

**RELATIONSHIP BETWEEN RELIGIOSITY AND  
HAPPINESS: THE MEDIATING ROLE OF SELF-  
CONTROL, SELF-REGULATION, AND LIFE  
SATISFACTION**

**ABDUL AZIZ RUSMAN**

**UNIVERSITI SAINS MALAYSIA**

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by

**ABDUL AZIZ RUSMAN**

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**HUBUNGAN ANTARA KEAGAMAAN DAN KEGEMBIRAAN: PERANAN  
PENGANTARA KAWALAN KENDIRI, PERATURAN KENDIRI, DAN  
KEPUASAN HIDUP**

**ABSTRAK**

Keagamaan telah dikaitkan dengan kegembiraan tetapi laluan sebenar yang menggariskan hubungan tersebut masih kabur. Satu mekanisme yang mungkin dapat menerangkan hubungan antara keagamaan dan kegembiraan adalah peranan keagamaan dalam mempromosikan kawalan dan peraturan sendiri. Kawalan dan peraturan sendiri kemudiannya mempengaruhi kepuasan hidup dan seterusnya kegembiraan. Tujuan kajian ini adalah untuk mengkaji hubungan antara keagamaan, kawalan sendiri, peraturan sendiri, kepuasan hidup dan kegembiraan. Lebih khusus lagi, kajian ini mengkaji (1) hubungan antara keagamaan dan kawalan sendiri; (2) hubungan antara keagamaan dan peraturan sendiri; (3) kesan pengantaraan kawalan sendiri dan peraturan sendiri terhadap hubungan antara keagamaan dan kepuasan hidup; dan (4) kesan pengantaraan kawalan sendiri, peraturan sendiri, dan kepuasan hidup terhadap hubungan di antara keagamaan dan kegembiraan. Peserta kajian terdiri daripada enam ratus dua puluh lapan orang dewasa pertengahan di Medan, Indonesia. Mereka direkrut melalui persampelan bertujuan dan berstrata. Kajian ini menggunakan reka bentuk rentas dan pendekatan kuantitatif. Data dikumpul menggunakan lima soal selidik laporan sendiri, iaitu Skala Kegembiraan Subjektif / *Subjective Happiness Scale* (Lyubomirsky et al., 1999); Skala Kepuasan dengan Kehidupan / *Satisfaction with Life Scale* (Diener, et al, 1985); Skala Keutamaan Keagamaan / *Centrality of Religiosity Scale* (Huber, 2003); Skala Ringkas Kawalan Kendiri / *The Brief Self-Control Scale* (Tangney, et al., 2004); dan Skala Peraturan

Kendiri / *Self-Regulation Scale* (Schwarzer, et al, 1999). Data dianalisis dengan menggunakan Model Persamaan Struktur / *Structural Equation Model* (menggunakan perisian LISREL 8.80) yang penelitian varians antara pembolehubah dalaman (*endogenous*) dan luaran (*exogenous*) dilakukan serentak. Keputusan menunjukkan bahawa (a) keagamaan berkait secara positif dengan kawalan sendiri (.287,  $p < .01$ ), dengan magnitud hubungan saiz kesan adalah .083; (b) keagamaan mempunyai kaitan positif dengan peraturan (.283,  $p < .01$ ), dengan magnitud hubungan saiz kesan adalah .174; (c) kawalan sendiri dan peraturan sendiri menunjukkan kesan pengantara secara positif untuk hubungan di antara keagamaan dan kepuasan hidup (.131,  $p < .05$  untuk keagamaan; .283,  $p < .01$  untuk kawalan sendiri; dan .299,  $p < .01$  untuk peraturan sendiri), magnitud hubungan menunjukkan saiz kesan 0.333; dan (d) kawalan sendiri, peraturan sendiri, dan kepuasan hidup menunjukkan kesan pengantara secara positif untuk hubungan di antara keagamaan dan kegembiraan (.188,  $p < .01$  untuk keagamaan; .275,  $p < .01$  untuk kawalan sendiri; .439,  $p < .01$  untuk peraturan sendiri; dan .240,  $p < .01$  untuk kepuasan hidup) dengan magnitud hubungan yang diperkali menunjukkan saiz kesan .794. Penemuan ini memberikan bukti tentang peranan penting kawalan diri dan peraturan sendiri dalam menjelaskan hubungan di antara keagamaan dan kegembiraan dan menyumbang kepada pemahaman yang lebih baik mengenai mekanisme yang menggariskan hubungan di antara pembolehubah - pembolehubah ini.

**RELATIONSHIP BETWEEN RELIGIOSITY AND HAPPINESS: THE  
MEDIATING ROLE OF SELF-CONTROL, SELF-REGULATION, AND  
LIFE SATISFACTION**

**ABSTRACT**

Religiosity has been associated with happiness but the exact pathway outlining the relationship remains unclear. One possible mechanism explaining the relationship between religiosity and happiness is the role of religiosity in promoting self-control and self-regulation. Self-control and self-regulation subsequently influence life satisfaction and consequently happiness. The aim of this study is to examine further the relationships between religiosity, self-control, self-regulation, life satisfaction and happiness. More specifically, this study examines (1) the relationship between religiosity and self-control; (2) the relationship between religiosity and self-regulation; (3) the mediating effect of self-control and self-regulation on the relationship between religiosity and life satisfaction; and (4) the mediating effect of self-control, self-regulation, and life satisfaction on the relationship between religiosity and happiness. Participants were six hundred and twenty-eight of middle adults in Medan, Indonesia. They were recruited through purposive stratified sampling. This explanatory research employed a cross-sectional design and a quantitative approach. Data were collected using five self-report questionnaires, namely the Subjective Happiness Scale (Lyubomirsky et al., 1999); the Satisfaction with Life Scale (Diener, et al., 1985); the Centrality of Religiosity Scale (Huber, 2003); the brief Self-control Scale (Tangney, et al., 2004); and the Self-regulation Scale (Schwarzer, et al., 1999). Data were analyzed by applying Structural Equation Model (using the LISREL software 8.80) which provides

simultaneous examination of variance between endogenous and exogenous variables. The results revealed that (a) religiosity was positively related to self-control (.287,  $p < .01$ ), the magnitude of the relationship had an effect size of .083; (b) religiosity was positively related to self-regulation (.283,  $p < .01$ ), the magnitude of the relationship had an effect size of .174; (c) self-control and self-regulation positively mediated the relationship between religiosity and life satisfaction (.131,  $p < .05$  for religiosity; .283,  $p < .01$  for self-control; and .299,  $p < .01$  for self-regulation), the magnitude of the relationship had an effect size of 0.333; and (d) self-control, self-regulation, and life satisfaction were positively mediated the relationship between religiosity and happiness (.188,  $p < .01$  for religiosity; .275,  $p < .01$  for self-control; .439,  $p < .01$  for self-regulation; and .240,  $p < .01$  for life satisfaction) the magnitude of the relationship by squaring the coefficient had an effect size of .794. The finding provides evidence for the important role of self-control and self-regulation in explaining the relationship between religiosity and happiness and contributes to better understanding about the mechanisms outlining the relationship between these

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

The quest to live a happy life is the fundamental drive of human natural instinct. Whatever the behaviors people may conduct, they are all motivated to move toward ever-greater personal happiness (Lyubomirsky, 2008). Indeed, many substantial evidences have elucidated that happiness is associated with and precedes desirable life outcomes. For example, happiness has led to greater longevity (Danner, et al., 2001; Ostir, et al., 2000), better social life and more cooperation with others (Diener & Seligman, 2004; Schimmack, et al., 2004), stronger relationships (Feeney & Collins, 2015), less depression (Smith, et al., 2003), and even less chances to engage in criminal activity (Baier & Wright, 2001).

Recently, the concept of happiness is almost indistinguishable from life satisfaction that leads for them to be used interchangeably (Lucas, et al., 2003; Staw & Barsade, 1993). Despite these terms are interconnected concepts, however, both terms comprised different meanings that are often mixed up. Life satisfaction requires cognitive processing of the conditions of life as a whole (Diener, et al., 2004), whereas happiness concerns the sum of emotional experiences as time passes (Lyubomirsky, et al., 2005). Thus, it is possible for a person to be satisfied with life even if he or she experiences little pleasant affect, and vice versa (Diener, et al., 2004). The present study proposes this conceptual differences between happiness and life satisfaction, in which life satisfaction may lead to the happiness (Heller et al., 2004; Pearson, 2008).



There is a long history of scientific studies from a multitude of disciplines pointing out that religiosity has a positive link to happiness (Inglehart, 2010). A huge amount of published researches have generated almost similar conclusions that religiosity is positively and consistently related to life satisfaction and happiness (Sillick, et al., 2013; Diener, et al., 2011; Inglehart, 2010). Although it seems fair established and well documented, but the mechanism of how religiosity shapes life satisfaction and effects happiness remains not fully understood. This leads to the need to investigate this link and examine whether there are any mediating variables explaining the relationships between these three constructs. This study proposes a model outlines the relationship between religiosity, life satisfaction and happiness.

One possible mechanism is that the link from religiosity to happiness stems partly from religion's capability to enhance self-control and self-regulation. Carver & Scheier (1998) have denoted that self-control is a part of the wider phenomenon of self-regulation, associated with the process by which one adjusted behavior to conform to the expected norms. They further explained that while self-regulating, one is leading and modifying one's behavior in pursuit of some preferred results or goals. In addition, self-regulation often arises outside of awareness or without requiring any meaningful effort (Fitzsimmons & Bargh, 2004). Perhaps through this self-regulatory process, religious constructs can be triggered in an automatic fashion or effortlessly (Shariff & Norenzayan, 2007) and thus foster one's satisfaction with life and happiness.

However, the proposed interrelations of the constructs need further empirical inquiry. Additionally, almost all existing studies conducted in western culture such as documented by Ano & Vasconcelles (2005), Layard (2005), and Stutzer & Frey (2002). In relation to this issue, not many studies have done in the Indonesian

context, especially in North Sumatera. Thus, the present study is interested in investigating happiness and life satisfaction among people of North Sumatera based on how religiosity influences both self-control and self-regulation and -in turn- affects life satisfaction and happiness. Data analysis used in this research is Structural Equation Model (SEM). The research phenomenon further describes and explains through this model.

## **1.2 Problem Statement**

Indonesia with a total population of considerably more than 240 million people, of which over 200 million identifying themselves as Muslim (BPS, 2016), contains the world's largest Muslim population. Although there is only less pressure from some groups in Indonesia to incorporate Islamic law into the judicial code than in many other Muslim majority countries (Davis & Robinson, 2006), however, excitement over Islamic religious rituals is a widespread social and cultural phenomenon in this country. Every year an increasing number of Indonesian Muslims perform *Umrah* and hope to be shortlisted in Indonesia's annual Hajj quota with waiting list getting longer by the year (Agung, 2015). Religion is a huge part of everyday's lives in Indonesia in which television programs are interrupted for the call to daily prayers (*adzan*). People also fast the month of *Ramadan*, and engage in various forms of religious rituals, such as assembly of *dhikr* (Hafiz, 2015). Even non-practicing Muslims are likely to be influenced by Islamic values as these become intertwined with cultural norms and values (French, 2008). For example, non-Muslims in Indonesia might refrain from drinking alcohol because it is not customary to serve it at meals and social events because of religious prohibitions.

However, this widespread excitement over religious ritual is still not accompanied by an increase in people's happiness. Based on the world happiness report 2018 (Helliwell, et al., 2018), published by UN SDSN (United Nation Sustainable Development Solutions Network), Indonesia's people happiness has decreased from 2012 to 2017. The report provides that happiness index of Indonesia fell gradually from 5.35 index 2012 to 5.09 index in 2017. Furthermore, the report also reveals a decline of Indonesia's happiness ranks, of the 156 countries surveyed over the year 2015-2017, Indonesia was ranked 74<sup>th</sup> in 2015, declined to 79<sup>th</sup> in 2016, and dropped further to rank 96<sup>th</sup> in 2017 with a score 5.09 on the 0 to 10 scale. Even when compared to the average score for Southeast Asia (mean = 5.280), Indonesia has a happiness level below average. It is further reported that Indonesia's happiness index from 2008-2010 to 2015-2017 has decreased by -0.160. This low level of people's happiness in Indonesia also reflected in various phenomena. To note a few, the growth of various violence and intolerance behaviors -whether it relates to religion, ethnicity, state or community, have been reported in Indonesia (Umi, 2010; Yenni, 2016; Christophe, 2017). According to Setara Institute, there were 117 cases of violence conducted by community social organization in 2010, and increased to 244 cases in 2011 (Sutowo & Wibisono, 2013). However, despite the high level of excitement or enthusiasm in performing religious rituals in Indonesia, but issues of unhappiness and violence remain intrinsic parts of Indonesian lives.

Nevertheless, researches conducted to look at the link between religiosity and happiness are firmly well known within the scientific literature. Several excellent studies have found a positive relationship between the two (Krause, et al., 2018; Sillick, et al., 2013; Diener, et al., 2011; Inglehart, 2010). Despite the apparent consistency of these findings, however, this relationship still presents a curious

dilemma, especially when looking at real live community samples such as Indonesia. Thus, it is important to unpack the mechanism of how religiosity can be linked to life satisfaction and happiness, especially in the context of Indonesia where religious euphoria is high and yet happiness is low.

As mentioned previously, many researches have been using the concept of happiness and life satisfaction interchangeably. Although these two are interrelated, however, they have different meanings. Lumpkin & Hunt (1989) describe life satisfaction as the way in which a person perceives how one's life has been up to now and how one feels one's life is going to be in the future. Meanwhile, happiness may be as the result of a person's perception of experiencing positive emotions including life satisfaction. If happiness and life satisfaction are of the same latent variable, accordingly the same independent variables should validate them identically. Unfortunately, a study conducted by Gundelach & Kreiner (2004) provided evidence that the two variables actually are different and that their relationships to macro-social variables differ radically. Thus, even though there is a strong correlation between the two, they should not be considered as the same latent variable. Hence, additional empirical evidence for these conceptual differences between happiness and life satisfaction is highly indispensable, in which life satisfaction is conceptualized as influencing the feeling of happiness.

A broad empirical study supports the notion that religiosity effectively fosters self-regulation and self-control (McCullough & Willoughby, 2013). It is worth noting that the association may be one route in which religiosity is able to foster self-regulation and self-control and thereby influence happiness. The present study tries to extend this line of thinking by suggesting that religiosity is robustly associated with self-regulation and self-control during the course of life, then these

associations could explain further the religiosity's relationship with life satisfaction and happiness. Hence, further empirical scrutiny of the interconnections among these concepts is required to address this issue.

In addition, most researches that looked at the inter-relatedness of different variables have focused on Western populations. Thus, scientific psychological investigation on Eastern populations with different social and cultural considerations, particularly in Indonesia, is required. This is a part of the attempt to capture a broader understanding of psychological knowledge that applicable across a wider range of populations.

### **1.3 Research Objectives**

This study intends to explore how religiosity influences people's life satisfaction and happiness in Medan, North Sumatera, Indonesia. As such, mediator variables are the main consideration of this study. To address this purpose, research objectives are formulated to test serial mediation of the relationship between religiosity and happiness through self-control, self-regulation, and life satisfaction; and to provide an overview whether or not this indirect serial mediation effect accounts for the relationship between religiosity and happiness. Specifically, this study aims to investigate:

1. The relationship between religiosity and self-control.
2. The relationship between religiosity and self-regulation.
3. The mediating effect of self-control and self-regulation on the relationship between religiosity and life satisfaction.
4. The mediating effect of self-control, self-regulation, and life satisfaction on the relationship between religiosity and happiness.

#### **1.4 Research Questions**

As initially reflected on research objectives mentioned above, this study is part of the attempt to investigate religiosity and its possible influence on happiness through mediating role of self-control, self-regulation, and life satisfaction. That is, it sought to answer the questions formulated as follow:

1. Does religiosity positively relate to self-control?
2. Does religiosity positively relate to self-regulation?
3. Do self-control and self-regulation mediate the relationship between religiosity and life satisfaction?
4. Do self-control, self-regulation, and life satisfaction mediate the relationship between religiosity and happiness?

#### **1.5 Significance of Study**

This study is significant in a number of ways. First, it can contribute a comprehensive look into why -for some people- a high level of enthusiasm or excitement in performing religious rituals does not always lead them to a happier life and it does so by providing better understanding about how religiosity to be more useful for adherents. However, the whole of religious rituals is based around self-control. Whatever the acts of worship and rituals commanded is to build in a person the kind of restraint, discipline, and *sabr* (patience). One of the reasons for praying five times a day is to gain discipline; fasting in the month of Ramadan in order to “learn self-restraint” (Qur’an, 2:183); partaking in Hajj, partly, is to practice fortitude; and “lowering gaze” (Qur’an, 24:31) is to resist temptation. As well as the pursuit of happiness offered by religion. Religiosity is stringent about examining the

how and why of whatever to earn and spend (17:26); regulating what to consume; regulating speech; and constantly exerting control over thoughts and feelings. Thus, the secret behind performing religious rituals is the practice of self-control and self-regulation. When religious rituals are done so, then happiness in this life and in the life to come is warranted.

Second, it can unpack the specific mechanism of the way religiosity affects life satisfaction and happiness. Evidences that religiosity is linked to self-control (Baumeister, et. al., 2007) is well established. Results from some personality researches have provided evidence that dimensions of personality that linked to the capability to regulate one's behavior in a way in line with one's purpose or out of concern for the wishes and feelings of others (e.g., high Agreeableness, high Conscientiousness, and low Psychoticism) related to religiosity (Saroglou, 2002; Lodi-Smith & Roberts, 2007; Francis & Katz, 1992). These outcomes deliver tentative endorsement for the suggestion that religiosity is related to self-control. Furthermore, religion potentially has an effect on the chosen goals that people decide on (Roberts & Robins, 2000; Saroglou, et al., 2004), effect the importance relevant to those goals, minimize conflict between all those goals (Emmons, 1999), and as well, persuade the process by which religious teachings are transformed into personally substantial values (Ryan, et al., 1993). This religious relationship with goals endorses some essential paths by which religion has the potential impact on self-regulation. In brief, the study may help to elucidate well-established relationships between religiosity and happiness. Better elucidating of the way that religiosity shape people's conduct in their pursuit of happiness would fill an important gap in understanding of this correlation.

Third, this research has significant potential to advance understanding for the unclear concept of the similarities and differences between happiness and life satisfaction, and to improve consideration of how they are interconnected. Therefore, the present research findings could provide the evidence of how to better distinguish between life satisfaction and happiness.

Finally, this line of researches so far has almost entirely used Western and Christian samples. More attention to Indonesian and Muslim samples will truly widen the spectrum of this line of researches and make the findings in this field of study more generalizable to a wider range of sample.

## **1.6 Scope of the Study**

The center of interest in this inquiry is limited to studying happiness and religiosity, and the mediating role of self-control, self-regulation, and life satisfaction. The included participants were citizens of Medan, North Sumatera, Indonesia, who aged 40 years or older (middle adults and above). Lastly, although the Indonesian government has recognized six official religions (namely Islam, Protestantism, Catholicism, Hinduism, Buddhism and Confucianism), only Muslim (as the predominant religion) were included in this study.

## **1.7 Organization of the Chapter**

This study includes five chapters. Chapter one provides an introduction of the study, which consists of background, problem statement, objectives, questions, and significance of study. In the last part, the scope of study is presented as well.

Chapter two outlines the key concepts that are examined in this study. It, therefore, reviews the literature on happiness, life satisfaction, self-control, self-



regulation, and religiosity. The chapter discusses past theoretical and empirical studies related to those concepts, and then presents a model that serves as the conceptual framework for this study. Subsequently the chapter ends by building several hypotheses to be tested.

Next is chapter three. It includes explanations of research design, sampling method, sample and location, as well as preferred measurements and procedure used in this study. Data gathering method and statistical technique used also elaborated herein. This chapter ends by presentation of the results of the pilot study, especially related to research instruments.

Chapter four is data analysis. This chapter begins with a review of several preparations made before the analyzed data. Descriptive statistics then presented to provide a complete picture and to allow proper interpretation of relevant results. Furthermore, an investigation of the measurement model performed using confirmatory factor analysis (CFA) was also presented. This was followed by the structural model tests with Structural Equation Modeling (SEM) that served as a confirmatory assessment. Then, the chapter ends by examining the study's hypotheses, in which the mediation analyses conducted under the principles of Structural Equation Modeling (SEM) to assess the relationship between religiosity, self-control, self-regulation, life satisfaction and happiness.

Finally, chapter five presents the summary of findings that drawn out from the present research. These findings then discussed according to research questions, followed by discussion on theoretical and practical implications. Chapter five also discusses limitations of the current study and recommendations for further research, and subsequently ends with conclusions.

## **1.8 Summary**

As an introduction to the study, this chapter serves an insight into the whole research by providing brief description about the role of self-control, self-regulation, and life satisfaction on the relationship between religiosity and happiness. Specifically, it explicated in the background of study and problem statement. Research objectives, research questions, and significance of the study have presented based on the problem statement. Scope of the study and organization of the chapter have set and then concluded by summary. The following chapter discusses literature review as related to each variable, and then followed by the presentation of conceptual framework of the study.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents the literatures related to the variables in this study. Initially, the chapter discusses happiness and its role as the goal of human life and satisfaction with life as the basis for achieving happiness. This is followed by a discussion of religiosity as a variable that has an important role in guiding human behavior toward life satisfaction and happiness. Further, literature and studies concerning self-control and self-regulation as the mediating variables in explaining how religiosity related to happiness becomes the next focus. This is followed by a discussion of the theoretical framework that supports the link among these variables. This is the model adopted in the study. Lastly, the proposed hypotheses of this study are presented at the end of this chapter.

#### **2.2 Happiness**

##### **2.2.1 Historical Development of Happiness**

Throughout history, the idea of happiness has always been an intricate one. Democritus (460 BC - 370 BC) was considered as the first philosopher to discuss happiness. According to him, being happy is not a product of external circumstances, but rather of a human's expression of thoughts. Nevertheless, this subjectivist view proposed by Democritus was not endorsed by Socrates and Plato who conceptualized happiness in more absolute and objective terms. On the other hand, Aristotle has emphasized that happiness was not beyond one's reach, but is attainable for any person desiring to live in harmony with the most valued virtues

(Tatarkiewicz, 1976). McMohan (2006) further explained that the ancient Greeks, as well as the Romans, have viewed that pleasure and virtue was interdependent. As such, living pleasantly was not possible without living honorably, prudently, and/or justly. However, a man possessed a life of virtue, even being tortured, could still be happy.

In the medieval times, Christian philosophers have also considered that the good life is consisting life of virtue. On the other hand, virtue was deemed insufficient for happiness, but has shifted to spiritual matter; can only achieved through dedicated faith and God' grace. In other words, happiness lay in God's hand (Tatarkiewicz, 1976).

In the Enlightenment, as it called "the Age of Reason", the notion of happiness has shifted to place more emphasis on earthly explanation and less on the other-worldly. There was an increase emphasis on pleasure as a pathway to attain happiness. In the early 19<sup>th</sup> century, Jeremy Bentham as a utilitarian philosophy has illustrated these changes that happiness amount to utility while utility considered come from the maximum pleasure. According to Jeremy Bentham, the prime aim of human is to fight for the surplus pleasure over pain. He further encouraged that morals and legislation should be based on the maximum happiness of the highest amount of people (Tatarkiewicz, 1976).

In recent centuries, the notions that human have the ability to attain and pursue happiness has received widespread appreciation. Conception of happiness shifted to feeling good than being good (McMohan, 2006). Thus, the concept of happiness adopted in the Classical and Medieval as perfection or virtue has been largely ignored and considered unused. In this era, as Haybron (2007) noted, both social and behavioral sciences have initiated to offer significant attention to the topic,

so as conception of happiness based on philosophical treatments are fewer than in centuries past.

### **2.2.2 Conceptualizing of Happiness**

Contemporary conceptualization of happiness can be divided into three different approaches. The first is hedonic tradition whereas the second has its roots in Aristotle's concept of eudaimonia, and the last is related to Islamic perspective. Below is the discussion of these approaches.

#### **2.2.2(a) Hedonic Tradition**

Hedonism point of view defines happiness as searching for pleasure and anticipating of pain. The term of happiness is assumed to be related to the presence of positive emotions and the degree of satisfaction with life (Diener, 2000). Throughout the history of psychology and philosophy, this approach which is rooted to Greek philosophers has had many adherents (Kahneman, et al., 1999). This happiness model is come of Bentham's theory of hedonistic that everyone's behavior is based on utility's principle, by means of calculating the estimated pleasure and pain of behaviors (Bentham, 1907). In other words, pain or pleasure human gained is the outcomes of what has been done before.

For Bentham (1907), this human nature is impossible to be changed. This nature drives every individual to make calculation in order to maximize his or her utility. In addition to the individual, however this is also true for society since it is formed by individuals. Therefore, lawmaker as well as policy-maker should also refer this human's nature principle to maximize people utilities. For both legal and illegal, good and bad, right and wrong should be determined by pleasure and pain.

Whatever people conducted is to please these masters. According to Bentham, reaching for pleasure and avoiding pain are the essence of human nature.

Similarly, Fordyce (1988) has defined happiness as the whole evaluation of pleasure and pain that the individual has experienced in his recent past. In a parallel vein, Kahneman (1999) has also defined happiness as the average of pleasant and unpleasant experiences. Another analogous view is offered by Lyubomirsky et al. (2005) who defined happiness as experiencing positive emotions most frequently over time. However, all these definitions involve the notion of affect balance, so that is very close to definition of happiness proposed by Jeremy Bentham as the summation of pleasures and pains.

### **2.2.2(b) Eudaimonic Tradition**

Eudaimonic tradition is another approach to happiness. It has risen out of the philosophical solution. The principle point of this tradition on happiness is realizing one's full potential. As mentioned earlier by Aristotle, happiness is the full potential actualization, or eudaimonia (Waterman, 1990). Thus, gaining the true happiness does not come from fulfilling appetites, but rather originates from performing what is morally appropriate to do, that is, manifestation of virtue and kindness. Although in some instances, fulfillment of appetites and needs seems to lead happiness, but on the contrary, this pleasure seeking may also prevent happiness (Ryff & Keyes, 1995).

According to Ryan & Deci (2008), happiness involves three basic psychological needs, namely autonomy or to choose what to do, competency or to do confidently what should be done, and relatedness or to have good quality of human relationship. Ryan and Deci further asserted that fulfilling these needs would enhance happiness. Subsequently, this tradition has gained support from many

religious movements, and spiritual as well, because of its similarity with some religious values.

Another eudaimonic approach is authentic happiness model proposed by Seligman (2011). Seligman introduced five fundamental elements to describe happiness, namely pleasure, engagement, relationships, meaning, and accomplishment. However, distinguishing between the pleasant life and meaningful life makes this model seem as an attempt to reconcile both hedonic and eudaimonic traditions, because pleasant life can be paralleled with hedonic tradition whereas meaningful life equaled eudaimonic.

Nevertheless, most scholars describe happiness as comprising of three components: more positive affect, less negative affect, and more satisfaction with life (Diener et al., 1995). Positive affect involves good feelings (e.g., pleased, delighted, and enthusiastic), whereas negative affect is related to bad feelings (e.g., tense, stressed, irritable, and miserable). Conversely, life satisfaction is broader, relating to a cognitive evaluation of how contented a person is with his or her state of life. People with greater satisfaction with life would agree that his/her life conditions are wonderful (Diener, et al., 1985).

