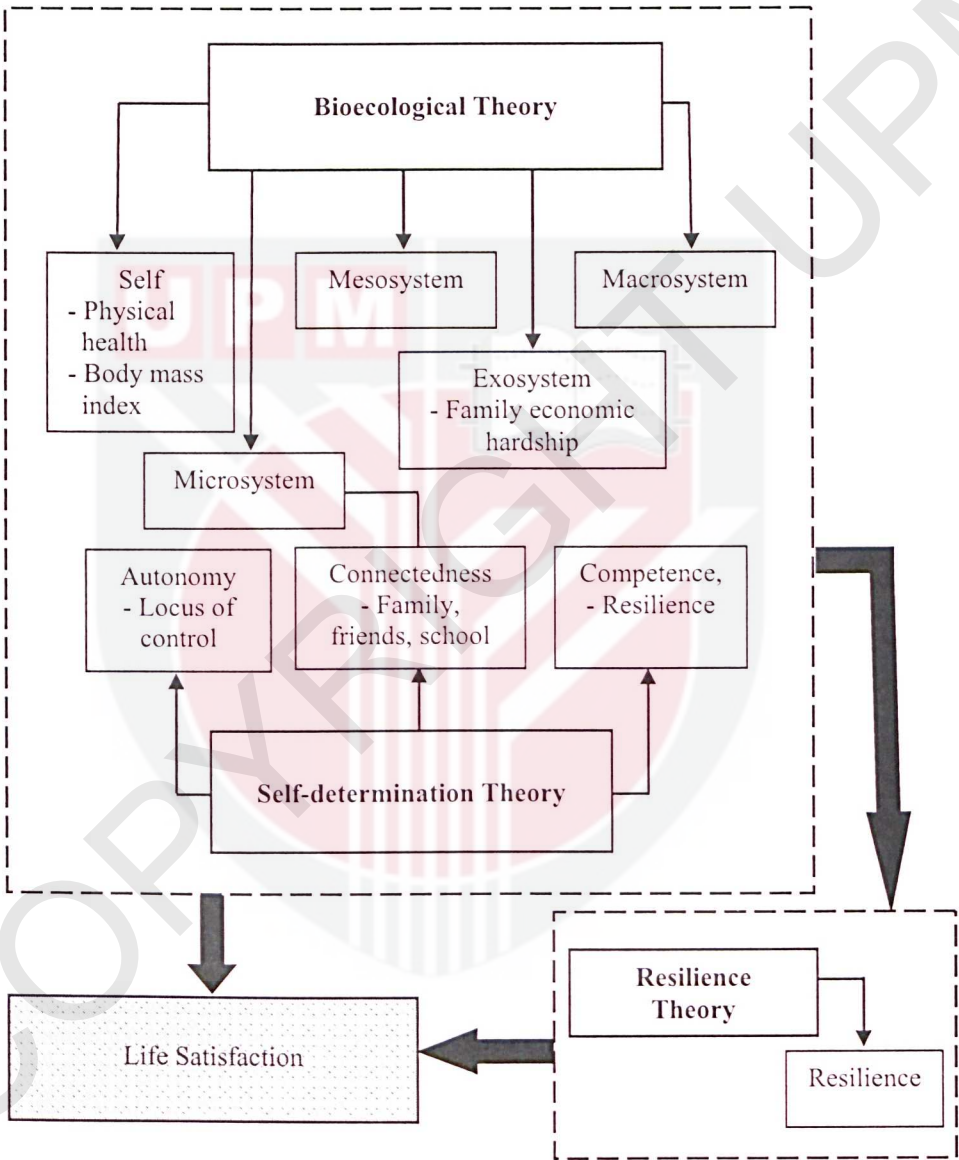


Figure 1.2. Integrated theoretical framework.

1.9 Limitation

This study has several limitations. First, this study was only conducted in Selangor. Although Selangor has the highest number of enrollments into secondary schools, it cannot be inferred to the whole population of adolescent in Malaysia as the findings were based on one state in Malaysia only. The second limitation is the respondents are sampled from secondary schools and only involved students from Form 2 and Form 4. This cannot fully represent the population as only those who were schooling in those forms were taken as respondents.

Besides, the accuracy of findings is solely based on the honesty and interpretation of the respondents. Some may not answer the questions honestly or some may interpret the questions differently. This present study also limited by its dependence on self-report data to measure all variables. Another limitation of the study is confounding variables are unable to control. As this present study used correlational design, it cannot control the confounding variables that may impact life satisfaction.

Lastly, the present study only focused on several factors which are related to life satisfaction although the nature of the topic is complex. There are other variables which are likely to contribute to life satisfaction as well. Research in the future should contemplate other factors for example personality, self-concept and parenting style.

1.10 Summary

This chapter highlighted the introduction and also the problem statement of the study, stated the objective of this study, which was to examine the influence of biopsychosocial correlates on life satisfaction among adolescents in Selangor. The theoretical background and conceptual framework are explained, and the terminologies used in this study are conceptually and operationally defined. This chapter also captured the significance of the study and the projected limitation of the study.

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