### **2.2.2(c) Islamic Tradition**

Islam is one of the celestial religions that provide a perfect way of life. Every single word of God's commandments taught in religion, aimed to provide true happiness of its adherents in every aspect of human life, for both worldly-life and the hereafter. As al-Qarni (2003) stated, be at peace, remain positive, rejoice, and be happy. These Islamic values conveyed through the Prophet Muhammad has highlighted that people who is true believer and work righteousness, whether male or

female, will accept a good life and reward the best of what they have done (Quran, 16:97).

Mufti (2016) has described that happiness in Islam is peacefulness arises from faith in God. The possible way to achieve happiness is being upon the truth by submitting and worshiping Him, and accelerating in virtuous deeds. Even the smallest charity or any little acts of kindness have the potential for a person to become happier. Islamic values asserted that earthly life is nothing but a means to achieve eternal life in the Hereafter. Thus, being happy is only possible by following this guideline. This is due to following Islamic teaching and remaining submissive to God's worship could be the best reminder to raise awareness that this life is a stopover to eternal life after. Thus, the true happiness is only be found by worshiping God because it was manifestations of God's love and mercy.

There are numerous ways that religiosity may possibly have an effect on happiness including promises of spiritual and material compensation (Abdel-Khalek, 2011). As taught in Islam, remembering Allah, reciting Qur'an, asking God's forgiveness, fasting at Ramadan, taking ablutions, and prayer, have a stimulating unconscious effect on Muslims, and as well supporting them to possess better self-regulatory capability. However, all these Islamic teachings and submissive to God's worship have an effect on how Muslims regulate thoughts and behavior to stay in accordance with religious values and, in turn, can certainly help clarify life satisfaction and happiness that religious individuals often enjoy.

### **2.2.3 Theories of Happiness**

There are three well-known theories of happiness: Set-Point Theory, Comparison Theory, and Affect Theory.



The Set-Point Theory views happiness as a stable attitude towards life that is biologically encoded in humans (Lykken, 1999). This happiness “base-line” is largely independent of circumstances. According to Lykken (1999), Set-Point Theory asserts that any major life event will only alter the acute level of happiness experienced by an individual and that over time, the individual will return to their base-line level of happiness. Set-Point Theory suggests that no matter what a person does, he or she ends up staying within a certain, stable level of happiness (Cummins, et al., 2002).

Comparison Theory expresses happiness as a continuous judgment process involving the comparison of life as it relates to a perceived “ideal life” (McDowell & Newell, 1996). In this sense, happiness is mainly the product of mental evaluation rather than the circumstances. An individual compares life as it is, with his or her perceived standard of how it should be. Comparison Theory goes beyond Set-Point Theory in how it defines happiness. According to McDowell and Newell (1996), happiness depends on both the adequacy of material circumstances and people’s feelings about these circumstances. In this regard, a personal assessment of one’s condition compared to an external reference standard or to one’s aspirations may be called life satisfaction.

Affect Theory defines happiness as an emotion determined by the subjective assessment of how a person feels after taking everything into consideration (Kahneman & Tversky, 2000). This theory seems quite similar to Bentham’s definition of happiness and its modern version of “objective happiness” as the sum of experienced pleasures and pains. Affect Theory suggests that a person computes the balance of pleasant and unpleasant experiences based on an estimate of frequency and duration. It proposes that this accounting occurs automatically and is reflected in

an individuals' active state of "mood" (Veenhoven, 2006). In other words, mood is like an inner happiness calculator computing one's level of happiness. Affect Theory argues that gratification of needs and wants are the determinant factors behind happiness. Veenhoven (2006) attempts combining the Comparison and Affect Theories by defining overall happiness as the total of its components. Overall happiness is defined as "the degree to which an individual judges the overall quality of his life-as-a-whole favorably".

Each of the three theories outlined above captures some part of reality about happiness. However, they do not tell a complete story. Even if all the three integrated, would still not see the whole picture because each individually, and all the three collectively, leave out some important aspect of happiness.

Set-Point Theory underestimates the impact of external factors on happiness. It implies that there is virtually no value in striving for happiness mainly because a person is hard-wired to stay within a certain level of happiness no matter what he or she does. Set-Point Theory does not really offer any explanation as to why a person is happy. It simply points to a biological "Black Box" that determines a human being's level of happiness. Set-Point Theory predicts that over time, a person is equally happy regardless of life circumstances. There is ample evidence showing that an individual's level of happiness in life does indeed change depending on internal or external factors (Diener, et al., 1997; Frey & Stutzer, 2000).

Comparison Theory implies that if a person simply lowers the standards, he or she will be happy. It does not set any minimum standards for "a good life". In this sense, if one could lower the standards enough he or she would not need to strive for happiness. Conversely, if one continuously raises the comparison yardstick, he or she would never reach happiness. Like Set-Point Theory, Comparison Theory

underestimates the impact of external factors. The theory implies that happiness is determined by an intellectual yardstick as opposed to life events or circumstance.

Affect Theory views happiness as a positive emotion that reflects an appraisal of how an individual feels. However, this theory does not really capture the qualitative aspect of life experiences. For instance, if a human rates his/her life as good, and if an animal does the same thing, there is no way to say which good is better. Comparison and Affect Theories are ambiguous about establishing what constitutes a “good” life (Mill & Crisp, 1998).

#### **2.2.4 Happiness in this study**

Regardless of the considered happiness models discussed above, the three ‘hallmarks’ serves to delineate the general concept. First, happiness is subjective in nature; it is an expression of individual experience. External objective factors or conditions are not included in the definition of happiness. Second, happiness is a frequency of positive experiences, not only a lack of negative influences. Third, happiness is a global assessment, not only a single life domain.

Therefore, the construct of happiness is broadly subjected to the individual’s perceptual interpretation of events and experiences. As such, it cannot be inferred directly from objective circumstances, but rather should be understood from the individual’s perspective. Furthermore, happiness is subject to be moderately stable over time and to show sensitivity to ongoing experience and changing circumstances.

Following Islamic teaching, happiness can be viewed as an inner state of the heart, characterized by peace in mind, tranquility, and a relaxed disposition. Incorporating Lyubomirsky’s subjective happiness theory (2008), happiness is also part of the joyful experience, positive well-being, or contentment, integrated with a

meaningful sense, that life is good and worthwhile. Thus, this research refers to happiness as an inner state of heart resulted from sense that life is good, meaningful, and worthwhile.

### **2.2.5 Measurements of Happiness**

Based on the literature review, happiness has been measured with several different instruments. In choosing the best instrument, it depends on the intended population, the quantity of items, the accessibility of the scale, and the psychometric property of the measure. The following is the brief summary of the measures that have used to quantify happiness.

The Affect Balance Scale (ABS) defines happiness as the magnitude of the gap between positive affective states and negative affective state. These conditions occur in a relatively short duration and they usually generated from events that occur around the environment (Bradburn & Caplovitz, 1965). The relationship between the two components of affect (positive and negative) is orthogonal or perceived as not related to each other (independent to one another). Thus, although the increase in happiness may have a relationship with a decrease in negative affect but it is not necessary lead to an increase in positive affect (Kozma, et al., 1991). This scale consists of ten items, five items for each of the two components of affect (positive and negative).

Several studies on young and middle-aged samples have been carried out to validate this scale. For example, Kozma, et al., (1991) have found that the main weakness of the Affect Balance Scale as a measure of happiness is indicated by alpha of the total scale as below .65, which means quite low reliability for internal consistency of the scale. However, by separating subscales that have positive and

negative affect, Stock and Okun (1982) have found internal consistency ranged from .53 to .61 for positive affect and ranged from .64 to .65 for negative affect. Bearing in mind that each subscale possesses the small number of items, this result may be acceptable. Further, study employed elderly persons with a varied sample made up of rural, urban, and institutional residents as conducted by Kozma and Stone (1980) has reported an alpha of .59, and test-retest reliability for a 12 month interval was only  $r = .27$ . In addition, a subgroup study conducted by Himmel and Murrell (1983) has provided an alpha coefficient of .65 for community samples and of .75 for clinical samples.

Other measure of happiness developed by Kozma and Stones in 1980 is *MUNSH*. This scale combined the best features of other scales and intended to measure happiness in older people. As noted above, the low reliability of internal consistency and temporal stability of the Affect Balance Scale is due to measures affective state in a short-term. Therefore, the *MUNSH* is intended to assess aspects of happiness in short- and long-term. This scale contains ten affects (consist of five items for each of positive and negative affects) and fourteen experiences (consist of seven positive experiences and seven negative experiences). Internal consistency reliability of this measure is indicated by an alpha of .86 (Kozma & Stones, 1980). One clear bipolar factor has generated using a principal components analysis with positive and negative dimensions, accounting for 50% of the variance. Moreover, although affect items of the scale was the lower loading than experience items, but the distinction between short and long-term states is not clear. In addition, as a bipolar factor with positive and negative items, happiness score is unreliable with Bradburn's conceptualization of affect, morale, and satisfaction. Thus, whether or

not the MUNSH in fact assesses the short-term affective states or the long-term one remains unclear and requires for a longitudinal study to determine it.

The other measurement of happiness is The Oxford Happiness Inventory (OHI). Designed in the late 1980s, this cross-culturally scale consist of 29 items to measures personal happiness. The design and format of the scale was based on the Beck Depression Inventory. Each item has four alternatives that differ for each item in four incremental levels, numbered from 0 to 3. Hills and Argyle (2002) from Department of Experimental Psychology of the University of Oxford originally developed this scale. Later, Francis, et al., (1998) have employed this inventory to compare college students in the United States, the United Kingdom, Canada, and Australia. In Israel, Francis and Katz (2000) employed this scale in a Hebrew translation. Based on this inventory, Lu and Shih (1997) formed the Chinese Happiness Inventory (CHI) to use in Taiwan.

Next is The Chinese Happiness Inventory (CHI). As aforementioned, this measurement was designed based on the Oxford Happiness Inventory. In total, the scale involves thirteen subscales. Of all subscales, seven (namely: positive affect, optimism, fitness, social commitment, contentment, self-satisfaction, and mental alertness) were from the Oxford Happiness Scale which formed 28 items. Another six subscales of the Chinese Happiness Inventory were originated from a study in Taiwan (namely: peace of mind, praise and respect from others, downward social comparisons, satisfaction of material needs, achievement at work, and harmony of interpersonal relationships) and consisted of 20 items. The total number of items of the scale consists of 48 items (Lu & Shih, 1997). In addition, each item of the Chinese Happiness Inventory represents different levels of experienced subjective happiness from four alternative responses to choose. These choices are coded as 0,

1, 2, and 3. Based on study conducted by Lu, et al., (2001), result has provided alpha coefficients of .93 for British students, and of .94 for Taiwanese students.

Furthermore, Hills and Argyle (2002) have developed The Oxford Happiness Questionnaire at Oxford University. They found that respondents endorse the two central items. The answers to these items were not normally distributed and this is evidenced from the mean scores of less than corresponding standard deviation. They point out that these items might not fully contribute to the measured happiness. Hence, the Oxford Happiness Questionnaire was designed to use only single statement on a six-point Likert scale, so it becomes easier to administer. Construct validity of this scale is strongest, indicated by its relationship with the Depression–Happiness scale, the life regard index, and the self-esteem (.90; .77; and .81 respectively). However, this scale is less susceptible to the bias of respondent than other scales and is more comprehensive (Hills & Argyle, 2002).

In 1993, McGreal and Joseph also established The Depression–Happiness Scale. They argued that literatures of the measurement involve two kinds of scales: literatures related to life satisfaction and happiness; and literatures assessed depression and loneliness. In addition, they stated that aspects of depression do not included in the most used assessment of happiness. However, employed depression scales, such as the Beck Depression Inventory, have tendency toward a floor effect for the normal population. That is, the potential range of scores is from 0 to 63 and is from 0 to 9 for non-depressed individuals. Although one has a score of zero, it is not automatically indicates the sign of happiness, but it may be only an indication of no depression.

In 1999, Lyubomirsky and Lepper have established The Subjective Happiness Scale (SHS). This short scale involved only four items and intended not

to overload respondents, as well not to intimidate the unidimensionality structure of happiness with frequent items. Some studies conducted have indicated the strong validity and reliability of this scale. Development of the scale refers to the literatures that did not contain an assessment of global subjective happiness, such as overall subjective measurement of whether or not one is happy. They further noticed that even with personal tragedy, obstacles, lack of prosperity, welfare, or love, some people may perceived them as happy person; whereas some other people considered them as unhappy even though being enclosed by all contentment and pleasant of life. Statistical analysis employed to assess validity of the scale such as total correlation of the items. Result of the study has provided alpha coefficients for internal consistency ranging from .84 to .92.

Measurements of happiness have also used with single-item. According to Kozma, et al., (1991), the rating scale varies from a three to an eleven point. The inability to measure how consistently they assess their basic construct is the major deficiencies of this type of scale.

From what have reviewed so far, most of the scales intended to assess samples from the young and middle-aged person so as the sample employed was mostly younger adults. There are only two measures that have evaluated happiness in elderly people, the Subjective Happiness Scale developed by Lyubomirsky and Lepper (1999) and the MUNSH developed by Kozma and Stones (1980). However as to the MUNSH has some issues related to the scale being dichotomous and the scale has no clear distinction whether it measures short- or long-term aspects of happiness. Whereas the 4-item Subjective Happiness Scale (SHS) from Lyubomirsky & Lepper (1999) has been used for a very wide range of age of 14–94 years old. In addition, this 4-item Subjective Happiness Scale (SHS) uses Likert-type scale with



seven possible options ranges from 7 (more happy) to 1 (less happy), participants asked to specify how much they agree for each of the 4-items offered. Therefore, this multiple-item scale provides a broader variety of information and with greater specificity. Furthermore, Some studies conducted have indicated the strong validity and reliability of this scale. Statistical analysis employed to assess validity of the scale such as total correlation of the items. Result of the study has provided alpha coefficients for internal consistency ranging from .84 to .92. Thus, Subjective Happiness Scale is selected for this research.

### **2.2.6 Determinants of Happiness**

The issue of whether or not people can become happier and what makes them become so has remained a debate. Firstly, many scholars were unsure about the possibility to attain happiness due to several considerations, including personality factors (McCrae & Costa, 1991; Diener & Lucas, 1999), genetic influences (Nes, et al., 2006; Lykken & Tellegen, 1996), and the tendency of human being to become accustomed to any positive life changes (Lyubomirsky, 2011; Frederick & Loewenstein, 1999). According to them, any efforts to improve happiness would be futile. They argued that following both favorable and unfavorable experience, people would simply return to the “baseline” of their determined happiness (McCrae & Costa, 1991). It may be better off for people by simply accepting their current happiness levels rather than chasing it.

Nevertheless, some other researchers promote that happiness can indeed be boosted and sustained. They argued that although happiness comprise genetic element and people adjust to positive life events, however it does not mean someone’s level of happiness could not be increased. Roberts, et al., (2006) have

found evidence that the relationship between personality trait (i.e., neuroticism) and happiness can shift in adulthood. Fujita and Diener (2005) have also indicated that happiness is changeable across a person's lifetime. In addition, Walsh (2011) has found that happiness could increase through lifestyle change, such as improving nutrition or performing new exercise regularly. Furthermore, Sin and Lyubomirsky (2009) have evidenced that people's happiness may improve when engaging in positive behavior, such as practicing optimism, becoming more grateful, or performing acts of kindness.

According to Sustainable Happiness Model offered by Lyubomirsky, et al., (2005), level of happiness depends on three major factors: (1) genetically based set point; (2) life circumstances; and (3) intentional activities. This model takes into account the above debate by proposing that some part of the happiness are pre-determined but some part of it can still be changed. More specifically, while around 50% of variance in happiness defined by genetically based set point, approximately 10% can be explained by life circumstance, and the remaining 40 % accounted for intentional activities. These three factors have attracted attention of the majority in the varied literatures (Lyubomirsky, et al., 2005; Seligman, 2002; Diener, et al., 1999) and further discussion is provided below.

### **2.2.6(a) The Person's Genetic Set Point**

Genetically based set point represents the basic temperament and personality traits of people in which one's level of happiness is fixed. The set point is assumed to remain stable, or not likely to change across the lifespan. For some people, this set point is higher, while for others it may be lower. Due to people having different set points for happiness, there are people who are generally unhappy and there are those

who always seem to be in good spirits. At least, there are three considerations underlie the depth of this relationship.

First is the role of heredity. Happiness has a high heritability. Nes, et al., (2006) have found evidence that some people, due to genetic factor, are happier than others. In other words, the baseline level of happiness for some people is higher than for others. Furthermore, although a more widely established figure is 50% of variance in people's happiness defined by the role of heredity (Diener, et al., 1999), however, referring to the long-term research on identical twins and fraternal, Lykken & Tellegen (1996) have found that the heritability of happiness may be as high as 80%. Their study provides evidence identical twins share height, intelligence, and level of happiness. Also, in a four-wave panel study conducted by Heady and Wearing (1989), participants tended to keep returning to their own reference point over time. This finding, however, is consistent with the idea that people's set point for happiness is based on genetic factor. Thus, people perhaps cannot help in the long term but return to the middle of their set range or to their set point.

The second explanation for genetic-based happiness is related to personality trait. Happiness has a relationship with several personality traits. Traits are cognitive, affective, and behavioral complexes, account for part of the stability of the set point. Thus, by definition, traits are stable across situations and across the life span. Based on this assumption, Diener and Lucas (2004) have found evidence that highly neurotic people have a tendency to be less happy, and extravert people are disposed to be happier than introvert is. Similarly, McCrae and Costa (1991) have argued that people generally do not change much in where they stand on neuroticism, extraversion, and so forth. Traits such as these relatively fixed throughout the life span. According to this close relation, they further explained that people have also a

tendency to preserve the same relative level of happiness over the time. However, based on these findings, it appears that some researchers have preferred to consider happiness as an unaffected factor by any kind of meaningful change.

Third is the hedonic treadmill. According to Diener, et al., (2006), the hedonic treadmill is the tendency for the emotional impact to diminish over time, both positive and negative events. There are evidences that people get used to a varied events. To note a few, people adjust to the end of a romantic relationship (Wortman, et al., 1993), the effect of winning the lottery (Brickman, et al., 1978), being diagnosed with a serious illness (Sieff, et al., 1999), and so on. These studies advocate that emotional responses such as facing excitement or sorrow are often surprisingly short-lived. Thus, even though some new conditions that surround people may lead temporarily to be happier or unhappier, they quickly adapt, and the result of these new surroundings on happiness then also reduces quickly or slowly or maybe vanishes totally. The conception of a person fighting against the effects of adaptation brings to mind an image of a pedestrian walking up a descending escalator. Although the improved living conditions may boost someone rising toward greater happiness, the results of adapting push back to the initial state (Lykken & Tellegen, 1996). In other words, effort to change life circumstance to be happier is likely not a succeed way in the long-term. Together, these reasons advocate that any exertion to become happier may be fruitless as trying to be taller.

Other than reasons explained above, McCrae and Costa (1991) have proposed that traits influence happiness in two ways, instrumental and temperamental causal. The instrumental causal sequence demonstrated by empirical evidence such as study examining the relationship between happiness and extraversion (Tkach & Lyubomirsky, 2006). Result of the study revealed that the relationship between

happiness and extraversion partially mediated by active leisure activities and social affiliation. This finding, however, is in line with the idea that a person's particular traits influence the tendency to behave towards certain situations, which in turn, cause to later happiness or unhappiness.

Conversely, the temperamental causal sequence based on the idea that a person's particular traits influence how a person interprets events in a compatible way by which a trait cause to a mood, and then, in turn, both trait and mood leading to happiness. Therefore, positive judgments and attitudes of happy people push them to interpret experiences of life journey in a fashion that sustains their positive moods (Lyubomirsky, 2011), such as by construing value in daily life events or by perceiving control in their actions. Similarly, experimental study examining the temperamental sequence for both extraversion and neuroticism conducted by Larsen & Ketelaar (1989) has evidenced that people high in neuroticism seem to experience negative events more intensely negative than do their more emotionally stable peers, whereas people high in extrovert seem to experience positive events more positively than do introverts.

### **2.2.6(b) The Person's Current Circumstances**

Current circumstance of the person encompasses contextual, geographic, and demographic factors. All those factors can either weaken from or add to the stable set point. Even so, happiness literatures have noticed the robust finding that a happy disposition is more important than demographic, geographic, and contextual or so-called "external blessings" factor. In addition to this, Argyle (1999) has learned that only 10% of people's happiness is explained by life circumstances. Although having more money may lead people to feel happier, better looking, or lived in a warmer

climate, but this is generally not the case. He further concluded that changing life circumstance to increase happiness is not a promising way.

Similarly, several studies have evidenced that people adapt quickly to changes in income and marital status (Lucas, et al., 2003), people who are more attractive is not happier (Diener, et al., 1995), as well as rich people are only slightly happier than their less wealthy counterparts (Diener, et al., 1985). In addition, Lyubomirsky (2008) has revealed correlations -smaller than expected- between happiness and objective variables such as gender, race, education, age, children, occupation, and life events in both younger and older adults. Moreover, geographical location, housing, and weather have short-term positive effects on happiness. Ulrich et al., (1991) have found that people living in particular geographic areas that have beautiful panoramic, easy to get water and vegetation reported positive feelings.

Further, Diener (2000) has revealed that people's relative wealth in many different countries may reflect their happiness level. This is probably due to people in poorer countries having informed through various media that the more luxuries widely offered in the wealthier countries. In addition, Triandis (2000) has found that specific cultural plays an important role in deciding happiness. People in countries with social equality culture have higher levels of happiness. In addition, that happiness is lower in collectivist cultures than in individualist cultures.

In general, life circumstance is not strongly related to happiness. This may be due to adaptation process that allows people to adapt to both positive and negative circumstances. This might be the reason that life circumstances is not strongly influenced happiness.

### **2.2.6(c) The Person's Current Intentional Activities**

As discussed above, life circumstance and heredity do appear to make people happier but only in a limited way and for a limited short-term. However, there is 40% of unexplained remaining happiness, which gives hope about the possibility of increasing happiness. This portion of happiness constitutes people's intentional activities.

The intentional activities are thoughts or behaviors that people prefer to become involved in. These thoughts (such as thinking positively) or behaviors (such as acting kindness) change standpoint on self and the world in general. People can actually make themselves happier when they involve in preferred intentional activities. An increasing number of researches in psychology has shown several proven activities that may effectively increase happiness, they are:

a. Expressing gratitude

Sheldon and Lyubomirsky (2006) have shown that cultivating a grateful attitude can lead to rises in happiness. However, to increase happiness and to reap the benefits gratitude brings, requires more than reflexively saying "thank you". Nevertheless, it also should accompanied by focused attention on the positive things in life and truly savor them. This kind of good deed is also an effective way to increased happiness.

There are several reasons offered to explain how expressing gratitude may increase happiness. First, sense of gratitude for all that has possessed will helps to reduce the role of adaptation effects. Another consideration for the benefit of expressing gratitude is that it may encourage the increase of quantity and quality of

social relations. Myers (2000) revealed that having close relationship and strong social support are characteristics of happy people.

b. Visualizing of best possible self

King (2001) stated that thinking of the future and visualizing of best possible self would lead to increasing in happiness. He further described that visualizing of best possible self is more than a daydream or a fantasy, but intended to be an exercise in self-deception. This visualizing should be based on the visions and goals set, and must be possible and achievable. Essentially, activities of the best possible self are nurturing a positive outlook. Because it consists of assuming, that one will attain his or her most valued goals in the future that lead to an enriched sense of purpose, meaning, and efficacy, and as well developing a positive image of his future self.

Indeed, an optimist tends to stay afloat when faced various challenges and temptations because of the strong belief that the planned goals are within reach. The same with a person who considered the goals planned are within reach, this exercise should encourage better preparation and more effort to deal with obstacles (Scheier & Carver, 1993). When the expected future is managed in a structured and consistent manner, then the steps required to reach it possibly seem more controlled and clearer.

c. Doing act of kindness

Another considered approach that is able to produce an increased happiness is performing acts of kindness. It often assumed as wasting-time, tiring, and unrewarding because such behaviors can easily interpreted as self-sacrifice. Piliavin



(2003) has found that pro-social activities have positive consequences, both for those who do it as well for those who benefit it.

Performing acts of kindness serve a strategy to increase happiness. It allows one to change self-perception, to see him or herself as a capable person, kind, and helpful (Tkach, 2006). Performing acts of kindness also provide a learning experience on personal talent or strengths (Seligman, 2002). Seligman (2002) has noticed that making use of personal talent and abilities produce a sense of truthfulness that is closely associated with happiness. In addition, performing acts of kindness may support to rise an “upward spiral” of social benefits and shape robust social bonds. As explained by Algoe and Haidt (2009), when people receive an act of benevolence they often feel a reinforced positive feelings and relationship to the benefactor so that make stronger relation.

Furthermore, performing something for someone else often require direct interaction. Like volunteers work at a nursing home, they are able to learn and take lessons from the patient’s life history. In such a manner, pro-social behavior can build a sense of appreciative for the recipients (Putnam, 2000). Thus, it makes sense that volunteer people reported feeling greater ties to the community.

d. Physical exercise

Argyle (2001) found that exercise leads to positive mood states in the short-term, which in turn induces greater happiness in the long-term. He further explained that in short term, the effects of exercise lead to free of morphine and endorphins, such as chemical substances produced in the brain. While in long term, the effects of exercise are due to regular exercise tend to diminish anxiety and depression. In

addition, the risk of cancer and heart disease reduce throughout regular exercise and is associated with longevity (Sarafino, 2002).

e. Religiosity

Myers (2000) described underlying reasons that people engaged in religion may be happier than others may. At least, there are three considerations within psychology. First, determined belief system in religion lets people to find meaning in life so that offer future in a hopeful manner (Seligman, 2002). Adversities that happen over the course of the lifespan may well understood more easily due to be optimistic about a life after death in which these difficulties would well fixed. Second, being part of a religious community and routine attendance at religious services provides community support. Third, participation in religion is related to a healthier lifestyle physically and psychologically which characterized by pro-social behavior; marital fidelity; commitment to hard work; and moderation in drinking and eating. Further discussion about religion and religiosity as part of the intentional activity to increase happiness will be discussed further in later section.

f. Life satisfaction

Commonly, happiness is conceived a meaning for a summative of the satisfaction with life and the balance of affect (Myers & Diener, 1995). Thus, it is not surprising that satisfied people with their lives demonstrate happy individuals. Furthermore, happiness literatures have evidenced the robust correlation between happiness and specific domains of life satisfaction such as health, recreation, friendship, marriage, and work (Diener, et al., 1999). It advocates that happiness

generated in part from a summary of satisfaction domains. This aspect will be explained further in section 2.3.

In addition, several activities have been found to be the barriers to happiness include the propensity to get used to the pleasurable situations and to compare the self and others, as discussed following:

1) Habituation to pleasurable

Human designed to get used to the situations that give pleasures of any gains. People consider to being happy when they have new type of clothing, house, car, or food, but as soon as they got it for a while, they adapt and habituate and feel the need to have something better or bigger (Buss, 2000).

2) Negative social comparison

Other factor that often interfere happiness is comparison with one's current situations, as well with other people. Referring to Wood (1996), people do a comparison of themselves to others in many terms including their children, partners, personal attractiveness, social status, and in various aspects, such as wealth, health, academic achievement, and so forth. In some instances, the fictional standards lead people to comparing negatively to others.

### **2.2.7 Consequences of Happiness**

Typically, the focus of happiness research is on the determinants of happiness. However, there is also a number of studies emphasized that happiness facilitates a plethora of positive outcomes, some of which are discussed below.

### **2.2.7(a) Creativity and Productivity**

The broaden theory of positive emotions developed by Fredrickson (2002) intended to describe how the experienced of positive affective is not only a sign of happiness but also function in contributing to individual development and growth. Negative affective such as anger or anxiety may limits the treasuries of momentary thought-action of people, so that they are prepared to do something by means of certain self-protective. In contrast, positive emotions widen treasuries of people's momentary thought-action. This widening of momentary thought-action treasuries provides chances to develop durable personal resources, which in turn provides the possible for personal development and transformation by creating positive or adaptive spirals of cognition, emotion, and action. For example, joy produces the strong desires to play and create in social and intellectual or artistic ways. Thus, through play, joy can make stronger social support networks; and through creativity, joy can lead to creative problem solving in day-to-day life or to the production of art and science. Successful problem-solving experiences and improved social support, scientific and artistic productions are all durable results of joy and may possibly contribute to personal development and transformation. This, in turn, may lead to emotions that are more positive. Another positive emotion such as contentment may also generate a desire to anticipate life surroundings. These all positive emotions may cause ways of viewing the self and the world around that are more positive and new.

These new and enduring insights and practices may increase positive emotions. Fredrickson (2002) has conducted clinical and laboratory study which evidence significant support for the broaden-and-build theory of positive emotions. Her study further presents worthy evidence that thought-action repertoires may

enlarge by positive mood states. The study presented that bipolar patients treated successfully with lithium display reduced creativity, and manic and hypomanic states related to over inclusive thinking. In the laboratory study, a variety of methods have been found to consistently generate positive mood states for up to 15 minutes. These methods include asking participants to read positive self-statements; to read an arousing story; to watch an arousing film; and to remember a positive event; to get a positive feedback; to receive an unexpected gift (e.g. a bar of chocolate); to listen to music; and to have positive social interaction with a cheerful person.

These methods of mood induction have been employed in laboratory settings to demonstrate the positive happiness effects on social interaction, cognition and perception. Similar studies have shown that a bias on the way to global visual processing and extended attention presented by people who receive success feedback or people with positive mood states on laboratory tasks. In contrast, people who receive failure feedback or people with negative mood states on laboratory tasks display a bias towards processing of local visual. Studies relating to the induced positive mood on laboratory have confirmed that such induced mood states produce thought and behavior that are more flexible and creative. Frederickson (2002) has done a sequence of researches that gave evidence to theory of broaden-and-build. In one set of studies, participants were shown film clips to induce negative emotions such as fear and anger, and positive emotions such as joy and contentment. After each film clips, participants itemized as many things as they could think of that they would like to do if they had these emotions in real life. Positive emotions led to a far broader repertoire of thought-action tendencies.

Laboratory and developmental studies confirmed the support of positive mood states for people to produce durable personal resources. Developmental

studies exploring on attachment of children have revealed that securely attached children solve the given problem with greater persistence, resourcefulness, and flexibility than those with insecurely attached children. Further, securely attached children also demonstrate greater in exploratory behavior in novel situations and in developing superior cognitive maps. Similarly, adult with secure attachment styles are more open and curious to new information than those with insecure attachment.

In educational study, an investigation has discovered that children with positive mood learn faster when compared to children with negative mood states (Frederickson, 2002). The result further explained that over time positive emotions and broad-minded coping mutually build upon each other. Broad-minded coping entails considering a wide thought-action repertoire of responses.

Study conducted by Block and Kremen (1996) has also shown differences of people's capacity to cope with stressful circumstances based on the use of positive emotions. Result of the study evidenced that people scored higher on ego-resilience demonstrate faster on cardiovascular recovery following stress than people scored lower on ego-resilience. The study further proved that experiencing positive emotions mediated this recovery.

All these evidences show that creativity and problem solving facilitated by positive emotions. In similar vein, happiness as well rises people's productivity on work. Staw, et al., (1994) conducted a study in over an 18-month period on over 200 workers. The result revealed that happier people obtained higher pay and better evaluations compared to their less happy counterparts.

### **2.2.7(b) Longevity**

Longitudinal studies provide evidences that happiness has significant effects on longevity. Danner, et al., (2001) conducted a carefully controlled study of 180 nuns in the USA. They were working as teachers, unmarried, did not smoke or drink, and ate a simple balanced diet throughout their adult life. All of the participants (nuns) had similar lifestyles. Danner, et al., (2001) found that happiness (the nuns wrote an essay as they entered the order) was related to longevity. The nuns are not aware that they involved in a study of happiness and longevity. A biographical sketch given to nuns when they wrote an essay, and asked to specify for the future they expected. The positive emotions in the essays further judged in more than half a century later by trained raters, which the age of the participants was unknown to the raters. The result shown that of the happiest quarter 90 per cent lived past the age of 85 compared with only 34 per cent of the least happy quarter.

Almost similar study was conducted by Maruuta, et al. (2000) on over 800 patients, 200 of whom had died. These participants answered questions of the assessment to show whether their outlook was pessimistic or optimistic. Forty years before, the participants had joined the Mayo Clinic. The results of the study found 19% of the optimists have greater longevity than pessimists have. Therefore, participants who stated that they were optimistic when they first joined clinic, lived significantly longer than those who did not. In another longitudinal study, Ostir, et al., (2000) examined Mexican Americans over 65 years of age in more than 2000 people. Two years later, after controlling for socioeconomic status, age, diseases, and drug use, they found that happy participants were twice as likely to survive and to remain functionally independent compared with their unhappy counterparts.

### **2.2.7(c) Social Relationships and Pro-social Behavior**

However, happiness appears to make humans more social, more ethical, more cooperative, and even bring out the best in them. A study conducted by Diener and Seligman (2004) have provided evidence that people with increased positive affect were more interested in social interaction, evaluate other people they have lately seen in more positive terms, and also turn into more predisposed to self-disclosure. Similarly, Brehm and Rahn (1997) have reported that people with higher level of satisfaction with life show more generalized trust in others. James and Chymis (2004) have also provided evidence that people with higher level of happiness react in ways that are more ethical. In addition, study conducted by Tov and Diener (2007) has also found positive correlation between happiness and socially expected results on a national level. They found that there was a tendency to score higher on democratic attitudes, volunteerism, and generalized trust in happier countries.

Based on above discussion, happiness can produce a plethora of positive endings. More specifically, happiness enhances creativity, productivity, longevity, social relations, and to more ethical behavior.

## **2.3 Life Satisfaction**

### **2.3.1 Definition of Life Satisfaction**

Shin, et al., (1978) described life satisfaction as an overall assessment of a person's quality of life in accordance with his/her preferred criteria. The appraisal of satisfaction depends on circumstances of a person compared with some appropriate standard; importantly, the standard for satisfaction resides within the individual, and it is not externally imposed.



Life satisfaction has also defined as the difference between what one has and what one wants; i.e., between ideal and one's reality (Campbell, et al., 1976). The judgment of life satisfaction, therefore, involves the application of personal standards and expectations for self and an assessment thereof. Similarly, Alex (1986) defines life satisfaction as a person's perception in assessing the gap between how things are and how they should be. Evaluations about what one has, one need, one want, one expects, one feels, one deserves, and what others have. All these combine of comparison conclude life satisfaction. Thus, the smaller the discrepancies found in these variables the greater one's life satisfaction; conversely, large discrepancies result in greater life dissatisfaction. Sirgy (1998) suggests that expectations represent the comparisons individuals make when evaluating their overall life satisfaction. Examples of such comparisons include expectations related to their capabilities, what they feel, they deserve, their ideals and past circumstances, and their minimal requirements for contentment.

Essentially, all definitions mentioned above concerning life satisfaction as an overall assessment of a person's quality of life in accordance with his/her preferred criteria. Thus, following Shin, et al., (1978), the present research defines life satisfaction as a cognitive appraisal of a person's quality of life according to the preferred standards.

### **2.3.2 Components of Life Satisfaction**

Significant research has been conducted to establish whether satisfaction with life is an enduring, stable trait as opposed to a variable influenced by life circumstances and external events. Examples of such events include birth, death, marriage, divorce, and balancing daily demands. Alternatively, an individual's

responses to life events may determine life satisfaction such that one remains static their satisfaction regardless of changes in their environment.

Studies indicate that people have a tendency to express similar levels of satisfaction through many life domains and across time. This implies that satisfied people with the marriage bond also tend to be satisfied with their children, their work, and their monetary condition. However, it is possible to be dissatisfied with one's marriage but not their job. It was discovered in one study that the proportion of negative to positive life events in one year predicts life satisfaction in the next, suggesting that such external influences do affect overall life satisfaction.

A longitudinal investigation administered by Suh, et al., (1996) may help illuminate such conflicted results. The researchers followed recent college graduates to measure overall life satisfaction every six months for two years. The results show that particular life events for these graduates correlated with variations in their life satisfaction even these impacts did not endure. In other words, the effect of these life events is transient since people make adjustments in the face of changes that occur from time to time. This implies environmental and personality explanations alone cannot predict changes in life satisfaction. That is to say that life satisfaction has the two components: trait-like components (reflecting personality influences) and state-like components (reflecting environmental influences).

However, due to one's life events affected by one's personality, it may not be possible to discriminate between these components. For example, extraverted people may place themselves in social situations or seek opportunities to gain broader experiences of life. Definitely, study conducted by Plomin and Nesselroade (1990) have provided evidence that genetics plays a role in influencing life experiences.

The correlation of life satisfaction has also found with variable related to personality, such as assertiveness, extraversion, openness to experience, psychological resilience, internal locus of control, and empathy. Based on longitudinal study, Magnus, et al., (1993) have provided evidence that four years subsequent to the study that personality predicted life satisfaction. The study implies a dispositional component to life satisfaction or one that influences life satisfaction through the environment. Individuals that are “satisfied” tend to be so in several areas. Taken together, these studies confirm that life satisfaction is genetic-based component, thus consistent across situations and stable over time.

Presently, the literature recommends that personality is an important part in evaluating the satisfaction of individual’s life. However, immediate factor of an individual’s environment (e.g., recent life events) may also affect the judgments relating to satisfaction with life. In conclusion, the elements that comprise life satisfaction have subsumed in two categories: nature (i.e., personality) and nurture (i.e., environment).

### **2.3.3 Measurement of Life Satisfaction**

Life satisfaction is considered as an individual’s judgment. Thus, in variety of social studies, self-reporting method is the widely employed to measure it. Most of researchers consider that self-reporting is the most accurate and direct method to assess people’ satisfaction with life. The use of self-report requires respondent to select a symbol (i.e., an amount or a facial expression) on a Likert-type scale (e.g., from 1 to 5) that specify the perceived level of satisfaction a person feels with life. The following is summary of three primary measures that have used to assess life satisfaction:

Firstly, Satisfaction with Life Scale (SWLS). This scale was established by Diener, et al., (1985) to assess global satisfaction with life. They constructed this scale on the consideration of life satisfaction as the cognitive component of subjective well-being. The scale made up of five statement items and asked participants to judge on a Likert-type scale with seven possible options offered. Currently, this scale is the dominant multiple-item and has validity evidence in more than hundreds of studies (Pavot & Diener, 2008).

Secondly, Cantril's Self-anchoring Scale. The scale was developed by Cantril (1965) and often refers to as Cantril ladder. This measurement used to assess general life satisfaction, and asked participants to select one rung of a ladder. The ladder extends from the bottom rung (worst possible life for you) to the top rung (best life for you) as a sign of their satisfaction with life. The growing popularity of the scale stems from its "friendly" design and its use in Gallup's World Poll. The scale has good convergent validity and reliability.

Thirdly, Delighted-Terrible Scale. It was developed by Frank Andrews and Stephen Withey (1976) at the University of Michigan. This single-item measurement asked participants to select seven moods adjectives as responses. The moods ranging from "delighted" to "terrible" that represent how they feel about their life as a whole.

Of various self-report mentioned, some researchers measure with a single question while others oblige participants to respond to multiple items. Due to multiple and single-item scales well correlated, some researchers speculate that single-item scales are adequate. In addition, multiple-item scale requests a broader variety of information and with greater specificity so that single-item scale is more susceptible to the bias of social desirability.

Despite these concerns, some scholars have approved that assessing life satisfaction using multi-item scales is most preferable when compared to single-item scales. Even though single-item scales show a strong relationship with other measures that are similar (sufficient convergent validity) and measure in the same way over time (adequate reliability), however, identification of the errors associated with wording and measurement as well as assessment of internal consistency only provided by multiple-item scales. Overall, this may be due to higher reliability and validity of multi-item scales exhibit than the single-item scale (Diener, 1985).

From what have reviewed so far, Satisfaction with Life Scale (SWLS) is the most validated measure of life satisfaction. It was established by Diener, et al., (1985) to assess evaluative judgment of individual consciousness with life as a whole by using one's own criteria. Furthermore, the scale uses a relatively broad and nonspecific language for the items so that enable participants to perform subjective evaluation. In addition, Satisfaction with Life Scale (SWLS) uses Likert-type scale with seven possible options ranges from 7 (strongly agree) to 1 (strongly disagree), participants asked to specify how much they agree for each of the five-items offered. Therefore, this multiple-item scale provides a broader variety of information and with greater specificity. Another consideration is that the scale has been used across gender, ethnicity, and age and shows a high reliability and internal consistency, and suitable for a varied group of age. In addition, the scale also show a good relationship with clinical ratings of satisfaction, informant reports of satisfaction, a memory measure of satisfaction, and self-esteem scales. Therefore, the scale (Satisfaction with Life Scale) is selected for this research.

### **2.3.4 Happiness and Life Satisfaction**

Life satisfaction has been used synonymously with happiness. Based on the literatures, there are two perspectives that debate about the relationship between happiness and life satisfaction. Some argue they are the same whereas others propose them as related but different constructs. Some scholars suggest that the term and the measurement of happiness measures and life satisfaction can be used interchangeably (Veenhoven, 1991; Frey, 2008). According to Veenhoven (1991), the terms happiness and life satisfaction are synonymous. Similarly, Lane (2000) theoretically differentiates between the concepts of happiness and life satisfaction but the difference is not used in research. All these authors work based on the assumption that these two concepts are identical and that any distinction between them would have no analytical impact.

Conversely, several authors claim significant differences between the concept of life satisfaction and happiness, both theoretical and empirical data analysis (Gundelach & Kreiner, 2004). Campbell, et al., (1976) argue that happiness is an experience or feeling of affect, whereas life satisfaction refers to a judgmental or cognitive experience. Similarly, Lane (2000) defends that life satisfaction is a judgment that is more cognitive, whereas happiness is a mood. Kozma, et al., (1991) denote happiness as a state of mind related to attainment in fulfilling needs or wishes, whereas satisfaction with life is similar to happiness but has no reference to the state of mind of the individual. In other words, a positive mental state may be arise because of happiness and negative mental state or feeling due to the absence of success. However, feeling or mental state of an individual is not an attribute that determine satisfaction. Thus, it is possible for an individual to be satisfied or

dissatisfied with finances, housing, health, family, etc., whereas happiness is a construct that is broader one (Kozma, et al., 1991).

On these illuminations, it clarifies that life satisfaction and happiness cannot consider as one and the same. These two variables are not the same in the sense that they should not be treated as the same latent variable. Indeed these two variables are strongly correlated but partly influenced by different variables (Gundelach & Kreiner, 2004). Further explained that if happiness and life satisfaction were the same latent variable, then these two variables should be identically confirmed by the same independent variables; however, outcome contradicts the resulted analysis. Drummond (2000) argues that satisfaction with life is a more cognitive while happiness is a more emotional. Thus, happiness is a general expression of feeling, whereas satisfaction is relating to life that is more specific event, thus it is more concrete. People may declare they are happy yet not be satisfied with some elements of their life. Due to this dissimilarity, satisfaction should be expected to relate more strongly to specific experiences in the individual's life situation. Other than that, happiness is more closely correlated with the emotional climate (Vitterso, 2013). This observation supports the claim of Diener, et al., (2004) that the association between life satisfaction and happiness is not perfect and varies across sample populations. One may feel satisfied with life despite experiencing only a little bit of happiness and thus the opposite.

Based on described above, happiness and life satisfaction are two distinct variables in this research because although they are strongly correlated, they cannot be reduced to a same latent variable. Conceptualized relationships between them will further be debated in the later sections in this chapter.

## **2.4 Religiosity**

### **2.4.1 Definition of Religiosity**

People perceive religion and religiosity in different ways, depending on social and cultural contexts. Even within the same religion, it may mean different things to different people. James (1958) defines religiosity as any experiences and expressions that arise from awareness of supernatural entities role in life's journey. These experiences and expressions include cognition, affection, and behavior that come from individual's perception of the interaction with divinity that considered playing an important role in all the things that human do. Almost similarly, religiosity has been defined as a belief in God's presence and obedience of the rules set by God (McDaniel & Burnett, 1990). Religiosity has also been explained as the extent to which a person submits and obeys following religious beliefs, values, practices in everyday life (Worthington, 2003).

Refers to definitions offered by James (1998), which is also almost similar as definition formulated by McDaniel and Burnett (1990), this research defines religiosity as experiences and expressions include cognitive, affective, and behavior those come from awareness of God's presence that considered playing an important role in human daily life.

### **2.4.2 Religiosity in Islamic Context.**

The word Islam refers to "Peace" and "submission to the Will of Allah" (Yousaf, 2006). As a religion, Islam has a holy book that has been the main ultimate source of the principles of the Muslim's life. It covers a complete code of Muslim's conduct, both individual and collective aspects as well. As described in the Holy Quran, all thoughts and deeds should be performed with God consciousness. Hence,



Islam is a set of value systems established by the God Almighty to guide human beings live a life in this world and to gain rewards from it and to save them from its punishment. Therefore, Islam is not only a religion but also a way of life for its adherents.

Belief in Allah the only one God is the most fundamental creed in Islam. This is related to the recognition or testimony that all exists is the creation of Him. The second fundamental creed is the belief that Muhammad is the prophet and the last messenger of Allah to humankind by revealing the Qur'an. However, the first fundamental creed that is belief in Allah would become a mere theoretical proposition without belief in the second fundamental creed that is belief in the Prophet Muhammad. The third fundamental creed is belief in *Al-Akhira* (the hereafter). Even though one may have belief in Allah, in the Prophet Muhammad, and in the Holy Qur'an, but denial of the hereafter is denial of Islam. Everyone is responsible to Allah for one's own actions on Day of Judgment. For Muslims, the belief in the hereafter becomes a great moral force, and a permanent guard stationed to help them develop a stable character within themselves. Thus, the quality and character of the true Muslim are not limited to the surroundings of prayer halls, but extended to every sphere of his work as a way of life (Maududi, 1984). These fundamental creeds of Islam embodied in the five pillars of Islam. Namely: 1) "*Shahadah*" which means as testimony or the declaration of faith; 2) "*Shalat*" or Prayers; 3) "*Shaum*" or Fasting during the month of *Ramadan*; 4) "*Zakah*" or Alms giving; and 5) Pilgrimage (*Hajj*) to the *Ka'bah* in Mecca at least once in a lifetime for those who have the financial ability.

### 2.4.3 Aspects of Religiosity

Psychologists and sociologists have been concerned with various aspects of religiosity. Hill and Hood (1999) have proposed three aspects for the systematic study of religiosity, including (a) beliefs of the God's existence and His role in every human life movement; (b) quality of every action taken is driven by consciousness of the role and intervention of supernatural entities; and (c) the strength of commitment refers to the religious belief system.

These aspects of religiosity are often interchangeable due to so strongly interrelated (D'Onofrio, et al., 1999). Furthermore, Ryan, et al., (1993) note that it is possible for two persons to follow the same religious belief system with not the same ways, as well as for different reasons, so that may also result in different behavioral and motivational consequences.

In sociology of religion, Glock and Stark (1965) have contributed to the study of religiosity by proposing five aspects of religiosity that are general reference frame for conducting research empirically: Intellect, Ideology, Private Practice, Religious Experience and Public Practice. The following is a brief description of the five aspects:

- 1) *Intellect* refers to body of knowledge, hermetical skill, subjects of interest, interpretation, and thinking styles. The frequency in thinking about matters relating to religious issues is a common indicator for this aspect. It specifies how often a person renews or updates issues related to religious contents through the medium of thought that cause into the heart of the intellectual dimension.

- 2) *Ideology* refers to patterns of plausibility, unquestioned convictions, and beliefs. The existence of a transcendent reality that credible is general indicators of this aspect.
- 3) *Private Practice* refers to a person's style of dedication to the Almighty and patterns of action. It emphasizes some basic forms of practice addressing to transcendence, such as prayer, worship, fasting, and pilgrimage.
- 4) *Religious Experience* refers to religious feelings, experiences, and patterns of religious perceptions in the form of joyfulness, humility, peace, fear, and exaltation. Experiencing the transcendence may be done in two basic forms: 'experiences of being at one' and 'one-to-one experiences'. Experiences of being at one" refers to a participative one, and one-to-one experiences relates to a dialogical spirituality pattern.
- 5) *Public Practice* refers to forms of deed, a sense of belonging and responsibility concerning a certain transcendence ritual imagination and a certain social body. This aspect offers information on how much individual religiosity is rooted socially and illustrates subjective and frequency of the involvement in public religious services.

Although the five core aspects above established from a perspective of sociological, but they also encompass religious study from a perspective of psychological as they indicate the representation of religious contents from distinguishable psychological modes. Ideology and Intellect relate to thought, Private Practice and Public Practice relate to action, and Religious Experience relates to perception and emotion.

Huber and Huber (2012) denote that the model forms to represent the common of religious life and establishes the importance of religion for both

theoretical and individual. This kind of religiosity model consists of five aspects that refer to the ideas of Kelly (1955) concerning personality psychology perspective and the Glock and Stark (1965) notions regarding the multidimensional model of religiosity.

Huber and Huber (2012) further explain that the construct-system of the personal religious developed based on the combined of the core of religiosity aspects to unify psychological entity. Kelly's (1995) personality theory denotes that a personal construct is representation of a person's inner world, a blueprint and pattern of meaning that allow to anticipate events and human's behaviors and experiences structure.

The constructs of personal religiosity system composed of all individual construction associated with personal religiosity, thus it may interpreted as a superstructure in personality. Once a person expects something then a religious meaning will activate a personal religiosity construct. Subsequently, the five main aspects considered as modes or channels to shape and activate the construct of personal religiosity. The personal religiosity activated constructs is considerably as a valid measure for the degree of individual religiosity (Huber & Huber, 2012).

#### **2.4.4 Measurement of Religiosity**

To measure religiosity, early researchers have depended upon unidimensional measures or single indices in which religious attendance is the most commonly measured element. Bergan, et al., (2001) have argued that a measure of religiosity may lead to be insufficient and improper ends when the measure relies only on religious attendance. A young Muslim may be present at the mosque praying for several motives, may be to keep off social isolation or to give pleasure to their

parent. Thus, the act of attending the mosque is limited only to a routine action, not to a devotional act. Therefore, employing multi dimensions and multi items to conceptualize and measure religiosity is more preferred and appropriated.

Religious Orientation Scale (ROS) developed by Allport, et al., (1967) is one of the most frequently used measures of religiosity. They differentiated religiosity based on motivation into intrinsic and extrinsic of religiousness. The intrinsically motivated person lives his religion, whereas the extrinsically motivated person uses his religion. Extrinsic religiousness views religious practice as an avenue to a social or personal end (e.g. acceptance, comfort) while intrinsic religiousness sees religious practice for its own sake. Donahue (1985) has evidenced that the Religious Orientation Scale is a reliable measure of religiosity. Even though the scale has been broadly used, it has to consider that the scale has been utilized on Christian subjects and from a Christian perspective.

Wilkes et al. (1986) have developed another measurement of religiosity. This popular measurement operationalized based on four items, they are importance of religious values, church attendance, self-perceived religiousness, and confidence in religious values. They further claimed that measuring religiosity employing multi items has achieved high validity for almost research.

Worthington et al. (2003) have also established measurement of religiosity named the Religious Commitment Inventory (RCI-10). The scale comprises of two dimensions, cognitive dimension associated with religiosity of intrapersonal and behavioral dimension associated with religiosity of interpersonal. Cognitive dimension refers to personal religious experience or individual's belief while behavioral dimension concerns with the activities in organized religious ritual and events. Six items employed to express intrapersonal religiosity (cognitive

dimension) while four items for expressing interpersonal religiosity (behavioral dimension).

Other measurement of religiosity is the Centrality of Religiosity Scale (CRS). The scale established by Huber and Huber (2012) to evaluate the centrality, the importance of personality religious constructs or salience. According to Huber and Huber (2012), this scale has applied in sociology of religion and psychology of religion for more than 100 studies in more than 25 countries, and totally with more than 100,000 participants. This Centrality of Religiosity Scale (CRS) operationalizes five core aspects of religiosity from Glock and Stark (1965): intellect, ideology, private practice, religious experience, and public practice. The scale consists of five subscales, each subscale contains of three items, with totally 15 items (Huber & Huber, 2012). The sum of the subscales' result is the total Centrality. Scored high in the subscale denote a high level of its dimension while scored high in the total result indicates a high Centrality level.

#### **2.4.5 Religiosity, Life Satisfaction, and Happiness**

There is definitely an ample evidence that religiosity relates to life satisfaction significantly (Koenig, et al., 2001; Bergan & McConatha, 2001; Kortt, et al., 2015; Sinnewe, et al., 2015). Study conducted by Koenig, et al., (2001) has explored 100 researches to investigate the effect of religiosity on life satisfaction. An important conclusion drawn is people's attendance at religious services and religiousness beliefs appear to be predictors of satisfaction with life.

Correspondingly, Bergan and McConatha (2001) have examined the relationships between religiosity (religious affiliation and private religious devotion) and life satisfaction. Outcome of the study shows the fact that religious affiliation is

more strongly associated with life satisfaction when compared with private religious devotion.

Furthermore, working with panel data from the 2004, 2007, and 2010 waves of the Household Income and Labor Dynamics in Australia (HILDA) survey, Kortt, et al., (2015) looked into the association of religiosity with life satisfaction in the Australian social setting. The study result provides strong proof for the relationship between religious' services attendance and life satisfaction. The study has additionally unraveled that social resources mediate this kind of correlation, and the direct effect of religious' services attendance on life satisfaction has found significantly as well.

In a similar vein, Sinneve, et al., (2015) have also explored the relationship between religiosity and satisfaction with life implementing the German Socio-Economic Panel data drawn from the wave of 2003, 2007, and 2011. Statistical result of the study provides suggestion for the significant correlation of religious' services attendance with life satisfaction. In addition, the finding has provided evidence that social networks mediate partially this kind of correlation. On those, religious people considerably possess higher satisfaction with life as they definitely regularly enroll in religious services and make social networks in their congregations. Folks have so-called 'need to belong' and religious belief really helps to satisfy it (Lim & Putnam, 2010). Krause (2008) further described that religious social resources offer several gains by suggesting people with a better impression of convenience, belonging, and so identity.

Likewise, previous studies have also identified religiosity as one factor that may enhance happiness, but a determining factor of happiness as well (Sander, 2017; Sillick, et al., 2016; Cohen-Zada & Sander, 2011). Based on data from the National

Opinion Research Center's "General Social Survey" in the United States, Sander (2017) examines the influence of religion on happiness. His study gives particular attention to the direct outcome of religion on attending religious services and the indirect result on happiness. The important outcomes encompass the fact that engagement in religious activities is positively relating to higher degrees of happiness, and participants without having any religion are much less happy.

A related study reported by Tekke, et al., (2018) exploring the relationship between religiosity and happiness. The study employs the students at the International Islamic University in Malaysia. A sample of 189 Sunni Muslim administered the short-form of Eysenck Personality Questionnaire Revised, the Oxford Happiness Inventory, and the Sahin-Francis Scale of Attitude toward Islam. Subsequent to consider sex and personality of individual variations, the study recorded statistically significant correlation between religiosity and happiness. According to Abdel-Khalek (2011), there are numerous ways that religiosity may possibly have an effect on happiness including promises of spiritual and material compensation. As taught in Islam, remembering Allah, reciting Qur'an, asking God's forgiveness, fasting at Ramadan, taking ablutions, and prayer, have a stimulating unconscious effect on Muslims, and as well supporting them to momentarily relieve earthly worries.

On the other hand, the association between life satisfaction and happiness has also attracted attention by some scholars (Shahrooz & Farnaz, 2016; Lyubomirsky, et al., 2006; Boroovah, 2006). For example, in a research using the method of structural equation modeling to look at the association of life satisfaction with happiness mediated by resiliency, Shahrooz and Farnaz (2016) have found evidence that the exogenous variable of life satisfaction has a direct influence on happiness



significantly. The results indicate the direct influence of life satisfaction on happiness and the indirect influence of resiliency as the mediated variable. Similarly, Lyubomirsky, et al., (2006) have also revealed that global life satisfaction was the preferred predictors of happiness. Furthermore, working with data on more than 3000 people in Northern Ireland, Borooah (2006) performs a study into what exactly makes people happy. The results of study reveal that the higher level of life satisfaction is going to be a factor for attaining happiness.

Based on studies mentioned above, religious people considerably possess higher satisfaction with life as they regularly enroll in religious activities such as praying five times, fasting at Ramadan, paying Zakat, and performing Hajj. This perceived relationship with God has a stimulating unconscious effect on Muslims to relieve any worries and as well supporting them to be more sincere for everything that is lived. In addition, involvement in religious services can also make social networks in their congregations. This perceived religious social resource offers several gains by suggesting people with a better impression of convenience, belonging, and so identity. Thus, the greater the individual enrollment in religious activities and services, the more they are satisfied in their life. While life satisfaction is the way in which people perceive how the life has been up to now and how the feeling of life is going to be in the future, happiness may be the result of ones perception of experiencing positive emotions of life satisfaction. Therefore, it could be argued that the association between religiosity and happiness might be due to the influence of religiosity in increasing the degree of people satisfaction with life.

## **2.5 Self-regulation**

### **2.5.1 Definition of Self-regulation**

McCullough, et al., (2013) outlined self-regulation concerning process by which a system utilizes information regarding its current state to modify that state. As for Karoly (1993), self-regulation is the term for those particular processes, both internal and/or transactional, that may make it possible for a person to lead goal-directed behaviors along with time and as well across varying conditions. More specifically, Barkley (1997) identified self-regulation as just like any kind of reaction, as well sequence of reactions, by a person that assists to improve the possibility of the individual's upcoming reaction to an event and then, in doing so, benefits to change the chances of a subsequent end result associated with that event. When individuals self-regulate, they are simply leading or modifying all of their action on the search for some preferred end state or target (Carver, et al., 1998). Self-regulation does not require a considerate or attempt, it mostly happens in a somewhat effortless and auto pilot process (Fitzsimmons & Bargh, 2004).

Tice and Bratslavsky (2000) make use of self-regulation to refer to the attempt by a person to switch responses, override desires, and substitute them with an alternative response which turns the person's behavior closer to a certain goal. Whereas according to Baumeister, et al., (2004), self-regulation relates to how a person asserts control over his or her own reactions in an attempt to reach possible goals and live up to expectations. The definition of "goal" utilized to depict mental representations of preferred results to which people are focused (Fujita, 2011). Even though people may interest or perhaps choose to achieve an outcome, however, before they are willing to invest cognition, affect, and behavior in reaching it, they are actually not even committed to that as being an end goal. Austin and Vancouver

(1996) further explain that goal intentions related to an expected end state, while commitment to the goal suggests exactly the extent to which that end state is definitely preferred and drives behavior. However, achieving a goal is inadequate simply having an intention. People generally always have the desire and intention to improve the quality of their particular behavior, but those often only last for a moment by violating some rules in realizing that intention. Following Baumeister, et al., (2004), present research defined self-regulation as how a person applies regulation of his or her own responses to be able to pursue goals and live up to expectations.

### **2.5.2 Aspects of Self-regulation**

Self-regulation allows individuals to lead their goal-directed behaviors throughout varying situations and over time (Zimmerman, 1995). As a result, it could be seen as an attribute associated with the person that allows control over behaviors. Behavior control comes with dealing with annoying emotions, preventing attention to distractors, so that enabling to concentrate to a particular attention around the task. Self-regulation primarily could be improved by means of attention regulation and emotion regulation.

#### **a) Attention regulation**

Attention regulation is the term used for being able to deal with incoming stimuli as a way to build and maintain a calming way of thinking, tolerate modification, and generate any specific responses that are cognitive and behavioral to preferred stimuli definitely. Procedures associated with regulation of attention rely on characteristics of the central nervous system and mind's capabilities to

convert sensory information easily into structured neural impulses, which additionally suggest that the attention regulation may be a relatively constant characteristic of a person (Kandel, et al., 2000). Nevertheless, attention regulation will not refer to sustained attention, that is, paying attention to an activity over an extended period will be a common issue of attention-deficit/hyperactivity disorder (Hooks, et al., 1994). It refers rather to selective attention, that is, ability to focus on important (voluntarily chosen) environmental stimuli and capability to stay undistracted by means of unrelated stimuli. This kind of selective aspect of attention, relating to both environmental and self-related resources, is usually a backbone of self-regulation of goal-directed behaviors across varying conditions.

b) Emotion regulation

Self-regulation associated with emotions refers to modification of subjective experience of emotions in a way relating to enhance some specific goals (Lawton, 2001). Emotion regulation considered to require circumstances selection and modification (selecting or perhaps adjusting an environment so that it turns into mainly beneficial for some mood). Perhaps it is expected that because of poor self-regulation concerning negative emotions, people are no longer able to prevent suffering from negative emotions, are highly preoccupied using their recent emotions, and also have difficulties with disengagement using their recent emotional state. They may be driven more close to recent emotional states, particularly when subjected to unfavorable situations. Conversely, people with high self-regulation have an understanding of their emotions and therefore are qualified to regulate the period or strength of their emotions. This kind of regulation could possibly be gained by means of attention regulation (e.g., concentrating on behaviors that is

certainly worked to proximate any achievement of the goal). Results on experimental study have evidenced that the successful in getting health-related goals (Tice & Bratslavsky, 2000) and overall performance of cognitive tasks (Baumann, et al., 2002) essentially predicted by the self's ability to regulate unfavorable emotions.

Prior and during goal selection as well soon after post-intentional, self-regulation might possibly require volitional and behavioral processes (Kuhl & Fuhrmann, 1998). When people are in the stage of goal pursuit, they often experience troubles to maintain most of their behavior. Concentrating the attention around the task available and continuing to keep a positive emotional stability can assist to take care of initiated behavior. Strong self-regulation could possibly assist in the continued engagement during conducting a task soon after initial failures. In various periods of goal pursuit, whether the goal is self-compelled or is compelled by some other person, everyone needs to pay particular attention and stick with the task available. They should completely focus; even though obstacles come up and interventions attend to additional tasks arise. However, it is usually a very difficult self-regulatory process to focus on the present goal priority and reduce temptations.

Self-regulation according to volition's theory relates to the ability of a person to make sure the accomplishment of predetermined goals even with distractions and opposing demands (Corno, 1994; Kuhl, 1992; Kuhl & Beckmann, 1994; Kuhl & Fuhrmann, 1998; Kuhl & Kraska, 1989; Zimmerman, 1995). Thus, the term of self-regulation commonly considered as a control over emotions and attention, a parsimonious information processing, an exercising control over the environment, and a broad range of post-intentional processes.

### **2.5.3 Measurement of Self-regulation**

There are several instruments intended for measuring self-regulation. The most beneficial measure to employ is dependent upon various factors, such as the population of desired use, the psychometric properties belonging to the measure, as well as, scale availability.

The Self-Regulation Scale (SRS). The self-regulation scale established by Schwarzer, et al., (1999) and intended to investigate the ability of a person to take care of the concentrated attention while attempting to get a goal and preventing problems found during the process of goal reaching. Schwarzer, et al., (1999) further explain that such a management problem requires a person to maintain a positive emotional balance while to concentrate attention around the task available. Therefore, all of the Self-Regulation Scale's items definitely built to reveal regulation of attention and emotional. Score of each item ranges on a 4-point Likert-type scale, starting from 1 (not at all true) to 4 (completely true), and responses are summed into an overall score. The higher the score achieved by a person suggesting increased capability to continue controlling and maintaining one's attention. The Self-regulation Scale has exhibited an internal consistency with an alpha Cronbach of .76 (Schwarzer et al., 1999). While investigation on cross-cultural study has evidenced that, the Self-regulation Scale produces internal consistency coefficients of .75 in Costa Rica, of .74 in Finland, and of .73 in Poland (Luszczynska, et al., 2004).

#### **2.5.4 The Role of Self-regulation on the Relationships between Religiosity, Life Satisfaction, and Happiness**

As discussed previously, people who report themselves as religious are typically more satisfied with their whole lives. Prior researches have offer evidences that religiosity is significantly associated with life satisfaction (Koenig, et al., 2001; Bergan & McConatha, 2001; Kortt, et al., 2015; Sinnewe, et al., 2015). What is more, researches have also revealed religiosity as one factor that may increase happiness (Sander, 2017; Sillick, et al., 2016; Cohen-Zada & Sander, 2011). However, this well-known is remarkably plausible, mainly because self-regulation, like religiosity, is in addition relevant to life satisfaction and happiness (Fox, 2015; Praskova, et al., 2015).

To note a few, study performed by Fox (2015) among a sample of 63 older adults in which participants answered the Satisfaction with Life Scale (SWLS) and the Self-Regulation Inventory (SRI). The study has provided evidence that the older adult's self-regulation (SRI) correlates significantly with life satisfaction (SWLS) scores. The result has provided a correlation coefficient  $r = .339$  ( $p < .05$ ). In the same vein, a study has been conducted by Praskova, et al., (2015) to examine a mediation model of career calling employing a sample of 664 emerging adults (74.8% female, mean age = 20.2 years). The result provided evidence that career-calling associate positively with life satisfaction and perceptions of future employability. They further showed that the associations appear to be the consequence of the self-regulatory mechanisms of work effort, career strategies, and emotional regulation. The study also discovered that the self-regulatory mechanisms (work effort, emotional regulation, and career strategies) mediate the relationship between career calling and perceived employability while career calling and life

satisfaction correlate through work effort and emotional regulation of the self-regulatory mechanisms.

Additionally, evidence suggesting a positive relationship between self-regulation and happiness has offered by other studies as well (Mehrangiz, et al., 2013; Brajsa-Zganec, et al., 2017). To note a few, Mehrangiz, et al., (2013) have investigated the relationship between happiness, meta-cognitive skills (one of its subscales associated with self-regulation skills) and educational achievement of college students at state universities in Tehran among sample of 100 students both of gender. Outcomes suggested substantially positive relationship between happiness, academic achievement & problem solving, and self-regulation of Students. In addition, Brajsa-Zganec, et al., (2017) have conducted a study employing 411 nursing part-time students in which 79% was female (M=25 years) to explore the relationship between subjective well-being (life satisfaction, happiness) and set of personal (self-esteem, affect regulation strategies) and social variables (family cohesion, social support). The study found that the need for self-esteem and affect regulation strategies (set of personal variables) as well as for family cohesion and social support (social variables) in predicting life satisfaction and happiness among nursing students.

Despite the fact that highly religious people possess better self-regulatory capability (Watterson & Giesler, 2012) even so, many of the links of religiosity with life satisfaction and happiness, as previously mentioned, may be due to influences of religiosity on self-regulation. As a result, it might be argued that religiosity has an effect on how people regulate thoughts and behavior to stay in accordance with religious values and, in turn, can certainly help clarify life satisfaction and happiness



that religious individuals often enjoy. However, further research is needed to scrutinize the relationships.

## **2.6 Self-control**

### **2.6.1 Definition of Self-control**

Conceptualization of self-control was built from control theory, in which a person modifies, or preserves behavior in reaction to environmental requirements (Carver & Scheier, 1982). It actually stands for the ‘operate phase’ within the self-regulatory procedure. For that reason, it involves array of reactions from overriding desires to intentional behavior (Carver, 2005).

Ainslie (1975) viewed self-control in relation to selection of a postponed but considerably more beneficial end result over a significantly more immediate end result that may be ultimately of reduced benefits. This is exactly in accordance with postponement of gratification and evenly stresses the importance of managing immediate impulses as well as responses. In addition, self-control has been referenced as part of the reflective system or cool-cognitive that leads behavior to goal-directed and usually needs an intentional control or willpower to be effective (Metcalfe, et al., 1999 & Mischel, et al., 1989). The cool system refers to having evolved to override pre-potent impulses and habits and to provide long-term self-regulatory purposes. As opposed, the hot system works with a feeling principle (“doing thing for feeling good”) and it most typically related to the possibility of impulsive behavior and poor self-control.

Likewise, some scholars point out that self-control requires a person to end up with decisions as well to respond in line with long-term instead of short-term benefits (Logue, 1988; Gottfredson, et al., 1990; Rachlin, 2000). Self-control according to Tangney, et al. (2004) refers to the ability of self to simply modify or override one’s inner reactions, and also to stop unwanted propensities of behavior and to stay away to behave on them. Further denoted that self-control considered

definitely not merely a process, it is like a property of systems that contain effective self-control function. This means that, when people self-controlling they may reach one particular goal that may pre-potent or conflict with another. However, due to people are not the same in the effectiveness with which the systems regulating self-control work, they also vary in self-control.

Essentially, all models discuss the definition concerning self-control as the self's ability to promote appropriate reactions and prevent unfavorable responses could possibly occur because of physiological functions, habit, learning, or maybe the drive associated with the circumstance, for several significant or preferred goal. They often expect that: a) self-control allows enhancing advisable behavior and restricting unfavorable behavior; (b) self-control must be necessary for a wide range of behaviors; (c) self-control is a mindful and effortful type of management behavior; and (d) self-control has an effect on exact behavior (instead of imagined behavior). Therefore, the word of self-control employed in this study is the term for the inner resources accessible to prevent, override, or modify responses that may likely occur due to physiological processes, habit, learning, or maybe the drive from the circumstance.

### **2.6.2 Aspects of Self-control**

Tangney et al. (2004) recommend two aspect of self-control: the inhibited of unwanted behavior and the initiated of preferred behavior. His model illustrates that experiencing the conflicted self-control between the long-term benefits and the short-term or present temptations is a requirement to be able to be involved in self-control.

Hofmann and Van Dillen (2012) denote that whenever temptations came across, self-control demonstrates the battle of the power of influence between

impulses or desires on the one side and inhibitory pushes on the other side. Inhibitory control makes it possible for individuals to put away the tendencies of impulsive response to enables numerous additional reactions that are consistent with particular long-term goals (Inzlicht, et al., 2014). To that end, self-control is in many cases considered as a struggle between two rivaling forces: the force that may drives manifestation associated with an impulse (i.e., impulse strength) and countervailing drive that may override or modify the impulse (i.e., self-control strength). Failure in self-control may originate from strong impulses, poor control, or possibly a mixture of both factors, while self-control is successful whenever the impulse strength is poor and the control strength is relatively strong, or with the aid of some mixture of these two factors.

Differentiating between both aspects of self-control is also in accordance with Gray's (1994) concept regarding the Behavioral Inhibition System (BIS) vs. the Behavioral Activation System (BAS). This theory -also known as Reinforcement Sensitivity Theory- recognizes the differences between the two systems with references to responding either to goal-conflict (BIS) or signs of reward (BAS) and therefore focuses on the difference between inhibition and initiation as separate approach to attain goals (Corr, 2008).

Almost similar, an examination of the factor structure of the Brief Self-Control Scale performed by Maloney, et al., (2012) uncovered a structure composing of two related factors, referred to as restraint (the tendency to endure attraction) and impulsivity (performing on spontaneous feelings and thoughts). In addition, Carver (2005) identified restraint as the propensity to be disciplined or become deliberative and takes part in effortful control; while impulsivity denotes the inclination to become spontaneous and act on intuition. As indicated by Carver, both of these

aspects work in tandem, and they remain competitive against each other to have an impact on behavioral results. Even so, this 2-factor structure as exhibited by means of restraint and impulsivity is identical to the differentiation formed between self-discipline and impulse-control, and as well between inhibition and initiation, which has wide theoretical support from literatures related to biological, cognitive, psychodynamic, trait, and developmental literatures as well (Carver, 2005).

Compared to the theoretical recommendations that have been intended to differentiate between aspects of self-control, this current study employs self-control construct that consist of restraint as the propensity to stand against distraction or perhaps temptation, and impulsivity as behaving on spontaneous thoughts and feeling. However, restraint may perhaps function to override impulses, but it may additionally function in the lack of any existing environmental signs that prime impulses.

### **2.6.3 Measurement of Self-control**

There are various scales applied to measure people's self-control. Duckworth & Kern (2011) ascertained in excess of 100 measurements have been used to assess self-control. Nearly all of scales target in explicit people and on a defined aspect of self-control such as purpose in particular behaviors (e.g., health behavior; Brandon, et al., 1990) or ego under-control (Letzring, et al., 2005) rather than measuring personal distinctions in self-control across domains of broad behavioral in populations as a whole (Baumeister et al., 1994). The following describe three scales of self-control that have been operated moderately and commonly with various types of behavioral results, and in a different people: the Low Self Control Scale from

Grasmick, et al., (1993); the Barratt Impulsiveness Scale from Patton, et al., (1995); and the Self-Control Scale from Tangney, et al., (2004).

The Self-Control Scale consists of 36-item, developed by Tangney, et al., (2004) to investigate people's capability to disrupt unnecessary behavioral propensities and to override or modify inner reactions and to stay away from performing on them. The study conducted by Tangney, et al. (2004) indicated that the scale produces a coefficient alpha Cronbach of .89 and a coefficient correlation of .89 for test-retest reliability over 3 weeks, which means good reliability. In addition, they have modified the scale into a short scale which consists of 13-item. Correlation between the short scale and the full scale exhibited a strong relationship ( $r = .93$ ) and good psychometric characteristics. The scale published in 2004 and has employed among diverse populations. For example, Finkel and Campbell's (2001) study employs the scale among adult romantic partners; Finkenauer, et al., (2005) use for young adolescents; and Gailliot (2007) administers the scale for student samples.

The Barratt Impulsiveness Scale comprises of 30 items, designed by Patton, et al., (1995) to measure people's behaving without thinking, deficiency of preparation, and spontaneous decision making. Despite the fact that trait impulsiveness stresses poor self-control, trait self-control aims at ignoring an impulse. Therefore, this kind of scale apparently considers that (poor) self-control and impulsiveness definitely symbolize the two end-points of the same dimension, thus they are similar constructs (Tangney, et al., 2004; Duckworth & Kern, 2011). Duckworth and Kern (2011) denote that the scale is one of the most broadly employed measures of self-control and utilized like a generic way of measuring impulsiveness. Furthermore, the study conducted by Patton, et al., (1995) has

demonstrated that The Barratt Impulsiveness Scale possesses proper reliability of Cronbach's coefficient alpha greater than .80.

The Low Self-Control Scale involved 24 items, developed by Grasmick, et al., (1993). This scale extracted from self-control theory suggested by Gottfredson and Hirschi (1990). This theory opposes that difference among people in their capability to practice self-control when confronted with attraction accounts for individual variations in improper behavior. The Scale is attempting to get on six different elements of low self-control: impulsivity, desire for simple instead of complicated tasks, risk seeking, self-centered orientation, poor tolerance for inability, and inclination for physical instead of cerebral activities. Based on Pratt and Cullen's (2000) study, the Low Self-Control Scale has demonstrated good reliability of Cronbach's coefficient alpha greater than .80. The scale frequently employed in studies on deviant behavior in both community samples and student samples.

Considering the above discussion, self-control in this study was measured by the Brief Self-Control Scale from Tangney, et al., (2004). Even though it is actually a shortened version of a longer, multifactorial instrument, the Brief Self-Control Scale has demonstrated to provide significant psychometric properties. There are at least two causes intended for doing so. First, the Brief Self-Control Scale has already been utilized relatively generally in many different populations as well with many varieties of behavioral results. Second, concerning several other instruments, Brief Self-Control Scale is the most widely recognized models of the self-control design in the literature.

#### **2.6.4 The Role of Self-control on the Relationships between Religiosity, Life Satisfaction, and Happiness**

Self-control is among the most important portions of self-regulation (Hagger, et al., 2010), this is because it enables people to remain following up on a targeted goal, although the majority of doing so is intricate. In different phrase, people with better self-control are generally greater at self-regulation and then more liable to attain most of their goals, particularly those linked to life satisfaction and happiness. Consequently, the same as self-regulation previously discussed, self-control has also the link with life satisfaction and happiness.

As for instance, Li, et al., (2016) conducted a study on self-control, coping, and life satisfaction in the Chinese context. The study aimed to examine that the relationship between self-control and life satisfaction as mediated by positive coping. The study included two type of sample, the first employing university student as many as five hundred and twenty-five people and the second using employee as many as two hundred ninety-four people. The study discovered that self-control is positively related to life satisfaction in both samples and this relation mediated partially by positive coping. Additionally, Hoffmann, et al., (2013) also examine the effect of trait self-control (TSC) on life satisfaction and affective well-being. Result of the study has provided evidence that people with greater self-control are more likely to be satisfied with their lives. In addition, the more self-control people reported, the more likely they are to be happy in the long-term. They additionally described that the ability to resist temptations and impulses are the important cause for people to be more satisfied with their lives.

Almost the same results have been found in happiness as well, such as study conducted by Wiese, et al., (2017). They examined the relationship between self-



control and happiness to identify whether a curvilinear relationship exists between both. The study conducted across six phases with a total 5,318 participants uses multiple metrics that include questionnaires and behavioral ratings, sources consist of self-report, and methods encompass cross-sectional measurement and experience sampling method. After statistically controlling for demographics and other psychological confounds, result of the study presented that self-control increases happiness with little to no apparent downside of too much self-control. Furthermore, Converse, et al., (2018) have examined the effect of self-control levels and slopes on the work, relationship, and domains of well-being across adolescence and young adulthood. The employed data was from the National Longitudinal Study of Adolescent to Adult Health. The study explored two possibilities: high levels of self-control or increasing levels of self-control across this developmental period may be important to these outcomes. The study revealed more consistent with the proposition that the high levels of self-control across this developmental period may be important to the outcomes examined. In addition, Ramezani, et al., (2015) reports a study that explores the relationships between happiness, self-control and locus of control. This correlational study employed 200 students of university aged between 18 and 28 years old and used three questionnaires, the Oxford Happiness Inventory, Self-control Scale of Nikmanesh and Rotter's Locus of Control Scale. The study has found a positive and significant correlation between happiness, self-control and locus of control. The study has also suggested that the strongest predictor for happiness is self-control.

On this basis, religiosity appears to influence behaviors that people select, influence the choice of response to various stimuli, reduce conflict, and to impact the development by way of religious holy tenets are transformed into personally

meaningful values, and certainly allow people to possess greater self-regulatory ability. Thus, however, the associations between religiosity and self-control propose some significant paths for religiosity to effect life satisfaction and happiness.

## **2.7 Conceptual Framework**

This study sets to address the relationship between religiosity and happiness through self-control, self-regulation, and life satisfaction. The basic notions for the emergence of many interconnections among these concepts based on consideration that some forms of religiosity (belief and behavior) promote self-control and self-regulation, and through its association, religiosity obtains its association with life satisfaction and happiness. The following provides evidences and supports surrounding these basic ideas.

The finding that religiosity is linked to self-reported self-control (Baumeister, et. al., 2007) is well established. Results from some personality researches have provided evidence that people who scored higher on self-control measurement and personality dimensions that subsume self-control also have a tendency to become significantly more religious (Saroglou, 2002; Lodi-Smith & Roberts, 2007; Francis & Katz, 1992). In summary, dimensions of personality that linked to the capability to regulate one's behavior in a way in line with one's purpose or out of concern for the wishes and feelings of others (e.g., high Agreeableness, high Conscientiousness, and low Psychoticism) related to religiosity. These outcomes deliver tentative endorsement for the suggestion that religiosity is related to self-control.

Religion may potentially has an effect on the chosen goals that people decide on (Roberts & Robins, 2000; Saroglou, et al., 2004), effect the importance relevant to those goals, minimize conflict between all those goals (Emmons, 1999), and as well,

persuade the process by which religious teachings are transformed into personally substantial values (Ryan, et al., 1993). This religious relationship with goals endorses some essential paths by which religion has the potential impact on self-regulation.

Peterson, et al., (2005) have conducted a study that attempted to define the effect of the three happiness orientations (pleasure, meaning, and engagement) on people's level of life satisfaction using Satisfaction with Life Scale from Diener, et al., (1985). Result of the study revealed incompatibility of the three orientations; rather, they are simultaneous. Relating to this result, it may perhaps indicate the presence of a relationship between the three orientations that enables for feedback between them. Another study conducted by Martin, et al., (2010) has evidenced the relationship between orientation to happiness and satisfaction with life. They further explained that the pleasure orientation contributes smaller when compared to the other two orientations. In addition, people who scored high on the three scales achieved life satisfaction at greater level, the contrary result also found for people scored low on the three subscales. Diener (2000), Haybron (2013), and Schwartz, et al., (2002) also illustrate the conceptual difference between happiness and life satisfaction, meanwhile Lyubomirsky, et al., (2005) found that satisfaction with life influences people's feeling of happiness.

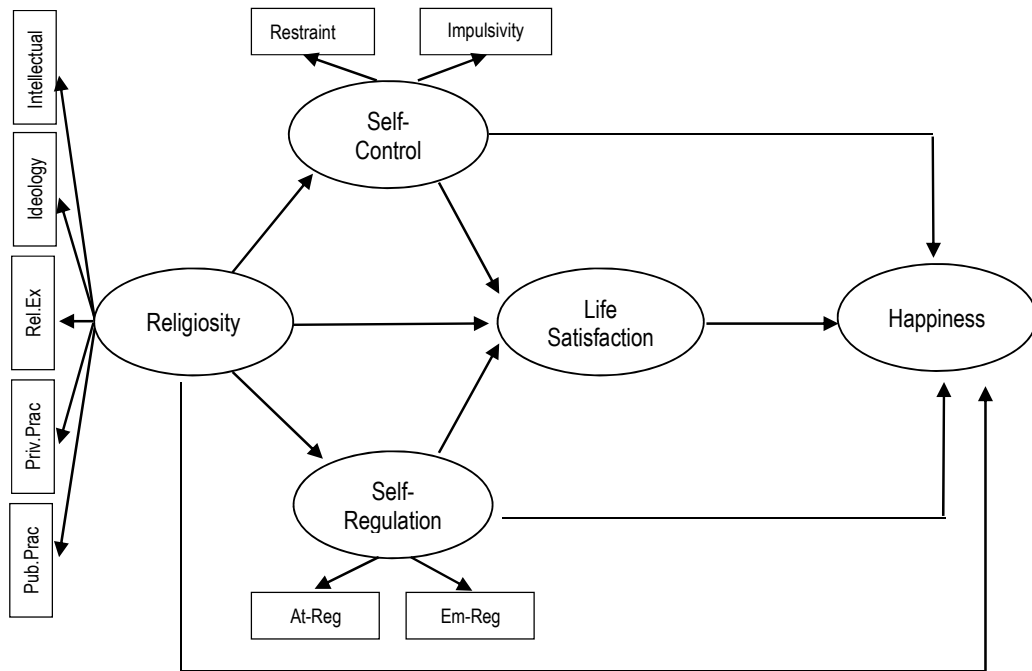


Figure 2.1. Hypothesized Structural model

Note: Pub.Prac= Public Practice; Priv.Prac=Private Practice; Rel.Ex=Religious Experience; At-Reg=Attention Regulation; Em-Reg=Emotional Regulation.

In summary, description mentioned above generally support the notion that self-control, self-regulation and life satisfaction may help to elucidate well-established relationships between religiosity and happiness. The proposed model of these associations depicted more simply in figure 2.1 above.

The model presented above, includes one exogenous variable (*religiosity*) and four endogenous variables (*self-control, self-regulation, life satisfaction, and happiness*). Exogenous variable is a variable that act only as an independent variable, thus it does not accept influences from any other variable. Otherwise, endogenous variable is under the influences of other variable in the model. In addition, although endogenous variables act as dependent but it may also act as independent variable in the model due to simultaneously influence other variable. As the case in this study, the latent variables self-control, self-regulation, and life

satisfaction are endogenous variables because each of these variables influences others and influenced by others as well.

The central construct in this study's model is the endogenous and latent variable happiness. As for latent variables religiosity, self-regulation, and self-control work as determinants for happiness, both directly and indirectly. Latent variable life satisfaction only affects happiness directly but also acts as mediator variable for the influences exerted by other latent variables in the model. As figured in the model, life satisfaction is the mediator for the influence of religiosity and self-control on happiness, as well as mediates the influence of variables religiosity and self-regulation on happiness.

However, the combined model proposed in this study have gain evidences empirically from the literatures as discussed aforementioned to ensure that they are based on established and authoritative knowledge, and corresponds to the following research hypotheses.

## **2.8 Hypotheses**

Based on previous description of conceptual framework, the present research proposes several hypotheses below:

1. Religiosity is positively related to self-control.
2. Religiosity is positively related to self-regulation.
3. Self-control and self-regulation mediate the relationship between religiosity and life satisfaction.
4. Self-control, self-regulation and life satisfaction mediate the relationship between religiosity and happiness.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter discusses the research methodology used in the study in order to gather empirical evidence and test the hypotheses. The aims of the chapter are to describe, clarify, and provide rationalizations for the method used in this study. The chapter begins with an explanation of research design. Subsequently, location, population and sampling, procedure, measurement, and ethical consideration are discussed and this is followed by a description of data analysis. In the last part, the pilot study and its result are presented.

#### **3.2 Research Design**

The present study examines how the exogenous variables are related to the endogenous variables. Specifically, it scrutinizes whether or not the relationship between religiosity and happiness are mediated by self-control, self-regulation, and life satisfaction. This analysis involves developing a causal explanation. As such, an explanatory research is appropriate for the present research.

The unit of analysis of this study is individual from a population who were asked to complete a set of psychometric instruments at only one point in time in order to get enough responses for the study. Therefore, a cross-sectional design is appropriate to describe the present research (Rosnow & Rosenthal, 2008).

A quantitative approach is employed for data collection. The overarching consideration of using quantitative approach is to allow greater objectivity and accuracy of results and to elude subjectivity or personal bias by keeping a distance

from participating subjects and by using accepted computational systems (Singh, 2007). Method for data collection is the distribution of questionnaires among people in Medan, North Sumatera, Indonesia. The selection process of participants employs stratified random sampling method. More details about the sampling is provided in the later sections. The collected data then analyzed through simultaneous examination of variance between exogenous and endogenous variables by applying Structural Equation Modelling (SEM).

### **3.3 Location**

This research was conducted in Medan, which is located on the northern coast, and is the capital of the North Sumatera province in Indonesia. It is surrounded by cities and towns (such as Binjai, Lubuk Pakam, Tanjung Morawa, Tembung, Percut Sei Tuan, and Labuhan Deli which known as 'Mebidang') which helps the city to become an urban area in Indonesia. Medan has been chosen in this study because it is the third largest city in Indonesia after Jakarta and Surabaya. Its strategic location has attracted many people to live for various purposes. In addition, population of this City includes nearly all the tribes in Indonesia. Therefore, Medan can be considered to represent Indonesian population for the West.

The city has diverse groups based on communities and ethnic. The majority of the groups are Malay, Batak, and Javanese. Recently, Padang and Chinese communities have also begun to increase (Pelly, 1985). According to Pelly, people of Malay are natives to the city of Medan, which have deep roots in history. Malay people initiated ruling there during the Kesultanan Deli (Deli Empire) until now. The empire of Kesultanan Deli has many lands and property of heritage in Medan, such as Mesjid Raya Medan, Istana Maimoon, and Sultan Deli Pool. Due to its

strategic location and the rapid development of the city have attracted many people (such as ethnic Toba, Sibolga, and Tanah Karo) to come to visit for various purposes. Batak people with their typical rude and strong character are more dominant for a memorable image of the city. They have established in Medan for many years, so that sometimes outsiders think that they are the Medan natives. However, Batak's people were respected as they support Medan to be a competitive city. Javanese people are transmigrants, many of them were forced to move there by the government during transmigration programs. Javanese people represent hard working class and the warm people of Medan. Almost the core of the Medan economy has controlled by Chinese and Minangkabau people since they run most of Medan industries and trading. Chinese people run factories and grocery stores, while Minangkabau people run garment, food and retail businesses.

Administration of Medan City, with the total area of 265.10 km<sup>2</sup>, led by a mayor (Walikota) and divided into 21 districts with 151 sub-districts (village) and 2001 administrative units. The following tables describe in detail the distribution of the land area, district and villages.



Table 3.1  
Area of District in Medan City

Districts	Area (Km <sup>2</sup> )	Percentage (%)	Districts	Area (Km <sup>2</sup> )	Percentage (%)
1. Medan Tuntungan	20.68	7.80	12. Medan Helvetia	13.16	4.97
2. Medan Johor	14.58	5.50	13. Medan Petisah	6.82	2.57
3. Medan Amplas	11.19	4.22	14. Medan Barat	5.33	2.01
4. Medan Denai	9.05	3.41	15. Medan Timur	7.76	2.93
5. Medan Area	5.52	2.08	16. Medan Perjuangan	4.09	1.54
6. Medan Kota	5.27	1.99	17. Medan Tembung	7.99	3.01
7. Medan Maimun	2.98	1.13	18. Medan Deli	20.84	7.86
8. Medan Polonia	9.01	3.40	19. Medan Labuhan	36.67	13.83
9. Medan Baru	5.84	2.20	20. Medan Marelan	23.82	8.99
10. Medan Selayang	12.81	4.83	21. Medan Belawan	26.25	9.90
11. Medan Sunggal	15.44	5.83	<b>Total</b>	<b>265.10</b>	<b>100.00</b>

Source : BPS-Statistic of Medan City 2016

Table 3.2  
Number Of Village (Kelurahan)  
and Administrative Unit (Lingkungan) by District in Medan City

Districts	Village	Administrative Unit	Districts	Village	Administrative Unit
1. Medan Tuntungan	9	75	12. Medan Helvetia	7	88
2. Medan Johor	6	81	13. Medan Petisah	7	69
3. Medan Amplas	7	77	14. Medan Barat	6	98
4. Medan Denai	6	82	15. Medan Timur	11	128
5. Medan Area	12	172	16. Medan Perjuangan	9	128
6. Medan Kota	12	146	17. Medan Tembung	7	95
7. Medan Maimun	6	66	18. Medan Deli	6	105
8. Medan Polonia	5	46	19. Medan Labuhan	6	99
9. Medan Baru	6	64	20. Medan Marelan	5	88
10. Medan Selayang	6	63	21. Medan Belawan	6	143
11. Medan Sunggal	6	88	<b>Total</b>	<b>151</b>	<b>2001</b>

Source : BPS-Statistic of Medan City 2016

### 3.4 Population and Sampling

Population in this research is the people who live in Medan, North Sumatera, Indonesia. From the Central Bureau of Statistics of Medan City (BPS, 2016), the population of city has reached 2,135,516 inhabitants. The following tables describe in details of the population by districts, age group, and sex.

Table 3.3  
Population of Medan City by Districts and Gender

Districts	Male	Female	Total
1. Medan Tuntungan	40,097	42,437	82,534
2. Medan Johor	62,331	64,336	126,667
3. Medan Amplas	57,918	59,004	116,922
4. Medan Denai	71,750	71,100	142,850
5. Medan Area	48,054	49,200	97,254
6. Medan Kota	35,422	37,700	73,122
7. Medan Maimun	19,524	20,379	39,903
8. Medan Polonia	26,460	27,413	53,873
9. Medan Baru	17,667	22,150	39,817
10. Medan Selayang	49,525	51,532	101,057
11. Medan Sunggal	55,717	57,927	113,644
12. Medan Helvetia	71,586	74,805	146,391
13. Medan Petisah	29,526	32,701	62,227
14. Medan Barat	34,931	36,406	71,337
15. Medan Timur	52,906	56,539	109,445
16. Medan Perjuangan	45,405	48,683	94,088
17. Medan Tembung	65,761	68,882	134,643
18. Medan Deli	86,937	85,014	171,951
19. Medan Labuhan	57,635	55,679	113,314
20. Medan Marelan	75,066	73,131	148,197
21. Medan Belawan	49,175	47,105	96,280
<b>Total</b>	<b>1,053,393</b>	<b>1,082,123</b>	<b>2,135,516</b>

Source : BPS-Statistic of Medan City 2016

Table 3.4  
Population of Medan City by Age Group and Gender

<b>Age Group</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
0 – 4	102,196	98,201	200,397
5 – 9	96,337	91,372	187,709
10 – 14	91,390	87,510	178,900
15 – 19	103,859	108,422	212,281
20 – 24	118,924	126,359	245,283
25 – 29	97,223	99,374	196,597
30 – 34	85,323	89,072	174,395
35 – 39	78,318	81,867	160,185
40 – 44	70,658	73,439	144,097
45 – 49	60,138	62,736	122,874
50 – 54	50,235	52,945	103,180
55 – 59	39,767	40,554	80,321
60 – 64	26,374	27,329	53,703
65 – 69	15,567	18,226	33,793
70 – 74	10,149	13,089	23,238
75 +	6,935	11,628	18,563
<b>Total</b>	<b>1,053,393</b>	<b>1,082,123</b>	<b>2,135,516</b>

*Source : BPS-Statistic of Medan City 2016*

This study employs stratified random sampling to select participants of the study. This consideration intended to get the sample population that are best represents the entire population studied. Several advantages of using stratified random sampling are: 1.) it provides greater precision; 2.) it guards against an unrepresentative sample; and 3.) it supports a separate analysis of any subgroup (Baker, 1994).

The sample criteria are those whose age spanned 40 years and more (middle adults and above). According to Sears (1986), this sample provides several benefits including the opportunity to bolster the generalizability. Unlike the undergraduate's sample, the older sample may more precisely represent the thoughts, feelings, and behaviors of the common population in everyday life.

In addition, unlike college sample, older people arguably have relatively more solidified attitudes and stronger definitions of self (Sears, 1986). They have

conceivably lived a longer life to reflect on and judge their personality, feelings, and beliefs – e.g., whether they have achieved their cherished goals, how happy or positive or neurotic they truly are, or how much they really agree to take and like themselves, their activities, and/or their friends. These older people may have lived a long enough to be eligible to assess their happiness, and many other characteristics more accurately.

Referring to mentioned consideration, populations in this study are those who live in Medan and whose age spanned 40 years and more, hence there are 579,769 people in accordance with the criteria. A sample size of 628 people is drawn from those people. Lodico, et al., (2006) suggest that sample sizes of 350 to 500 people are often sufficient for large population. Almost similar, Sekaran (2003) denotes that in between 30 and 500 is an appropriate size of sample for most research. In addition, according to Yamane's (1967) formula, for a 95% confidence level and  $p=.05$  sample sizes needed are 400 people [ $n=N/1+N(e)^2 = 579,769/1+579,769(.05)^2 = 399.724$ ].

Referring to analyze using structural equation modeling, determination of appropriate sample is often considered in accordance with the number of observed variables. Bentler and Chou (1987) denote sufficient size for latent variable possessed multiple indicator is 5 cases per variable. Roscoe (1975) proposes at least 5 to 10 times of the variables of the study. Hair, et al., (2006) furthermore explained that the minimum sample size to use maximum likelihood (ML) and to considerate validating for the causal relationship should be at least 100 to 150. However, a size of 10 observations per indicator of variable is an adequate sample size and accepted rule of thumb. Since there are forty-seven observations (4 from happiness; 5 from life satisfaction; 15 from religiosity; 13 from self-control; and 10 from self-

regulation) in this study, then the minimum sample size should be  $47 \times 10 = 470$  people. Hence, the employed sample size in this study considered sufficient in representing the population of the study and it is appropriate to be analyzed using structural equation modeling (SEM).

### **3.5 Procedure**

To reach to the community samples, the distribution of the questionnaires employed the assistance of community religious teachers or so-called '*ustadz*'. *Ustadz* is an honorific title for a male teacher used in Indonesia, as well in other Islamic world. They often provide religious recitation and teaching in various social group activities at both workplaces and/or residential areas. They often have well-respected and well-trusted positions in the community and these criteria are important to reach to the targeted sample and to facilitate the process of data collection.

Once *ustadz* were identified and agreed to assist, the researcher went with *ustadz* when they went to the communities to teach. Questionnaires were distributed after the teaching session by the *ustadz* was over. The researcher gave an introduction and guidance to questionnaires before passing out the five self-rating questionnaires of the study. The researcher also read the Informed Consent (IC) notice to all participants. The IC notice provided participants with the various information. The researcher also provided answers of the participants have any questions. After the IC notice was read and any questions answered, the respondents were asked to complete questionnaires if they were willing to participate. The instruments and pens were provided to respondents and they were asked to complete instruments voluntarily and were not compensated for their time.

### 3.6 Measurement

Data were gathered using questionnaires that have been developed and accessed freely. Several benefits were gained using a questionnaire as an instrument for data collection, such as obtaining data more efficiently relating to time, energy, and researcher cost.

#### 3.6.1 Questionnaire Design

This study employs self-report questionnaires that consist of seven sections. Section one is Informed Consent (IC); section two is demographic background (name, age, gender, and residence); section three is Subjective Happiness Scale; section four is Satisfaction with Life Scale; section five is Central of Religiosity Scale; section six is Self-Regulation Scale; and last section is Self-Control Scale. The brief overview of each scale is as follows:

- *The Subjective Happiness Scale* (SHS; Lyubomirsky, et al., 1999) was designed to assess subjective happiness. It consists of four items, each item is completed by selecting one of seven choices that finish a given sentence fragment. The choices are different for each of the four statements. Research has established acceptable psychometric properties for the Subjective Happiness Scale. Result of the study across samples of varying ages, occupations, languages, and cultures has provided alpha coefficients for internal consistency ranging from .79 to .94. The scale has also demonstrated stability over time (ranged from 3 weeks to 1 year) which the results of the test-retest reliability ranged from .55 to .90 (Lyubomirsky, et al., 1999).
- *The Satisfaction with Life Scale* (SWLS; Diener, et al., 1985) was designed to measure overall cognitive judgments of one's life satisfaction. It consists of

five items, each item is completed by selecting one of seven choices which indicate how much participant agree or disagree with each of the five-items. Items are added up in order to yield a total score of life satisfaction. The possible range of scores is between 5 and 35, with greater scores signifying higher satisfaction with life. Research has established acceptable psychometric properties for the SWLS. The two month test-retest correlation coefficient was .82 and coefficient alpha was .87 (Diener, et al., 1985).

- *The Centrality of Religiosity Scale* (CRS; Huber, S., & Huber, O. W., 2012) was developed to measure the centrality or the importance of the meaning of religiosity in personality considered as characteristic for the total of religious live. It consists of five subscales, namely intellectual, ideology, religious experience, private practice, and public practice. Each subscale has three items and is completed by choosing one of five options. The sum of the subscales' results is the total result of Centrality. High score in the subscale means a high level of its dimension while high score in the total result means a high level of Centrality. Research has established acceptable psychometric properties for the Centrality of Religiosity Scale. In three studies, reliabilities of the individual dimensions ranged from 0.80 to 0.93, and from 0.92 to 0.96 for the whole CRS-15 (Huber, S., & Huber, O. W., 2012).
- *The Brief Self-Control Scale* (BSCS; Tangney, et al., 2004) was established to measure people's self-control and conceptualized based on contemporary theoretical perspectives. It refers to post-intentional behavior when people are in the period of goal-pursuit and face difficulties in maintaining their action. It consists of thirteen items, which utilize a five-point Likert-type response format with response options ranging from 1 (Not at all like me) to 5 (Very

much like me). Research has established acceptable psychometric properties for the Brief Self-Control Scale. In two studies, alphas for the Brief Self-Control Scale were highly reliable (.83 and .85 in Studies 1 and 2, respectively). In addition, the scale has also demonstrated stability over time (roughly three weeks) which the result of the test-retest reliability was .87 (Tangney, et al., 2004).

- *The Self-Regulation Scale* (SRS; Schwarzer, et al., 1999) was designed to measure focus of attention on the task and emotional balance. The scale contains two subscales, attention regulation and emotion regulation, and consisting of ten items. It utilizes a four-point Likert-type response format with response options ranging from ‘Not at all true’ to ‘Exactly true’, thus the score is ranging from 10 to 40 points. Higher scores reflecting greater ability to maintain one’s attention (e.g., self-regulation) and lower score indicate lower self-regulation. Responses are calculated up to get a total score. The scale designed for the use of general adult population. Research has established acceptable psychometric properties for the Self-Regulation Scale. In a sample of N = 442 persons the scale has obtained an internal consistency of Cronbach's alpha = .76; and the scale yielded a retest stability of .62 after six weeks (Schwarzer, et al., 1999).

### **3.6.2 Translation**

Instruments of the employed variables in this study adapted from previous works that was not originally in Indonesian language (*Bahasa Indonesia*). Hence, it is very important to carefully translate the instruments, because mistakes caused by careless in translation may misrepresent the original intent of the instrument



(Yamkovenko, et al., 2007). Thus, to permit feasibility and avoid blunders in collecting data from the Indonesian context, this study employs the forward-then-backward translation approach from Chen and Bates (2005).

Initially, two professionals in *Bahasa Indonesia* and English separately conducted the forward translation of the English version of the questionnaire items into *Bahasa Indonesia* version. The two experts who did the translation were English lecturers at State Islamic University of North Sumatera, in Medan, Indonesia. After that, the two other experts separately back-translated questionnaire into English. Later, the four interpreters met and concurred on the appropriate wordings of the translation to ensure no discrepancies in meaning between the original questionnaire items and translated version. According to Deutscher (1973), to deal with language problems, this technique is employed broadly.

### **3.7 Ethical Consideration**

The researcher complied with ethical consideration in standard psychological research. An informed consent letter attached to the distributed instrument package was read out to the respondents at the time of survey administration. As can be seen in the informed consent letter, respondents were informed concerning the research purpose, were given anonymity, and were offered voluntary participation with no cost or harm. Respondents were further informed that if they choose to participate, they could simply fill out the survey and return it to the researcher.

There was no deception in this study. There were also no protected or vulnerable populations targeted as the focus of the study. If a member of one of the protected groups was selected for the sample, participation was not seen to increase his or her risk in any way by answering these questions. Although notice was not

given to this, when any respondent reported not having reached the age of requirement (40 years and more), the entire response set for that respondent was removed from the final dataset.

### **3.8 Data analysis**

The employed data analysis in this study is Structural Equation Modelling. This consideration is due to several causes. First, structural equation model accounts for the effect of measurement and structural errors, thus it is more appropriate than multiple linear regressions. Secondly, Structural Equation Modelling determines the acceptable model based on overall model fit. Thirdly, Structural Equation Modelling assesses each link (both direct and indirect) between the hypothesized variables and explains such complex relationship, while multiple linear regressions only allow the assessment of direct relationship.

The overall strategy regarding data analysis used in this study comprised of two sub-models: it begins with analysis on the measurement model, and then proceeds to the structural model. On the measurement model, each indicator measures its latent variable, or, in other words, how each construct is operationalized. While the latter (the structural model) characterizes the relationship between exogenous and endogenous variables, exhibits the path and statistical significance of each relationship, as well as the amount of variance in the endogenous variables explained by the respective proposed determinants. Refers to Anderson and Gerbing (1988), the two components (measurement and structural model) have the complexity so they should be analyzed separately to attain better outcomes. The assessment begins with the measurement model that consists of dimensionality, validity, and reliability tests, subsequently moving on to the assessment of the structural model (using the LISREL software 8.80). This model

describes and explains the phenomenon of research. Latent variables of the hypothesized model were religiosity, self-control, self-regulation, life satisfaction, and happiness.

### **3.9 Pilot Study**

Before data for the main research study collected, a pilot study was conducted to ensure the research instruments employed in gathering the needed data for the main study are valid and reliable (Baker, 1994). He further explained that a pilot study used to try-out a research instrument is often a sample size of 10-20% of the sample size for the main study. On the other hand, Lodico, et al., (2006) stated that the sample size for pilot study in social science should be at least 30 participants. This amount is a reasonable number of participants for a pilot study.

One of the purposes of this pilot study is to make sure that respondents have correctly understood all instructions and content of research instruments employed in the study. In order to yield the kind of information needed, both researcher and respondent should have the common understanding of the questionnaires. In this case, questionnaires pre-tested to 10 respondents in accordance with the criteria of the main research.

Furthermore, reliability and validity tests were conducted to determine whether the psychometric used in the present study produces consistent and valid data. This is done by distributing questionnaires to 50 pilot respondents. Several analyses were undertaken with the data to assess various aspects relating to reliability and validity.

### 3.10 Analysis of the Pilot Study

Initially, the questionnaire items were pre-tested. Pre-testing is a screening method to examine the clarity of the survey questions and to see if improvement can be made in enhancing understanding, interest of respondents, and suitable length of the survey. The pre-test distributed to two experts, colleagues teaching social psychology at Islamic State University of North Sumatera, in Medan, Indonesia. They requested to make an evaluation whether the items were suitable for Indonesia context. Questionnaires were revised after feedback from them to avoid ambiguity of the questionnaire.

In addition, it is also important to confirm that respondents understand the instructions, questionnaire items, and thereafter can respond correctly. Therefore, ten respondents invited to refine the questionnaires whereby the researcher had a personal discussion with them. Based on the comment gained from the respondents, some minor changes were made to enhance the clarity of item.

As discussed earlier, the sample size for pilot study in social science should be at least 30 participants (Lodico, et al., 2006). The conducted pilot study employs 50 participants in accordance with the criteria of the main research from October 02, 2016 to October 16, 2016. Details of participants who took part in this phase provided in the following table.

Table 3.5  
Participants of Pilot Study by Districts and Gender

District	Gender		Total
	Male	Female	
Medan Helvetia	8	10	18
Medan Johor	7	8	15
Medan Tembung	7	10	17
<b>Total</b>	<b>22</b>	<b>28</b>	<b>50</b>

The collected participants' responses then analyzed to determine whether the psychometric of instruments produces consistent and valid data. Instrument validity computed through item correlation with factor by the following formula: *Standardized factor loading* = [ $\lambda_i * SD(F)$ ] /  $SD(Y)$  at significance level of 5% ( $t\text{-Value} \geq 1.96$ ). Whereas for reliability of instrument calculated by the principle of Construct Reliability (CR) and Variance Extracted (VE) as below (Hair, et al, 2006):

$$\text{Construct Reliability} = \frac{(\sum \text{Standardized Loading})^2}{(\sum \text{Standardized Loading})^2 + (\sum \text{Measurement Error})}$$

$$\text{Variance Extracted} = \frac{\sum \text{Standardized Loading}^2}{\sum \text{Standardized Loading}^2 + \sum \text{Measurement Error}}$$

For precision and accuracy, all data gathered was analyzed using Lisrel 8.8 for windows. The following provides pilot study results in details.

a) The Subjective Happiness Scale.

The Subjective Happiness scale distributed consists of four items. A benchmark of *Standardized Loading Factor*  $\geq .50$  and  $t\text{-Value} \geq 1.96$  are sufficient evidences for item validity (Igbaria, 1990), whereas Garver and Mentzer (1999) suggested a substantial loading item of 0.70. The result of validity test of items scale indicates that all the four factor loadings are statistically significant ( $SLF \geq .50$  and  $t\text{-Value} \geq 1.96$ ). Consequently, the construct validity of the four items as indicators for The Subjective Happiness Scale appears to be validated (see Table. 3.6).

The recommended value of reliability test is the coefficient of  $\geq .70$  for *Construct Reliability* and of  $\geq .50$  for *Variance Extracted* (Hair, et al., 2006).

Computing reliability test provides a value of .843 for *Construct Reliability* and of .578 for *Variance Extracted*. These values exceed the recommended cut-off from Hair, et al., (2006), thus presenting sufficient evidences for the construct's acceptable reliability. The following table presents the summary of test results for subjective happiness scale.

Table 3.6  
Validity and Reliability of The Subjective Happiness Scale

Factor	Item	SLF	t-Value	Note
SHS	SHS01	.72	5.54	Valid
	SHS02	.61	4.41	Valid
	SHS03	.87	7.13	Valid
	SHS04	.81	6.42	Valid
Composite Reliability (CR) of Subjective Happiness Scale				= <b>.843</b>
Variance Extracted				= <b>.578</b>

Note: SLF=Standardized Loading Factor.

b) The Satisfaction with Life Scale.

The Satisfaction with Life Scale distributed consists of five items. A benchmark of *Standardized Loading Factor*  $\geq .50$  and *t-Value*  $\geq 1.96$  are sufficient evidences for item validity (Igbaria, 1990), whereas Garver and Mentzer (1999) suggested a substantial loading item of 0.70. The result of validity test of items scale indicates that all the five factor loadings are statistically significant (*SLF*  $\geq .50$  and *t-Value*  $\geq 1.96$ ). Consequently, the construct validity of the five items as indicators for The Satisfaction with Life Scale appears to be validated (see Table. 3.7).

The recommended value of reliability test is the coefficient of  $\geq .70$  for *Construct Reliability* and of  $\geq .50$  for *Variance Extracted* (Hair, et al., 2006). Computing reliability test provides a value of .869 for *Construct Reliability* and of .631 for *Variance Extracted*. These values exceed the recommended cut-off from Hair, et al., (2006), thus presenting sufficient evidences for the construct's

acceptable reliability. The following table presents the summary of test results for satisfaction with life scale.

Table 3.7  
Validity and Reliability of The Satisfaction With Life Scale

Factor	Item	SLF	t-Value	Note
SWLS	SWLS01	.81	6.63	Valid
	SWLS02	.83	6.82	Valid
	SWLS03	.74	5.85	Valid
	SWLS04	.78	6.30	Valid
	SWLS05	.81	6.64	Valid
Composite Reliability (CR) of Satisfaction With Life Scale				= <b>.869</b>
Variance Extracted				= <b>.631</b>

Note: *SLF=Standardized Loading Factor*

c) The Centrality of Religiosity Scale.

The Centrality of Religiosity Scale distributed consists of fifteen items. A benchmark of *Standardized Loading Factor*  $\geq .50$  and *t-Value*  $\geq 1.96$  are sufficient evidences for item validity (Igbaria, 1990), whereas Garver and Mentzer (1999) suggested a substantial loading item of 0.70. The result of validity test of items scale indicates that all the fifteen factor loadings are statistically significant (*SLF*  $\geq .50$  and *t-Value*  $\geq 1.96$ ). Consequently, the construct validity of the fifteen items as indicators for The Centrality of Religiosity Scale appears to be validated (see Table. 3.8).

The recommended value of reliability test is the coefficient of  $\geq .70$  for *Construct Reliability* and of  $\geq .50$  for *Variance Extracted* (Hair, et al., 2006). Computing reliability test provides a value of .818 for *Construct Reliability* and of .472 for *Variance Extracted*. These values exceed the recommended cut-off from Hair, et al., (2006), thus presenting sufficient evidences for the construct's acceptable reliability. The following table presents the summary of test results for the centrality of religiosity scale.

Table 3.8  
Validity and Reliability of The Centrality of Religiosity Scale

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>t-Value</b>	<b>Note</b>
Intellectual	Intel01	.65	4.99	Valid
	Intel02	.75	6.04	Valid
	Intel03	.67	5.23	Valid
Ideology	Ideol01	.81	6.75	Valid
	Ideol02	.74	5.91	Valid
	Ideol03	.90	8.12	Valid
Public Practice	PubPr01	.58	4.32	Valid
	PubPr02	.68	4.91	Valid
	PubPr03	.83	7.02	Valid
Private Practice	PrvPr01	.68	5.33	Valid
	PrvPr02	.59	4.43	Valid
	PrvPr03	.61	4.66	Valid
Religious Experience	RelEx01	.61	4.60	Valid
	RelEx02	.59	4.42	Valid
	RelEx03	.55	4.11	Valid
Composite Reliability (CR) of Centralistic Religiosity Scale				= <b>.818</b>
Variance Extracted				= <b>.472</b>

*Note: SLF=Standardized Loading Factor*

d) The Brief Self-Control Scale.

The Brief Self-Control Scale distributed consists of thirteen items. A benchmark of *Standardized Loading Factor*  $\geq .50$  and *t-Value*  $\geq 1.96$  are sufficient evidences for item validity (Igbaia, 1990), whereas Garver and Mentzer (1999) has suggested a substantial loading item of 0.70. The result of validity test of items scale indicates that all the thirteen factor loadings are statistically significant (*SLF*  $\geq .50$  and *t-Value*  $\geq 1.96$ ). Consequently, the construct validity of the thirteen items as indicators of The Brief Self-Control Scale appears to be validated (see Table. 3.9).

The recommended value of reliability test is the coefficient of  $\geq .70$  for *Construct Reliability* and of  $\geq .50$  for *Variance Extracted* (Hair, et al., 2006). Computing reliability test provides a value of .858 for *Construct Reliability* and of .584 for *Variance Extracted*. These values exceed the recommended cut-off from Hair, et al., (2006), thus presenting sufficient evidences for the construct's



acceptable reliability. The following table presents the summary of test results for the Brief Self-Control Scale.

Table 3.9  
Validity and Reliability of The Brief Self-control Scale

Factor	Item	SLF	t-Value	Note
Restraint	Rest01	.83	7.01	Valid
	Rest02	.84	7.26	Valid
	Rest03	.76	6.21	Valid
	Rest04	.67	5.21	Valid
	Rest05	.85	7.33	Valid
	Rest06	.75	6.04	Valid
	Rest07	.76	6.20	Valid
Impulsivity	Impul01	.74	5.95	Valid
	Impul02	.75	6.14	Valid
	Impul03	.83	7.12	Valid
	Impul04	.76	6.23	Valid
	Impul05	.64	4.91	Valid
	Impul06	.73	5.88	Valid
Composite Reliability (CR) of Brief Self-Control Scale				= <b>.858</b>
Variance Extracted				= <b>.584</b>

Note: SLF=Standardized Loading Factor

e) The Self-Regulation Scale.

The Self-Regulation Scale distributed consists of ten items. A benchmark of *Standardized Loading Factor*  $\geq .50$  and *t-Value*  $\geq 1.96$  are sufficient evidences for item validity (Igbaria, 1990), whereas Garver and Mentzer (1999) suggested a substantial loading item of 0.70. The result of validity test of items scale indicates that all the ten factor loadings are statistically significant (*SLF*  $\geq .50$  and *t-Value*  $\geq 1.96$ ). Consequently, the construct validity of the ten items as indicators of the self-regulation scale appears to be validated (see Table. 3.10).

The recommended value of reliability test is the coefficient of  $\geq .70$  for *Construct Reliability* and of  $\geq .50$  for *Variance Extracted* (Hair, et al., 2006). Computing reliability test of items provides a value of .797 for *Construct Reliability* and of .482 for *Variance Extracted*. These values exceed the recommended cut-

off from Hair, et al., (2006), thus presenting sufficient evidences for the construct's acceptable reliability. The following table presents the summary of test results for the self-regulation scale.

Table 3.10  
Validity and Reliability of The Self-regulation Scale

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>t-Value</b>	<b>Note</b>
Attention Regulation	AtReg01	.65	4.93	Valid
	AtReg02	.75	5.93	Valid
	AtReg03	.59	4.41	Valid
	AtReg04	.82	6.77	Valid
	AtReg05	.65	4.90	Valid
Emotion Regulation	EmReg01	.55	4.05	Valid
	EmReg02	.62	4.60	Valid
	EmReg03	.71	5.56	Valid
	EmReg04	.82	6.80	Valid
	EmReg05	.73	5.74	Valid
Composite Reliability (CR) of Self-Regulation Scale				= <b>.797</b>
Variance Extracted				= <b>.482</b>

Note: *SLF=Standardized Loading Factor*

## CHAPTER 4

### RESULTS

#### 4.1 Preparation of the analysis

Data analysis process used in this study comprised of testing two sub-models. It began with analysis of the measurement model, and then proceeded to the structural model. For the measurement model, each latent variable was measured by its indicators; while the structural model, which characterized the relationship between exogenous and endogenous variables, exhibited the path and statistical significance of each relationship, and illustrated the amount of variance in the endogenous variables that can be explained by the respective proposed determinants. According to Anderson and Gerbing (1988), the two components (measurement and structural model) have high complexity that they should be analyzed separately to attain better outcomes. On this basis, this study employs the two-step approach recommended by Anderson and Gerbing.

Analysis of the measurement model conducted was Confirmatory Factor Analysis (CFA) to estimate dimensionality, validity, and reliability of each variable of the study. Analysis then proceeds to the structural model to confirm assessment of nomological validity. The two analyses employed LISREL 8.80 software and works based on structural equation modeling rules.

Prior to data analyzed, participant's responses were reviewed to look for unanswered scale items. Because the study has a relatively large sample size, List-wise Deletion was employed as the selected approach. The responses of participant who left one or more of the scale items unanswered were removed from the data set.

In addition, reverse coded items of participant's responses were reviewed and recoded.

With respect to type of matrix used, this study prefers to adopt covariance matrix instead of correlation matrix for several reasons. First, using a covariance matrix allows for examination of a proposed theoretical framework (Hair, et al., 2006). Second, a covariance matrix provides standardized solutions; as well, a correlation matrix (Bentler, et al., 2001). Lastly, using a correlation matrix leads to the chi-square test and standard errors (Bentler, et al., 2001).

This study used the total disaggregation approach to analyze the measurement model. In this sense, the creation of summated scores of item was built as a weighted of its components. Further, the partial aggregation approach is considered appropriate to test the structural model, namely by combining subsets of items into composites and then treating them as indicators of the constructs. In consistent with the option for the partial aggregation, the creation of score summarized of component was built as a weighted for each of its latent.

Maximum likelihood (ML) was the selected estimation technique adopted in this study. This estimation method is the default of LISREL and more widely used. However, due to non-consensus on the appropriate index to assess the overall goodness-of-fit of a model (Ping, 2004), the following fit indices were chosen for the analysis. They are: 1) chi-square goodness-of-fit test ( $\chi^2$ ); 2) ratio of  $\chi^2$  to degrees of freedom ( $\chi^2/df$ ); 3) root mean squared error of approximation (RMSEA); 4) goodness-of-fit index (GFI); and 5) adjusted goodness-of-fit index (AGFI). These indices are absolute fit indices, which assess the overall model-to-data fit for both structural and measurement models (Bollen, 1989; Hair, et al., 2006). Another two indices are comparative fit index (CFI); and non-normed fit index (NNFI). These

remaining two are incremental fit indices; they compare the target model to the fit of a baseline model, normally ‘one’ is the value in which all observed variables are assumed to be uncorrelated (Baumgartner & Homburg 1996). Table 4.1 below shows a description of these indices and its recommended cut-offs.

Table 4.1  
Descriptions and thresholds of goodness-of-fit indices  
used in the assessment of both measurement and structural models

Fit index	Description	Cut-offs
$\chi^2$	Indicates the discrepancy between hypothesised model and data; Tests the null hypothesis that the estimated covariance–variance matrix deviates from the sample variance–covariance matrix only because of sampling error	P > .05
$\chi^2 / df$	Because the chi-square test is sensitive to sample size and is only meaningful if the degrees of freedom are taken into account, its value is divided by the number of degrees of freedom	2-1 or 3-1
RMSEA	Shows how well the model fits the population covariance matrix, taken the number of degrees of freedom into consideration	< .05: good fit; < .08 ; reasonable fit
GFI	Comparison of the squared residuals from prediction with the actual data, not adjusted for the degrees of freedom	> .90
AGFI	GFI adjusted for the degrees of freedom	> .90
NNFI	Shows how much better the model fits, compared to a baseline model, normally the null model, adjusted for the degrees of freedom (can take values greater than one)	> .90
CFI	Shows how much better the model fits, compared to a baseline model, normally the null model, adjusted for the degrees of freedom	> .90

*Source:* Based on Ping (2004); Cote, et al., (2001); and Diamantopoulos & Siguaw (2000).

## 4.2 Descriptive Statistics

The 47-item survey was comprised of the variable scale items for religiosity, self-control, self-regulation, life satisfaction, and happiness, including four demographic items for name, age, gender, and residential area, evenly distributed among six hundred and fifty people in Medan, North Sumatera, Indonesia. Twenty-

two participants did not complete the survey scales, rendering their results unusable. Thus, only six hundred and twenty-eight individuals were included in the study.

To provide a comprehensive picture of the data for each of the factors, and to allow proper interpretation of relevant results, demographic characteristic of sample such as gender, age, and district (residential area) and demographic characteristic of the variable scale items are presented below.

#### 4.2.1 Demographic Characteristic of Sample

The following table 4.2 shows the distribution of subject by District and Gender in the study sample.

Table 4.2  
Distribution of Subject by District and Gender

Districts	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
1. Medan Tuntungan	11	1.8%	14	2.2%	25	4.0%
2. Medan Johor	18	2.9%	20	3.2%	38	6.1%
3. Medan Amplas	17	2.7%	19	3.0%	36	5.7%
4. Medan Denai	17	2.7%	22	3.5%	39	6.2%
5. Medan Area	14	2.2%	16	2.5%	30	4.8%
6. Medan Kota	10	1.6%	13	2.1%	23	3.7%
7. Medan Maimun	6	1.0%	9	1.4%	15	2.4%
8. Medan Polonia	9	1.4%	11	1.8%	20	3.2%
9. Medan Baru	6	1.0%	9	1.4%	15	2.4%
10. Medan Selayang	14	2.2%	16	2.5%	30	4.8%
11. Medan Sunggal	16	2.5%	17	2.7%	33	5.3%
12. Medan Helvetia	20	3.2%	22	3.5%	42	6.7%
13. Medan Petisah	7	1.1%	9	1.4%	16	2.5%
14. Medan Barat	10	1.6%	11	1.8%	21	3.3%
15. Medan Timur	15	2.4%	17	2.7%	32	5.1%
16. Medan Perjuangan	13	2.1%	15	2.4%	28	4.5%
17. Medan Tembung	18	2.9%	20	3.2%	38	6.1%
18. Medan Deli	23	3.7%	25	4.0%	48	7.6%
19. Medan Labuhan	15	2.4%	16	2.5%	31	4.9%
20. Medan Marelan	22	3.5%	21	3.3%	43	6.8%
21. Medan Belawan	12	1.9%	13	2.1%	25	4.0%
<b>Total</b>	<b>293</b>	<b>46.7%</b>	<b>335</b>	<b>53.3%</b>	<b>628</b>	<b>100%</b>

As shown in the table above, the sample population consists of 293 (46.7%) male and 335 (53.3%) female. There are only small differences between female and male in the sample. This could be attributed to the fact that Medan has almost equal ratio of male and female population referring to Central Bureau of Statistics of Medan City (BPS, 2016).

The biological age of the participants is presented below. Study participants had to be at least 40 years of age and there was no maximum age limit specified (middle adults and above). Based on the age data collected, participants were grouped according to the age. Approximately half (43.1%; n=271) of the participants were between the age of 55 – 64 years old as shown in Table 4.3 below.

Table 4.3  
Distribution of Subject by Age Group and Gender

Age Group	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
40 – 44	18	2.9%	33	5.3%	51	8.1%
45 – 49	16	2.5%	29	4.6%	45	7.2%
50 – 54	52	8.3%	51	8.1%	103	16.4%
55 – 59	58	9.2%	64	10.2%	122	19.4%
60 – 64	73	11.6%	76	12.1%	149	23.7%
65 – 69	61	9.7%	56	8.9%	117	18.6%
70 +	15	2.4%	26	4.1%	41	6.5%
<b>Total</b>	<b>293</b>	<b>46.7%</b>	<b>335</b>	<b>53.3%</b>	<b>628</b>	<b>100%</b>

Further, the means and standard deviations each of self-control, self-regulation, and life satisfaction were relatively similar for male and for female. However, on the average of religiosity and happiness, male had slightly higher score than female did. The following table 4.4 provides in more detailed descriptions.

Table 4.4  
Means and Standard Deviations for Variables Scores of Each Gender

Variables	Male		Female		Total	
	Mean	SD	Mean	SD	Mean	SD
RL	54.00	12.211	53.00	11.946	53.46	12.071
SR	29.72	6.357	29.05	6.427	29.36	6.398
SC	45.41	10.332	44.96	10.741	45.17	10.546
LS	24.16	6.980	24.05	6.555	24.10	6.751
HP	19.38	6.056	18.74	5.842	19.04	5.947

Note: RL=Religiosity; SR=Self-regulation; SC=Self-control; LS=Life Satisfaction; HP=Happiness

#### 4.2.2 Demographic Characteristic of Variable Scale

*Happiness.* Table 4.5 below shows the mean, standard deviation, as well frequency distribution of happiness scale in the study.

Table 4.5  
Mean, Standard Deviation, and Frequency Distribution of Happiness

Item/ Factor	Mean	SD	Frequency						
			1	2	3	4	5	6	7
SHS-01	4.92	1.734	25 (4%)	43 (7%)	78 (12%)	86 (14%)	121 (19%)	132 (21%)	143 (23%)
SHS-02	4.63	1.885	40 (6%)	65 (10%)	81 (13%)	98 (16%)	103 (16%)	99 (16%)	142 (23%)
SHS-03	4.68	1.848	40 (6%)	64 (10%)	69 (11%)	90 (14%)	112 (18%)	129 (21%)	124 (20%)
SHS-04	4.82	1.684	22 (4%)	51 (8%)	71 (11%)	94 (15%)	150 (24%)	117 (19%)	123 (20%)
Happiness	19.04	5.947							

Note: Respondents were asked to rate from 1 to 7, most to least happy. The higher the mean, the more happy.

Happiness was measured using four items on a seven point Likert-type scale of 1 (not at all) to 7 (a great deal). The summed scores on happiness ranged from 4 to 28. Result of descriptive statistics reveal that, an overall average, participants responded above the midpoint (16) concerning happiness ( $M=19.04$ ;  $SD=5.947$ ). Of the five items, item two ( $M=4.95$ ;  $SD=1.760$ ) was the higher, than item three ( $M=4.83$ ;  $SD=1.761$ ), item four ( $M=4.79$ ;  $SD=1.815$ ), item five ( $M=4.78$ ;  $SD=1.782$ ), and item one ( $M=4.75$ ;  $SD=1.844$ ) respectively.



*Life Satisfaction.* The following table 4.6 shows the mean, standard deviation and frequency distribution of life satisfaction scale in the study.

Table 4. 6  
Mean, Standard Deviation, and Frequency Distribution of Life Satisfaction

Item/ Factor	Mean	SD	Frequency						
			1	2	3	4	5	6	7
Swls-01	4.75	1.844	32 (5%)	61 (10%)	89 (14%)	76 (12%)	101 (16%)	132 (21%)	137 (22%)
Swls-02	4.95	1.760	24 (4%)	51 (8%)	67 (11%)	88 (14%)	112 (18%)	133 (21%)	153 (24%)
Swls-03	4.83	1.761	28 (4%)	49 (8%)	81 (13%)	85 (14%)	115 (18%)	139 (22%)	131 (21%)
Swls-04	4.79	1.815	27 (4%)	61 (10%)	79 (13%)	94 (15%)	100 (16%)	122 (19%)	145 (23%)
Swls-05	4.78	1.782	32 (5%)	51 (8%)	80 (13%)	89 (14%)	107 (17%)	145 (23%)	124 (20%)
Life Satisfaction.	24.10	6.751							

Note: 1=Strongly Disagree; 2=Disagree; 3=Slightly Disagree; 4=Neither Agree nor Disagree; 5=Slightly Agree; 6=agree; 7=Strongly Agree

Life satisfaction was measured using five items on a seven point Likert-type scale of 1 (strongly disagree) to 7 (strongly agree). The summed scores on life satisfaction ranged from 5 to 35. Descriptive statistics result reveal that, an overall average, participants responded above the midpoint (20) concerning life satisfaction ( $M=24.10$ ;  $SD=6.751$ ). Of the five items, item two ( $M=4.95$ ;  $SD=1.760$ ) was the higher, than item three ( $M=4.83$ ;  $SD=1.761$ ), item four ( $M=4.79$ ;  $SD=1.815$ ), item five ( $M=4.78$ ;  $SD=1.782$ ), and item one ( $M=4.75$ ;  $SD=1.844$ ) respectively.

*Self-regulation.* The following table 4.7 shows the mean, standard deviation and frequency distribution of self-regulation scale in the study sample.

Table 4.7  
Mean, Standard Deviation, and Frequency Distribution of Self-regulation

Item/ Factor	Mean	SD	Frequency			
			1	2	3	4
AtReg-01	3.03	.874	39(6%)	114(18%)	265(42%)	210(33%)
AtReg-02	2.87	.929	57(9%)	146(23%)	247(39%)	178(28%)
AtReg-03	2.94	.821	33(5%)	131(21%)	302(48%)	162(26%)
AtReg-04	2.89	.898	47(7%)	149(24%)	256(41%)	176(28%)
AtReg-05	2.95	.848	39(6%)	126(20%)	292(46%)	171(27%)
AtReg	14.68	3.599				
EmReg-01	2.91	.885	41(7%)	153(24%)	255(41%)	179(29%)
EmReg-02	2.89	.870	42(7%)	148(24%)	272(43%)	166(26%)
EmReg-03	2.94	.908	43(7%)	149(24%)	238(38%)	198(32%)
EmReg-04	2.92	.912	41(7%)	165(26%)	225(36%)	197(31%)
EmReg-05	3.01	.861	32(5%)	132(21%)	259(41%)	205(33%)
EmReg	14.68	3.749				

Note: 1=Not At All True; 2=Barely True; 3=Somewhat True; 4=Completely True.

Self-regulation measured using ten items and divided into two subscales, each of which has five items. The items were measured on a four point Likert-type scale of 1 (not at all true) to 4 (completely true). The summed scores on self-regulation ranged from 10 to 40. Descriptive statistics result revealed that, an overall average, participants responded above the midpoint (25) concerning self-regulation ( $M=29.36$ ;  $SD=6.398$ ). Of the two self-regulation factors, both attention regulation ( $M=14.68$ ;  $SD=3.599$ ) and emotional regulation ( $M=14.68$ ;  $SD=3.749$ ) seem to have the similar influential factor.

*Self-control.* The following table 4.8 shows the mean, standard deviation and frequency distribution of self-control scale in the study sample.

Table 4.8  
Mean, Standard Deviation, and Frequency Distribution of Self-control

Item/ Factor	Mean	SD	Frequency				
			1	2	3	4	5
Rest-01	3.35	1.127	22(4%)	127(20%)	224(36%)	121(19%)	134(21%)
Rest-02	3.39	1.266	63(10%)	91(14%)	162(26%)	164(26%)	148(24%)
Rest-03	3.28	1.286	56(9%)	142(23%)	144(23%)	141(22%)	145(23%)
Rest-04	3.51	1.140	33(5%)	84(13%)	185(29%)	180(29%)	146(23%)
Rest-05	3.50	1.189	43(7%)	85(14%)	168(27%)	181(29%)	151(24%)
Rest-06	3.37	1.139	27(4%)	122(19%)	199(32%)	150(24%)	130(21%)
Rest-07	3.79	1.025	13(2%)	68(11%)	128(20%)	249(40%)	170(27%)
Restraint	24.19	6.861					
Impul-01	3.51	1.006	15(2%)	70(11%)	247(39%)	172(27%)	124(20%)
Impul-02	3.62	1.070	14(2%)	81(13%)	195(31%)	176(28%)	162(26%)
Impul-03	3.31	1.090	16(3%)	142(23%)	214(34%)	141(22%)	115(18%)
Impul-04	3.52	.979	14(2%)	54(9%)	278(44%)	156(25%)	126(20%)
Impul-05	3.48	1.016	10(2%)	88(14%)	246(39%)	157(25%)	127(20%)
Impul-06	3.54	.967	10(2%)	60(10%)	266(42%)	167(27%)	125(20%)
Impulsivity	20.98	5.097					

Note: 1=Not at All; 2=Not Very Much; 3=Moderately; 4=Quite a Bit; 5=Very Much.

Self-control assessed using 13 items and divided into two subscales. The first subscale (restraint) includes seven items and the other one (impulsivity) comprised of the remaining six items in this section of the survey. The items were measured on a five point Likert-type scale of 1 (not at all) to 5 (very much). The summed scores on self-control ranged from 13 to 65. Descriptive statistics result reveal that, an overall average, participants responded above the midpoint (39) concerning self-control ( $M=45.17$ ;  $SD=10.546$ ). Of the two self-control factors, restraint ( $M=24.19$ ;  $SD=6.861$ ) was the most influential factor and impulsivity ( $M=20.98$ ;  $SD=5.097$ ) seems to occur less frequently.

*Religiosity.* The following table 4.9 shows the mean, standard deviation and frequency distribution of religiosity scale in the study.

Table 4.9  
Mean, Standard Deviation, and Frequency Distribution of Religiosity

Item/ Factor	Mean	SD	Frequency				
			1	2	3	4	5
Intel-01	3.54	1.158	27(4%)	94(15%)	188(30%)	152(24%)	167(27%)
Intel-02	3.57	1.162	26(4%)	96(15%)	175(28%)	159(25%)	172(27%)
Intel-03	3.50	1.137	26(4%)	101(16%)	185(29%)	168(27%)	148(24%)
Intellect	10.60	3.085					
Ideol-01	3.54	1.186	37(6%)	85(14%)	172(27%)	167(27%)	167(27%)
Ideol-02	3.56	1.200	32(5%)	92(15%)	180(29%)	138(22%)	186(30%)
Ideol-03	3.66	1.148	27(4%)	71(11%)	181(29%)	158(25%)	191(30%)
Ideology	10.77	3.146					
PubPr-01	3.59	1.158	28(4%)	92(15%)	156(25%)	183(29%)	169(27%)
PubPr-02	3.60	1.159	27(4%)	89(14%)	166(26%)	170(27%)	176(28%)
PubPr-03	3.57	1.118	22(4%)	95(15%)	166(26%)	191(30%)	154(25%)
Public Practice	10.77	2.993					
PvrPr-01	3.60	1.113	25(4%)	69(11%)	206(33%)	159(25%)	169(27%)
PvrPr-02	3.58	1.122	21(3%)	96(15%)	166(26%)	186(30%)	159(25%)
PvrPr-03	3.57	1.142	26(4%)	90(14%)	179(29%)	169(27%)	164(26%)
Private Practice	10.75	2.991					
RelEx-01	3.53	1.106	19(3%)	95(15%)	203(32%)	158(25%)	153(24%)
RelEx-02	3.47	1.121	28(4%)	95(15%)	195(31%)	173(28%)	137(22%)
RelEx-03	3.58	1.145	23(4%)	96(15%)	174(28%)	166(26%)	169(27%)
Religious Exp	10.57	3.028					

Note: 1=Never; 2=Rarely; 3=Occasionally; 4=Often; 5=Very Often.

Religiosity measured using fifteen items and divided into five subscales, each of which has three items. The items were measured on a five point Likert-type scale of 1 (never) to 5 (very often). The summed scores on religiosity ranged from 15 to 75. Descriptive statistics result reveal that, an overall average, participants responded above the midpoint (45) concerning religiosity ( $M=53.46$ ;  $SD=12.071$ ). Of the five religiosity dimensions, ideology ( $M=10.77$ ;  $SD=3.146$ ) and public practice ( $M= 10.77$ ;  $SD=2.993$ ) were the most influential. Moreover, religiosity described in private practice ( $M=10.75$ ;  $SD=2.991$ ), intellect ( $M=10.60$ ;  $SD=3.085$ ), and religious experience ( $M=10.57$ ;  $SD=3.028$ ) seem to occur less frequently.

### **4.3 Assessment of Measurement Model**

Estimation method in Structural Equation Model (SEM) assumes that the endogenous variables should be multivariate normal. Specifically, the normality assumption is one of the assumptions of the Maximum Likelihood (ML) estimation technique (Cortina, et al., 2001). On this basis, the joint distribution of multivariate normality was conducted to screen raw data for multivariate normality test with regard to the skewness and kurtosis values of observed variables.

#### **4.3.1 Multivariate Normality Test**

Results of the performed multivariate normality tests reveal that all observed variables were significant that might suggest a possible departure from normality. In addition, this problem could constitute a potential bias in the parameter estimates that might provoke questions associated to the estimation technique used. However, it could be argued that violation of the normality assumption found in this study is due to the case of large sample sizes used. As noted by Hair, et al., (2006), the use of a large sample sizes tend to mitigate violations of the normality assumption. Basically, the adopted maximum likelihood estimation is robust against several types of the violation relating to the multivariate normality assumption (Bollen, 1989).

Furthermore, as printed by the PRELIS program, the estimated result of relative multivariate kurtosis was a relatively small value 1.084 (Jöreskog & Sörbom, 2002). Thus, even though it appear that the items do not show univariate normality, but collectively, the multivariate distribution is reasonably normal. In this context, Barnes, et al., (2001) suggested that maximum likelihood estimation can be used in the case of not wildly non-normal distributions of the sample variables, due to its

results in most situations are probably reliable. In addition, the transformed procedure could change the meaning of actual responses which leading to more problems. The option was to follow these considerations, so that the non-normally distributed variable was not transformed. Nevertheless, Sattora and Bentler, (1988) argued that in case with some presence of non-normality, the Robust Maximum Likelihood Method should be used to provide stable estimations and results should be interpreted with caution.

#### **4.3.2 Confirmatory Factor Analysis of Religiosity.**

*Dimensionality Test.* The Centrality of religiosity Scale (CRS) employed to measure about people religiosity. In line with previous approach (chapter 2), The CRS consists of 15 items covering the five constructs corresponded to the five key qualities of religiosity, i.e., intellectual, ideology, private practice, public practice, and religious experience. Using this model, each key quality represents the latent factor (the unobserved factor) and the items serve as the manifest variables (the observed factors). The conceptual structure of the five-factor model and the items presented in Figure 4.1 below:

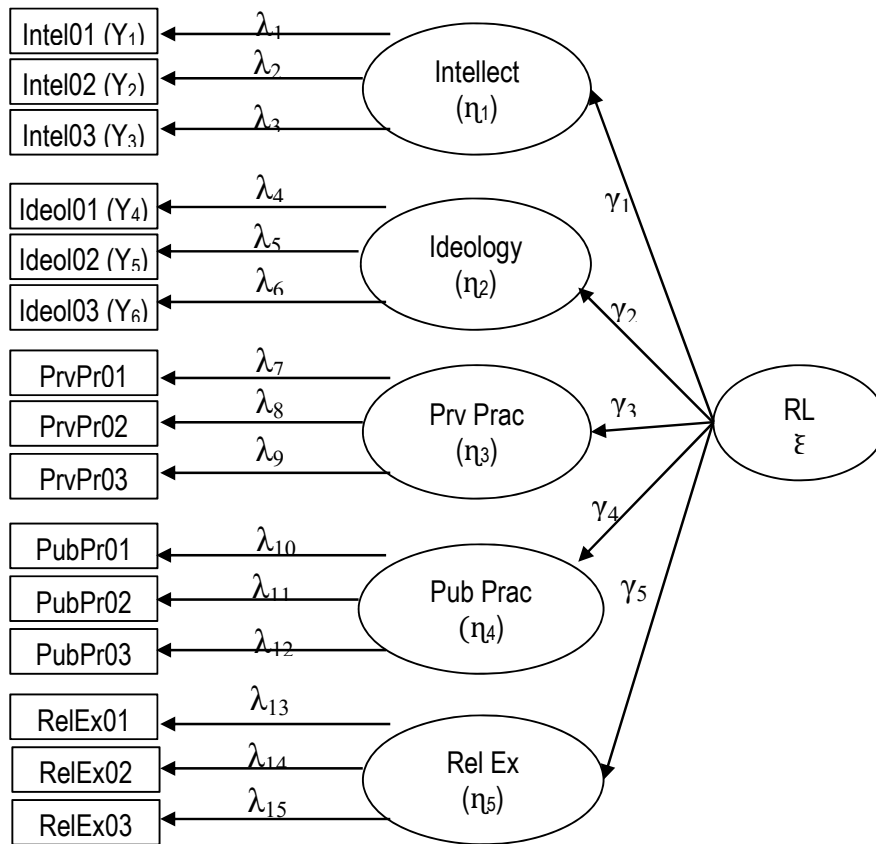


Figure 4.1. Second-Order SEM Model of CRS

Note: Intel=Intelligence; Ideol=Ideology; PubPr=Public Practice; PrvPr=Private Practice; RelEx=Religious Experience; RL=Religiosity

Based on the conceptual structure of religiosity mentioned in Figure 4.1 above, it was seemingly a second-order factor structure. Therefore, unidimensionality is the main aim of the analysis; i.e., whether each of the first-order factors or dimensions held unidimensionality, and whether the second-order factor structure was supported. The estimated results are presented in following table 4.10:

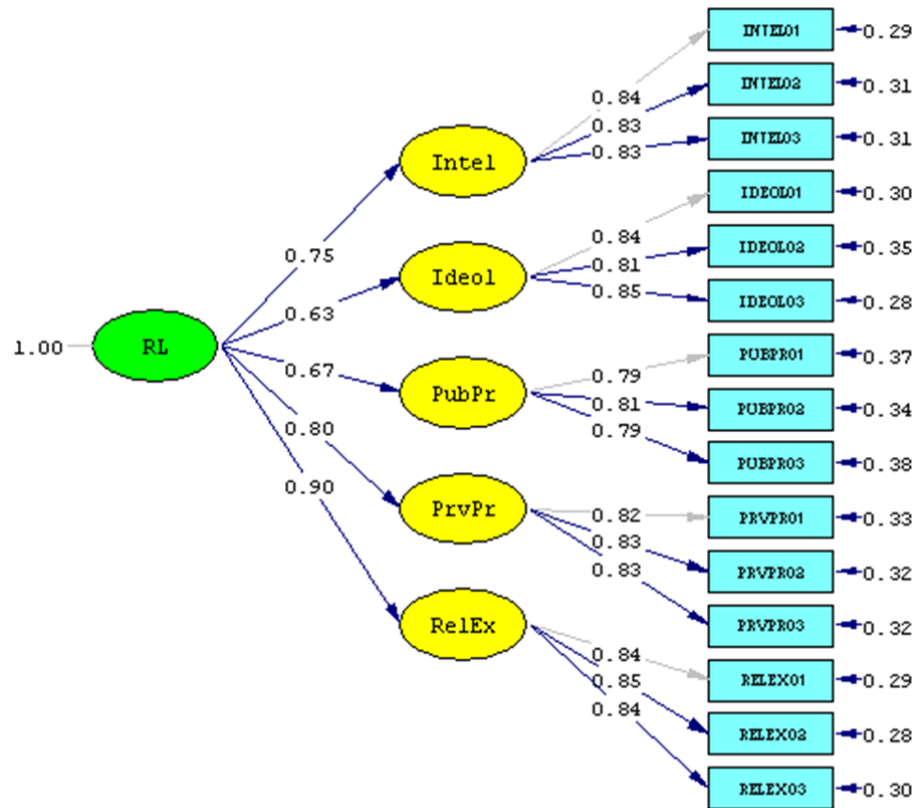
Table 4.10  
Summary result of fit indices for the five-factor CRS constructs

<b>Fit Index</b>	<b>Obtained Value</b>	<b>Cut-offs</b>	<b>Remark</b>
$\chi^2$	89.906 (p=.283)	P > .05	Good Fit
$\chi^2/df$	89.906/83 = 1.083	2-1 or 3-1	Good Fit
RMSEA	.012 (p=.999)	< .05 (p>.50)	Good Fit
SRMR	.018	< .05	Good Fit
GFI	.981	> .90	Good Fit
AGFI	.973	> .90	Good Fit
NNFI	.999	> .90	Good Fit
CFI	.999	> .90	Good Fit

As summarized in Table 4.10 above, the estimated results are within the generally acceptable thresholds for the overall model fit statistics, which suggest an acceptable goodness-of-fit. As summarized, the Chi-square test ( $\chi^2$ ) equals to 89.906 and has an insignificant p-value (p = .283). The ratio chi-square/degrees of freedom indicates below 2 (df = 83,  $\chi^2/df$  = 1.083) -normally indicative of an acceptable fit is a ratio in the range of 2–1 or 3–1 (Cote, et al., 2001).

In addition, the root mean square error of approximation (RMSEA) equals to .012; the goodness of fit index (GFI) equals to .981; the adjusted goodness of fit index (AGFI) equals to .973. Next, the non-normed fit index (NNFI) equals to .999; the comparative fit index (CFI) equals to .999; and the standardized root mean square residual (SRMR) equals to .018 (Diamantopoulos & Siguaw, 2000; MacCallum, et.al., 1996). Hence, the fit of the model indicates good fit. The results also reveal sufficient support of unidimensionality for each of the five dimensions of the Centrality of Religiosity Scale (CRS) which indicated by the items loaded strongly and significantly onto unique factors (see Figure 4.2a). In sum, these results seem to suggest sufficient evidences for unidimensionality of each of the first-order constructs and the second-order factor structure as well.





Chi-Square=89.91, df=83, P-value=0.28324, RMSEA=0.012

Figure 4.2a. Standardized Solution of item and five-factor CRS structure

*Convergent Validity Test.* Regarding convergent validity, results of the study produce that all the 15 items loaded significantly onto first-order models of the Centrality of Religiosity Scale (CRS), indicated by  $t$ -value  $> 1.96$  (see Figure 4.2b). In addition, coefficients of each observable variables found greater, approximately twice, than its standard error (see Figure 4.2a) (Steenkamp & Trijp, 1991). Thus, convergent validity of this scale is supported.

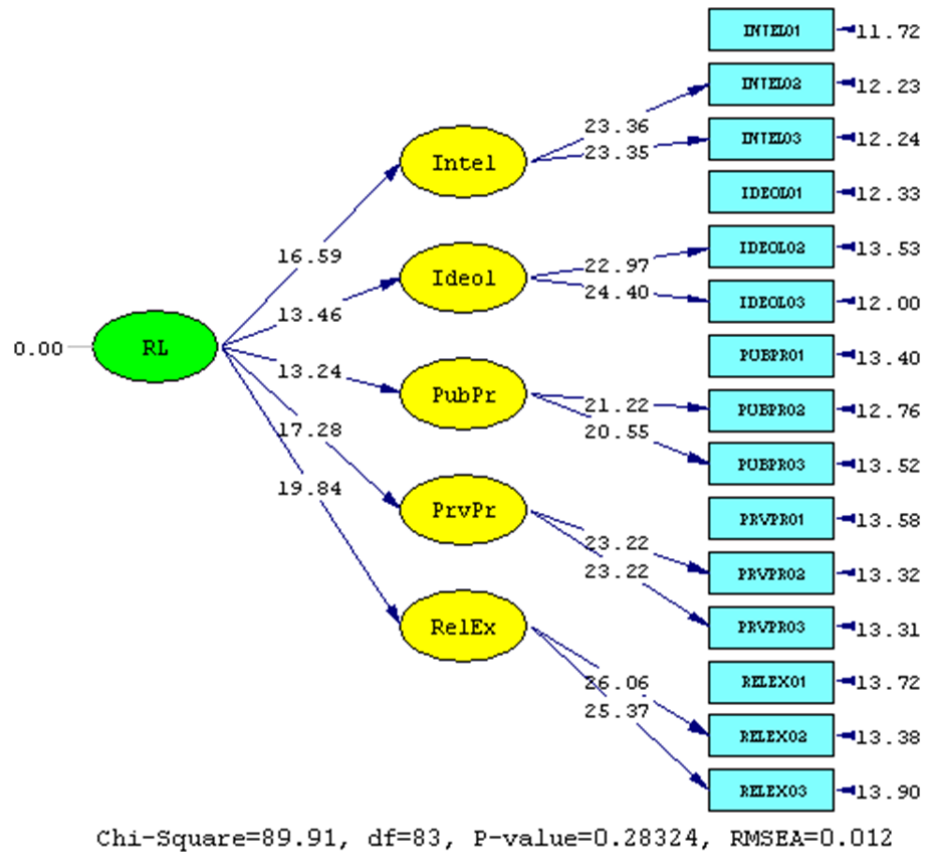


Figure 4.2b. t-Value of item and five-factor CRS structure

According to Steenkamp and Trijp, (1991), the substantial loading item of larger than 0.50 is sufficient evidence for convergent validity, whereas Garver and Mentzer (1999) have suggested a benchmark of .70. This is true for all of the parameter estimates found as illustrated in figure 4.2a. The evidence of convergent validity is further reinforced by the good overall fit of the model (Steenkamp & Trijp, 1991).

For the second order CFA, Benson and Bandalos (1992) have added requirement for assessing convergent validity to be accomplished, that is the correlation coefficient of the first-order factors with the second-order factor must be significant (i.e., the coefficients of  $\gamma$  in Figure 4.2a). This is also true for the

analyzed model so that suggesting sufficient evidence of convergent validity ( $\gamma_1 = .750$ ,  $se = .045$ ,  $t\text{-value} = 16.593$ ;  $\gamma_2 = .627$ ,  $se = .046$ ,  $t\text{-value} = 13.455$ ;  $\gamma_3 = .672$ ,  $se = .050$ ,  $t\text{-value} = 13.245$ ,  $\gamma_4 = .801$ ,  $se = .046$ ,  $t\text{-value} = 17.278$ ;  $\gamma_5 = .904$ ,  $se = .045$ ,  $t\text{-value} = 19.8405$ ).

*Reliability Test.* Diamantopoulos and Siguaw (2000) have proposed the following formula to calculate composite reliability:  $\rho_c = (\Sigma\lambda)^2 / [(\Sigma\lambda)^2 + \Sigma(\theta)]$ , where  $\rho_c$  = composite reliability,  $\lambda$  = indicator loadings,  $\theta$  = indicator error variances, and  $\Sigma$  = summation over the indicators of the latent variable. Results of the calculated composite reliability summarized in the following table 4.11.

Table 4.11  
Summary Result of Parameter Estimates for the five-factor CRS structure

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>Err.Var</b>	<b>CR</b>	<b>AVE</b>
Intellectual	Intel01	.841	.292	.872	.695
	Intel02	.830	.311		
	Intel03	.830	.311		
Ideology	Ideol01	.840	.295	.870	.691
	Ideol02	.807	.349		
	Ideol03	.847	.283		
Public Practice	PubPr01	.794	.369	.841	.639
	PubPr02	.814	.338		
	PubPr03	.790	.375		
Private Practice	PrvPr01	.817	.332	.862	.676
	PrvPr02	.825	.319		
	PrvPr03	.825	.319		
Religious Experience	RelEx01	.841	.293	.880	.710
	RelEx02	.851	.277		
	RelEx03	.836	.301		
Composite Reliability (CR) of Centralistic Religiosity Scale				<b>= .970</b>	
Variance Extracted				<b>= .682</b>	

Note: *SLF*=Standardized Loading Factor; *Err.Var*=Error variance; *CR*=Composite Reliability; *AVE*=Average Variance Extracted

As can be read from table 4.11 above, computing reliability test of items obtain a value of composite reliability equals to .970 and Variance Extracted equals to .682. This value exceeds the .60 cut-off from Bagozzi and Yi (1988), thus presenting evidence for the construct's acceptable reliability.

*Discriminant Validity Test.* According to Ping (2004), the estimated relationship between the factors did not go beyond .70 is an indication of measure distinctness. This is true for the majority of the correlation between the factors. Exceptions are correlation between Ideology and Private Practice (.833); Public Practice and Religious Experience (.871); and Private Practice and Religious Experience (.724). The following table 4.12 below provides summary results of correlation between the five-factor CRS structure:

Table 4.12  
Correlation Matrix of ETA and KSI

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>	<b>RL</b>
<b>Intel</b>	1.000					
<b>Ideol</b>	.470	1.000				
<b>PubPr</b>	.504	.421	1.000			
<b>PrvPr</b>	.601	.833	.538	1.000		
<b>RelEx</b>	.678	.567	.871	.724	1.000	
<b>RL</b>	.750	.627	.672	.801	.904	1.000

*Note:* Intel=Intelligence; Ideol=Ideology; PubPr=Public Practice; PrvPr=Private Practice; RelEx=Religious Experience; RL=Religiosity

### 4.3.3 Confirmatory Factor Analysis of Self-control

*Dimensionality Test.* The Brief Self-Control Scale (BSCS) employed to measure about people's self-control. In line with previous approach (Chapter 2), The BSCS consists of 13 items covering the two constructs corresponded to the two key qualities of self-control, i.e., restraint, and impulsivity. Using this model, each key quality represents the latent factor (the unobserved factor) and the items serve as the manifest variables (the observed factors). The conceptual structure of the two-factor model and the items presented in Figure 4.3 below:

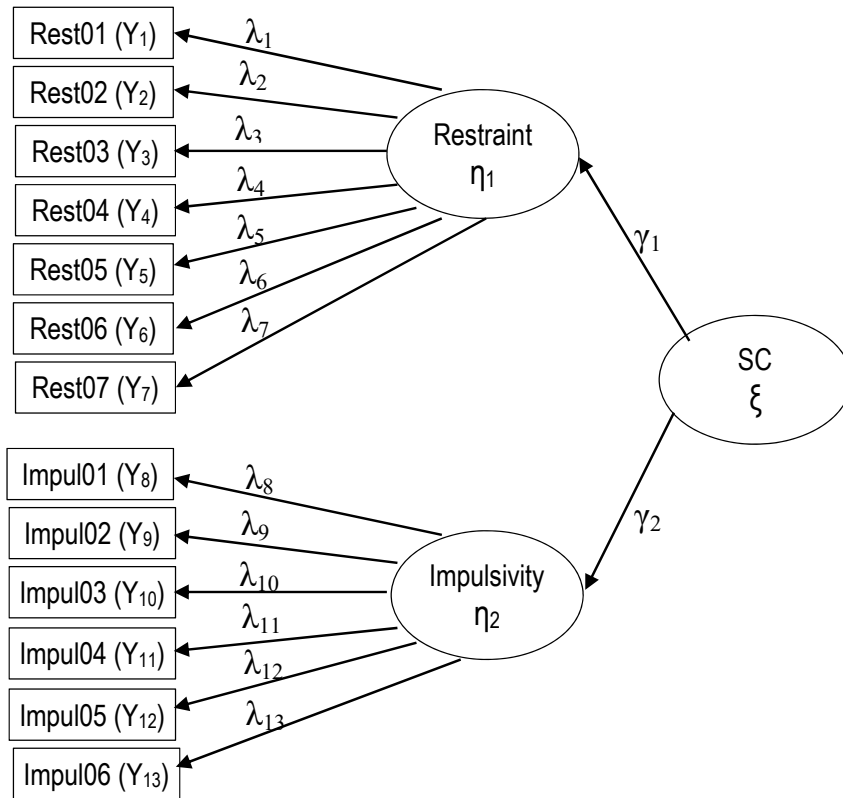


Figure 4.3. Second-Order SEM Model of BSCS  
 Note: SC=Self-control

Based on the conceptual structure of the Brief Self Control Scale mentioned above, it was seemingly advocates a second-order factor structure. Therefore, unidimensionality is the main aim of the analysis; i.e., whether each of the first-order factors or dimensions held unidimensionality, and whether the second-order factor structure was supported. The estimated results are presented in following table 4.13.

Table 4.13  
Summary result of fit indices for the two-factor BSCS constructs

<b>Fit Index</b>	<b>Obtained Value</b>	<b>Cut-offs</b>	<b>Remark</b>
$\chi^2$	64.518 (p=.458)	P > .05	Good Fit
$\chi^2/df$	64.518/64 = 1.008	2-1 or 3-1	Good Fit
RMSEA	.004 (p=.999)	< .05 (p>.50)	Good Fit
SRMR	.028	< .05	Good Fit
GFI	.984	> .90	Good Fit
AGFI	.978	> .90	Good Fit
NNFI	.999	> .90	Good Fit
CFI	.999	> .90	Good Fit

As summarized in Table 4.13 above, the estimated results are within the generally acceptable thresholds for the overall model fit statistics, which suggest an acceptable goodness-of-fit. As summarized, the Chi-square test ( $\chi^2$ ) equals to 64.518 and has an insignificant p-value (p = .458). The ratio chi-square/degrees of freedom indicates below 2 (df = 64,  $\chi^2/df$  = 1.008) -normally indicative of an acceptable fit is a ratio in the range of 2–1 or 3–1 (Cote, et al., 2001).

In addition, the root mean square error of approximation (RMSEA) equals to .004; the goodness of fit index (GFI) equals to .984; and the adjusted goodness of fit index (AGFI) equals to .978. Next, the non-normed fit index (NNFI) equals to .999; the comparative fit index (CFI) equals to .999; and the standardized root mean square residual (SRMR) equals to .028 (Diamantopoulos & Siguaw, 2000; MacCallum, et al., 1996). Hence, the fit of the model indicates good fit. The results also reveal sufficient evidence of unidimensionality for each of the two dimensions of The Brief Self-Control Scale (BSCS) that indicated by the items loaded strongly and significantly onto unique factors (see Figure 4.4a). In sum, these results seem to suggest sufficient evidences for unidimensionality of each of the first-order constructs and the second-order factor structure as well.

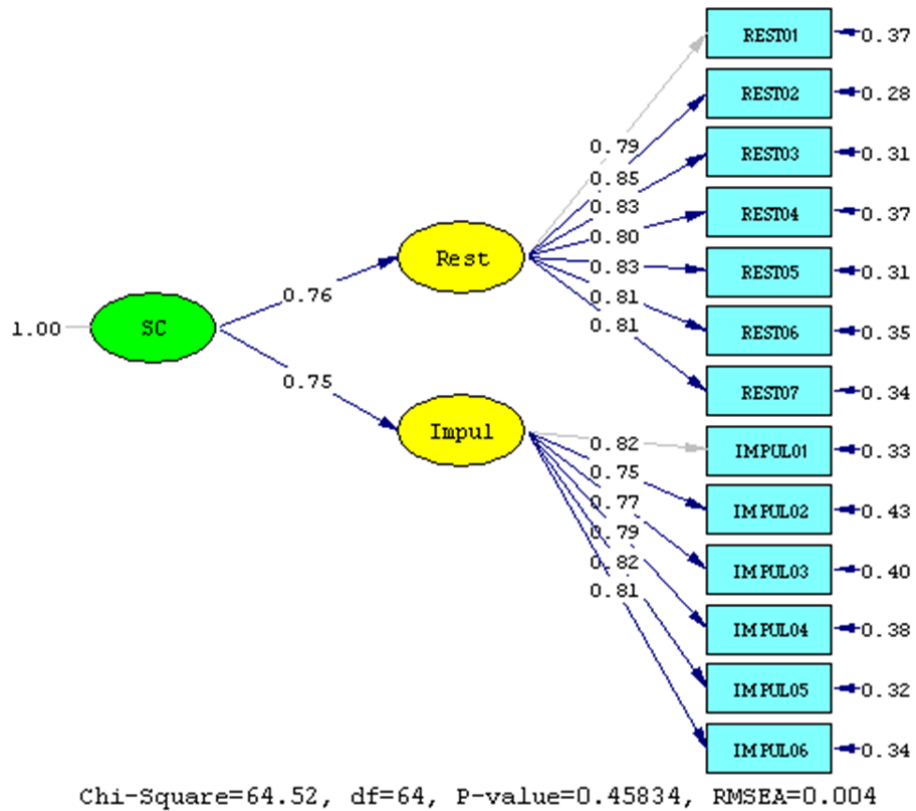


Figure 4.4a. Standardized Solution of item and two-factor BSCS structure

*Convergent Validity Test.* Regarding convergent validity, results of study produce that all the 13 items loaded significantly onto first-order models of the Brief Self-Control Scale (BSCS), indicated by  $t\text{-value} > 1.96$  (see Figure 4.4b). In addition, coefficients of each observable variables found greater, approximately twice, than its standard error (see Figure 4.4a) (Steenkamp & Trijp, 1991). Thus, convergent validity of this scale is supported.

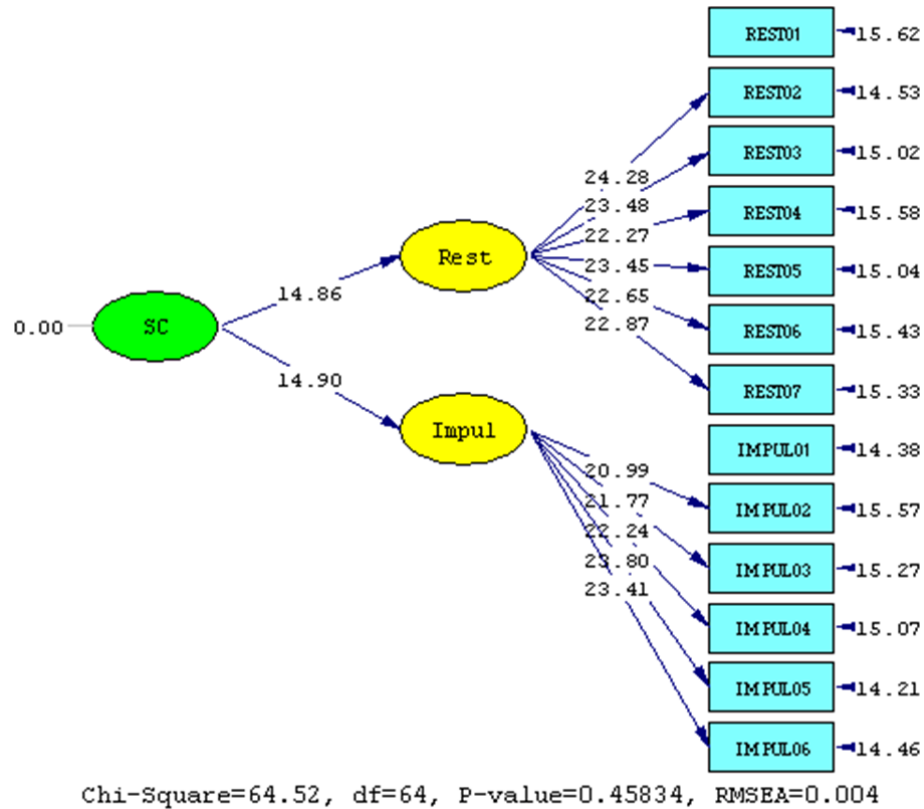


Figure 4.4b. t-Value of item and two-factor BSCS structure

According to Steenkamp and Trijp, (1991), the substantial loading item larger than .50 is sufficient evidence for convergent validity, whereas Garver and Mentzer (1999) have suggested a benchmark of .70. This is true for all of the parameter estimates found as illustrated in figure 4.4a. The evidence of convergent validity is further strengthened by the good overall fit of the model (Steenkamp & Trijp, 1991).

For the second order CFA, Benson & Bandalos (1992) have added requirement for assessing convergent validity to be accomplished, that is the relationships between the first-order factors and the second-order factor must be significant (i.e., the coefficients  $\gamma$  in Figure 4.4a). This is also true for the analyzed



model so that suggesting sufficient evidence of convergent validity ( $\gamma_1 = .764$ ,  $se = .052$ ,  $t\text{-value} = 14.861$ ;  $\gamma_2 = .748$ ,  $se = .050$ ,  $t\text{-value} = 14.903$ ).

*Reliability Test.* Diamantopoulos and Siguaw (2000) have proposed the following formula to calculate composite reliability:  $\rho_c = (\Sigma\lambda)^2 / [(\Sigma\lambda)^2 + \Sigma(\theta)]$ , where  $\rho_c$  = composite reliability,  $\lambda$  = indicator loadings,  $\theta$  = indicator error variances, and  $\Sigma$  = summation over the indicators of the latent variable. Results of the calculated composite reliability summarized in the following table 4.14.

Table 4.14  
Summary Result of Parameter Estimates for the two-factor BSCS structure

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>Err.Var</b>	<b>CR</b>	<b>AVE</b>
Restraint	Rest01	.794	.369	.934	.668
	Rest02	.850	.278		
	Rest03	.829	.313		
	Rest04	.797	.365		
	Rest05	.828	.314		
	Rest06	.807	.349		
	Rest07	.813	.339		
Impulsivity	Impul01	.818	.331	.912	.632
	Impul02	.753	.434		
	Impul03	.773	.402		
	Impul04	.785	.383		
	Impul05	.825	.320		
	Impul06	.815	.336		
Composite Reliability (CR) of Brief Self-Control Scale				= <b>.960</b>	
Variance Extracted				= <b>.651</b>	

Note: *SLF=Standardized Loading Factor; Err.Var=Error variance; CR=Composite Reliability; AVE=Average Variance Extracted*

As can be read from table 4.14 above, computing reliability test of items obtained a value of composite reliability equals to .960 and Variance Extracted equals to .651. This value exceeds the .60 cut-off from Bagozzi and Yi (1988), thus presenting sufficient evidence for the construct's acceptable reliability.

*Discriminant Validity Test.* According to Ping (2004), the estimated relationship between the factors did not go beyond .70 is an indicative of measure distinctness. This is true for the correlation between the factors. The following table

4.15 below provides the summary results of correlation between the two-factor BSCS structure:

Table 4.15  
Correlation Matrix of ETA and KSI

	<b>Rest</b>	<b>Impul</b>	<b>SC</b>
<b>Rest</b>	1.000		
<b>Impul</b>	.571	1.000	
<b>SC</b>	.764	.748	1.000

*Note: Rest=Restraint; Impul=Impulsivity; SC=Self-control*

#### 4.3.4 Confirmatory Factor Analysis of Self-regulation

*Dimensionality Test.* The Self-Regulation Scale (SRS) employed to measure about people's self-regulation. In line with previous approach (chapter II), The SRS consists of 10 items covering the two constructs corresponded to the two key qualities of self-regulation, i.e., attention-regulation, and emotion-regulation. Using this model, each key quality represents the latent factor (the unobserved factor) and the items serve as the manifest variables (the observed factors). The conceptual structure of the two-factor model and the items presented in Figure 4.5 below:

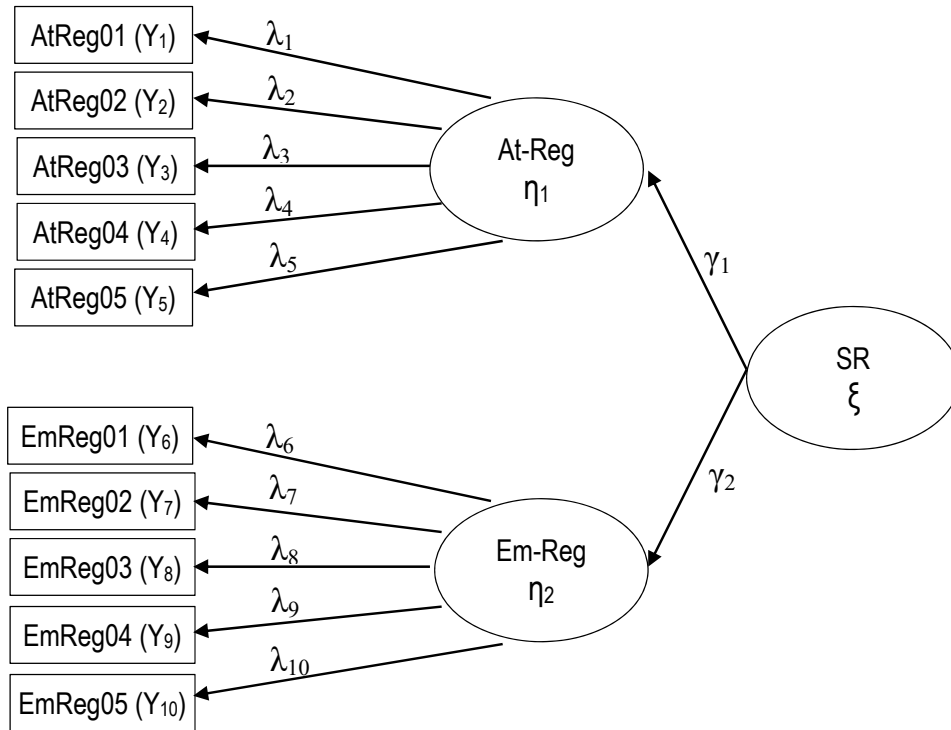


Figure 4.5. Second-Order SEM Model of SRS  
 Note: At-Reg=Attention Regulation; Em-Reg=Emotion Regulation;  
 SR=Self-regulation

Based on the conceptual structure of the Self-Regulation Scale mentioned above, it was seemingly advocates a second-order factor structure. Therefore, unidimensionality is the main aim of the analysis; i.e., whether each of the first-order factors or dimensions held unidimensionality, and whether the second-order factor structure was supported. The estimated results are presented in following table 4.16.

Table 4.16  
Summary result of fit indices for the two-factor SRS constructs

Fit Index	Obtained Value	Cut-offs	Remark
$\chi^2$	39.471 (p=.239)	P > .05	Good Fit
$\chi^2/df$	39.471/34 = 1.160	2-1 or 3-1	Good Fit
RMSEA	.016 (p=.999)	< .05 (p>.50)	Good Fit
SRMR	.027	< .05	Good Fit
GFI	.988	> .90	Good Fit
AGFI	.980	> .90	Good Fit
NNFI	.999	> .90	Good Fit
CFI	.999	> .90	Good Fit

As summarized in Table 4.16 above, the estimated results are within the generally acceptable thresholds for the overall model fit statistics, which suggest an acceptable goodness-of-fit. As summarized, the Chi-square test ( $\chi^2$ ) equals to 39.471 and has an insignificant p-value (p = .239). The ratio chi-square/degrees of freedom indicates below 2 (df = 34,  $\chi^2/df$  = 1.160) -normally indicative of an acceptable fit is a ratio in the range of 2–1 or 3–1 (Cote, et al., 2001).

In addition, the root mean square error of approximation (RMSEA) equals to .016; the goodness of fit index (GFI) equals to .988; the adjusted goodness of fit index (AGFI) equals to .980. Next, the non-normed fit index (NNFI) equals to .999; the comparative fit index (CFI) equals to .999; and the standardized root mean square residual (SRMR) equals to .027 (Diamantopoulos & Siguaw, 2000; MacCallum, et.al., 1996). Hence, the fit of the model indicates good fit.

The results also reveal sufficient support of unidimensionality for each of the two dimensions of The Self-Regulation Scale (SRS), which indicated by the items loaded strongly and significantly onto unique factors (see Figure 4.6a). In sum, these results seem to suggest sufficient evidences for unidimensionality of each of the first-order constructs and the second-order factor structure as well.

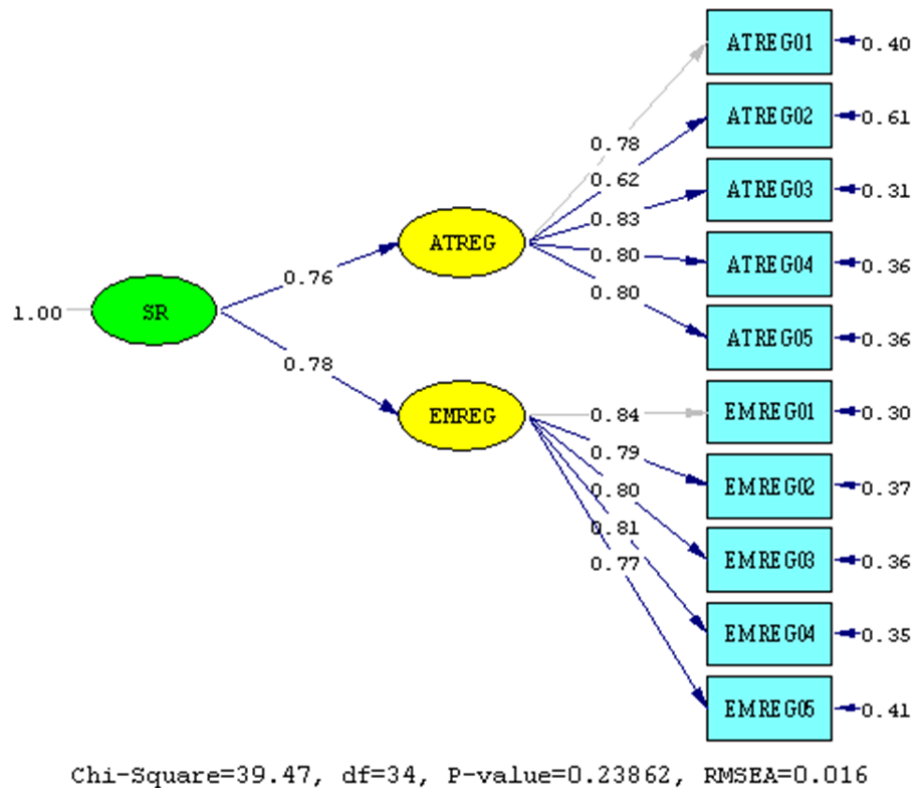
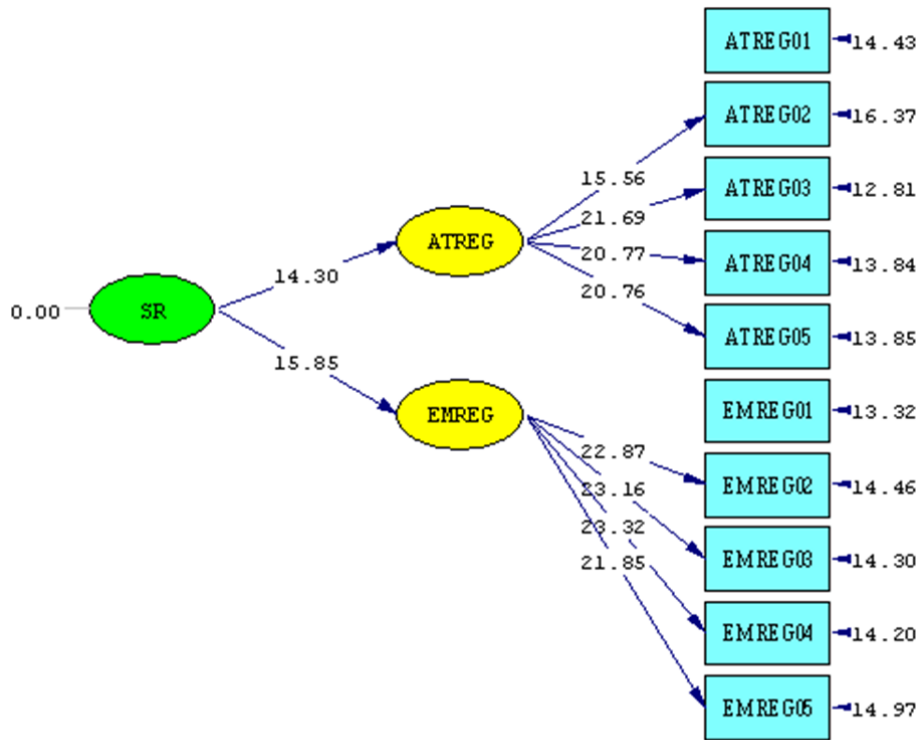


Figure 4.6a. Standardized Solution of item and two-factor SRS structure

*Convergent Validity Test.* Regarding convergent validity, results of study produce that all the 10 items loaded significantly onto first-order models of the Self-Regulation Scale (SRS), indicated by  $t$ -value  $> 1.96$  (see Figure 4.6b). In addition, coefficients of each observable variables found greater, approximately twice, than its standard error (see Figure 4.6a) (Steenkamp & Trijp, 1991). Thus, convergent validity of this scale is supported.



Chi-Square=39.47, df=34, P-value=0.23862, RMSEA=0.016

Figure 4.6b. t-Value of item and two-factor SRS structure

According to Steenkamp and Trijp, (1991), the substantial loading item larger than .50 is sufficient evidence for convergent validity, whereas Garver and Mentzer (1999) have suggested a benchmark of .70. This is true for all of the parameter estimates found as illustrated in figure 4.6a. The evidence of convergent validity is further strengthened by the good overall fit of the model (Steenkamp & Trijp, 1991).

For the second order CFA, Benson and Bandalos (1992) have added requirement for assessing convergent validity to be accomplished, that is the relationships between the first-order factors and the second-order factor must be significant (i.e., the coefficients  $\gamma$  in Figure 4.6a). This is also true for the analyzed model so that suggesting sufficient evidence of convergent validity ( $\gamma_1 = .760$ , se = .051, t-value = 14.304;  $\gamma_2 = .777$ , se = .049, t-value = 15.853).

*Reliability Test.* Diamantopoulos and Sigauw (2000) have proposed the following formula to calculate composite reliability:  $\rho_c = (\Sigma\lambda)^2 / [(\Sigma\lambda)^2 + \Sigma(\theta)]$ , where  $\rho_c$  = composite reliability,  $\lambda$  = indicator loadings,  $\theta$  = indicator error variances, and  $\Sigma$  = summation over the indicators of the latent variable. Results of the calculated composite reliability as summarized in the following table 4.17.

Table 4.17  
Summary Result of Parameter Estimates for the two-factor SRS structure

Factor	Item	SLF	Err.Var	CR	AVE
Attention Regulation	AtReg01	.777	.397	.878	.593
	AtReg02	.621	.614		
	AtReg03	.833	.307		
	AtReg04	.801	.359		
	AtReg05	.801	.359		
Emotion Regulation	EmReg01	.835	.302	.890	.643
	EmReg02	.795	.369		
	EmReg03	.802	.357		
	EmReg04	.806	.351		
	EmReg05	.769	.408		
Composite Reliability (CR) of Self-Regulation Scale				= <b>.941</b>	
Variance Extracted				= <b>.618</b>	

Note: SLF=Standardized Loading Factor; Err.Var=Error variance; CR=Composite Reliability; AVE=Average Variance Extracted

As can be read from table 4.17 above, computing reliability test of items obtained a value of composite reliability equals to .941 and Variance Extracted equals to .618. This value exceeds the .60 cut-off from Bagozzi and Yi (1988), thus presenting sufficient evidence for the construct's acceptable reliability.

*Discriminant Validity Test.* According to Ping (2004), the correlation between the factors did not go beyond .70 is an indicative of measure distinctness. This is true for the correlation between the factors. The following table 4.18 below provides summary results of correlation between the two-factor SRS structure:

Table 4.18  
Correlation Matrix of ETA and KSI

	<b>Atreg</b>	<b>Emreg</b>	<b>SR</b>
<b>Atreg</b>	1.000		
<b>Emreg</b>	.590	1.000	
<b>SR</b>	.760	.777	1.000

Note: *Atreg*=Attention-regulation; *Emreg*=Emotion-regulation; *SR*=Self-Regulation

### 4.3.5 Confirmatory Factor Analysis of Life Satisfaction

*Dimensionality Test.* The Satisfaction with Life Scale (SWLS) employed to measure about people’s life satisfaction. In line with previous approach (chapter II), The SWLS consists of 5 items covering unidimensional construct. Using this model, the items serve as the manifest variables (the observed factors). The conceptual structure of the unidimensional model and the items presented in Figure 4.7 below:

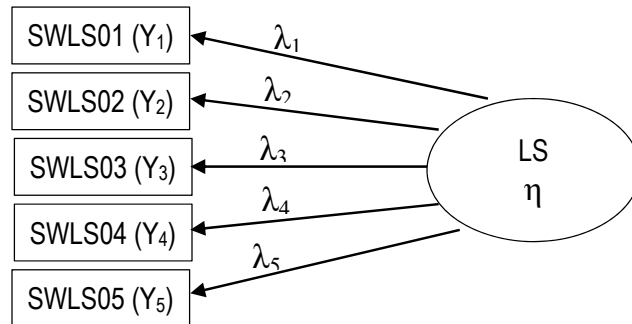


Figure 4.7. First-Order SEM Model of SWLS

Note: *LS*=Life Satisfaction

Based on the conceptual structure of life satisfaction mentioned above, it was seemingly advocates a unidimensional factor structure. Thus, the object of analysis is whether or not unidimensionality holds for the structure. The estimated results are presented in following table 4.19:

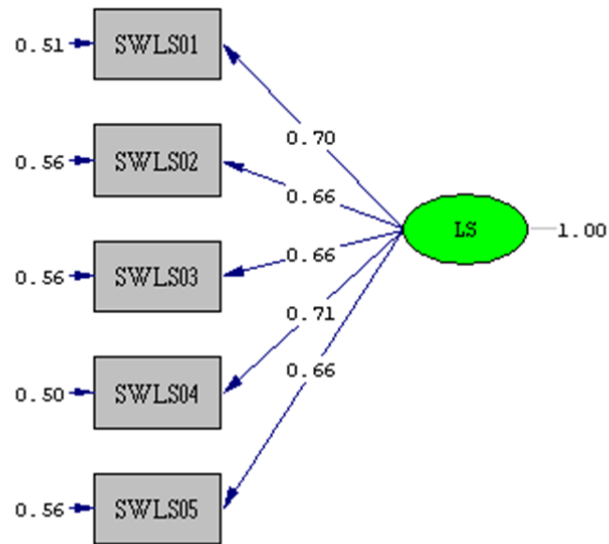


Table 4.19  
Summary result of fit indices for the SWLS constructs

<b>Fit Index</b>	<b>Obtained Value</b>	<b>Cut-offs</b>	<b>Remark</b>
$\chi^2$	7.470 (p=.188)	P > .05	Good Fit
$\chi^2/df$	7.470/5 = 1.494	2-1 or 3-1	Good Fit
RMSEA	.028 (p=.789)	< .05 (p>.50)	Good Fit
SRMR	.015	< .05	Good Fit
GFI	.995	> .90	Good Fit
AGFI	.986	> .90	Good Fit
NNFI	.997	> .90	Good Fit
CFI	.998	> .90	Good Fit

As summarized in Table 4.19 above, the estimated results are within the generally acceptable thresholds for the overall model fit statistics, which suggest an acceptable goodness-of-fit. As summarized, the Chi-square test ( $\chi^2$ ) equals to 7.470, and has an insignificant p-value (p = .188). The ratio chi-square/degrees of freedom indicates below 2 (df = 5,  $\chi^2/df$  = 1.494) -normally indicative of an acceptable fit is a ratio in the range of 2–1 or 3–1 (Cote, et al., 2001).

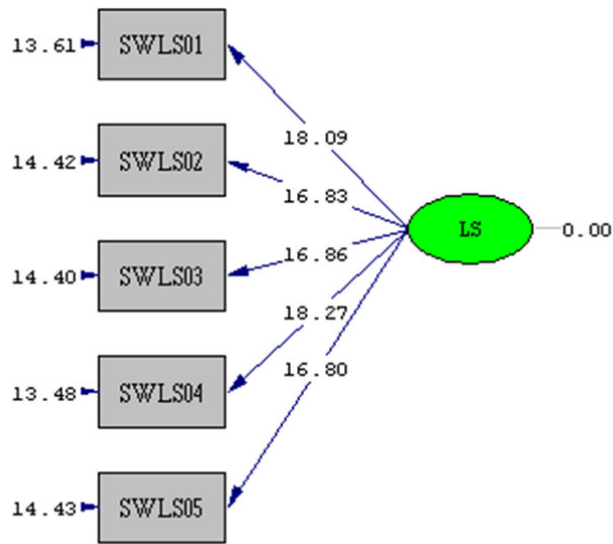
In addition, the root mean square error of approximation (RMSEA) equals to .028; the goodness of fit index (GFI) equals to .995; and the adjusted goodness of fit index (AGFI) equals to .986. Next, the non-normed fit index (NNFI) equals to .997; the comparative fit index (CFI) equals to .998; and the standardized root mean square residual (SRMR) equals to = .015 (Diamantopoulos & Siguaaw, 2000; MacCallum, et al., 1996). Hence, the fit of the model indicates good fit. The results also reveal sufficient support of unidimensionality for construct of the Satisfaction with Life Scale (SWLS) that indicated by the items loaded strongly and significantly onto unique factors (see Figure 4.8a). In sum, these results seem to suggest sufficient evidences for unidimensionality of the construct.



Chi-Square=7.47, df=5, P-value=0.18796, RMSEA=0.028

Figure 4.8a. Standardized Solution of item SWLS structure

*Convergent Validity Test.* Regarding convergent validity, results of study produce that all the 5 items loaded significantly onto the latent variable Satisfaction with Life Scale (SWLS), indicated by  $t\text{-value} > 1.96$  (see Figure 4.8b). In addition, coefficients of each observable variables found greater, approximately twice, than its standard error (see Figure 4.8a) (Steenkamp & Trijp, 1991). Thus, convergent validity of this scale is supported.



Chi-Square=7.47, df=5, P-value=0.18796, RMSEA=0.028

Figure 4.8b. t-Value of item for SWLS structure

According to Steenkamp and Trijp, (1991), the substantial loading item larger than .50 is sufficient evidence for convergent validity, whereas Garver and Mentzer (1999) have suggested a benchmark of .70. This is almost true for all of the parameter estimates found except for item SWLS02 (.661); SWLS03 (.662); and SWLS05 (.660), as illustrated in figure 4.8a. The evidence of convergent validity is further strengthened by the good overall fit of the model (Steenkamp & Trijp, 1991).

*Reliability Test.* Diamantopoulos and Siguaw (2000) have proposed the following formula to calculate composite reliability:  $\rho_c = (\sum\lambda)^2 / [(\sum\lambda)^2 + \sum(\theta)]$ , where  $\rho_c$  = composite reliability,  $\lambda$  = indicator loadings,  $\theta$  = indicator error variances, and  $\sum$  = summation over the indicators of the latent variable. Results of the calculated composite reliability summarized in the following table 4.20.

Table 4.20  
Summary Result of Parameter Estimates for the SWLS structure

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>Err.Var</b>	<b>CR</b>	<b>AVE</b>
	SWLS01	.700	.510		
	SWLS02	.661	.563		
SWLS	SWLS03	.662	.562	.810	.460
	SWLS04	.706	.502		
	SWLS05	.660	.565		
Composite Reliability (CR) of Satisfaction With Life Scale				=	<b>.810</b>
Variance Extracted				=	<b>.460</b>

*Note:* SLF=Standardized Loading Factor; Err.Var=Error variance; CR=Composite Reliability; AVE=Average Variance Extracted

As can be read from table 4.20 above, computing reliability test of items obtained a value of composite reliability equals to .810 and Variance Extracted equals to .460. This value exceeds the .60 cut-off from Bagozzi and Yi (1988), thus presenting sufficient evidence for the construct's acceptable reliability.

*Discriminant Validity Test.* According to Ping (2004), the estimated relationship between the factors did not go beyond .70 is an indicative of measure distinctness. Due to Satisfaction with Life Scale is unidimensional construct, or has only one factor, so discriminant validity test is not performed.

#### 4.3.6 Confirmatory Factor Analysis of Happiness

*Dimensionality Test.* The Subjective Happiness Scale (SHS) employed to measure about people's happiness in this study. In line with previous approach (chapter II), The SHS consists of 4 items covering unidimensional construct. Using this model, the items serve as the manifest variables (the observed factors). The conceptual structure of the unidimensional model and the items presented in Figure 4.9 below:

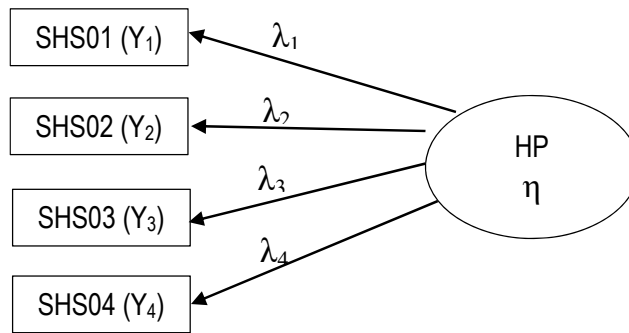


Figure 4.9. First Order SEM of SHS  
*Note: HP=Happiness*

Based on the conceptual structure of happiness mentioned above, it was seemingly advocates a unidimensional factor structure. Thus, the object of analysis is whether or not unidimensionality holds for the structure. The estimated results are presented in following table 4.21.

Table 4.21  
 Summary result of fit indices for the SHS constructs

Fit Index	Obtained Value	Cut-offs	Remark
$\chi^2$	2.614 (p=.271)	P > .05	Good Fit
$\chi^2/df$	2.614/2 = 1.307	2-1 or 3-1	Good Fit
RMSEA	.022 (p=.682)	< .05 (p>0.50)	Good Fit
SRMR	.009	< .05	Good Fit
GFI	.998	> .90	Good Fit
AGFI	.990	> .90	Good Fit
NNFI	.998	> .90	Good Fit
CFI	.999	> .90	Good Fit

As summarized in Table 4.21 above, the estimated results are within the generally acceptable thresholds for the overall model fit statistics, which suggest an acceptable goodness-of-fit. The Chi-square test ( $\chi^2$ ) equals to 2.614, and has an insignificant p-value (p = .271). The ratio chi-square/degrees of freedom indicates below 2 (df = 2,  $\chi^2/df$  = 1.307) -normally indicative of an acceptable fit is a ratio in the range of 2–1 or 3–1 (Cote, et al., 2001).

In addition, the root mean square error of approximation (RMSEA) equals to .022; the goodness of fit index (GFI) equals to 0.998; and the adjusted goodness of fit index (AGFI) equals to .990. Next, the non-normed fit index (NNFI) equals to .998; the comparative fit index (CFI) equals to .999; and the standardized root mean square residual (SRMR) equals to = .009 (Diamantopoulos & Siguaaw, 2000; MacCallum, et al., 1996). Hence, the fit of the model indicates good fit. The results also reveal sufficient support of unidimensionality for construct of the Subjective Happiness Scale (SHS), which indicated by the items loaded strongly and significantly onto unique factors (see Figure 4.10a). In sum, these results seem to suggest sufficient evidences for unidimensionality of the construct.

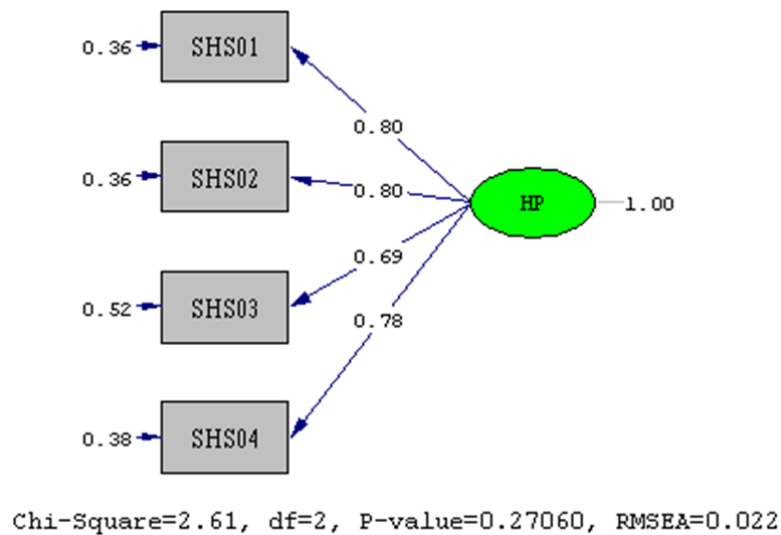


Figure 4.10a. Standardized Solution of item SHS structure

*Convergent Validity Test.* Regarding convergent validity, results of study produce that all the 4 items loaded significantly onto the latent variable Subjective Happiness Scale (SHS), indicated by t-value > 1.96 (see Figure 4.10b). In addition, coefficients of each observable variables found greater, approximately twice, than its

standard error (see Figure 4.10a) (Steenkamp & Trijp, 1991). Thus, convergent validity of this scale is supported.

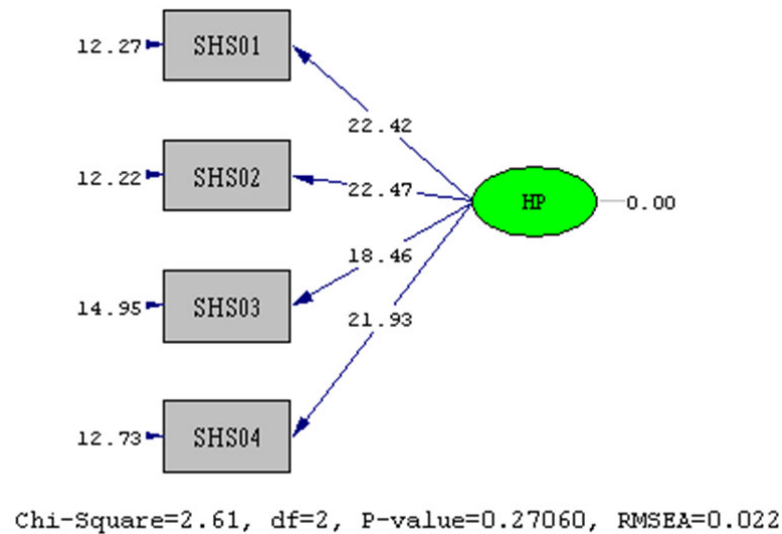


Figure 4.10b. t-Value of item for SHS structure

According to Steenkamp and Trijp, (1991), the substantial loading item larger than .50 is sufficient evidence for convergent validity, whereas Garver and Mentzer (1999) have suggested a benchmark of .70. This is almost true for all of the parameter estimates found except for item SHS03 (.690), as illustrated in figure 4.10a. The evidence of convergent validity is further strengthened by the good overall fit of the model (Steenkamp & Trijp, 1991).

*Reliability Test.* Diamantopoulos & Siguaw (2000) have proposed the following formula to calculate composite reliability:  $\rho_c = (\Sigma\lambda)^2 / [(\Sigma\lambda)^2 + \Sigma(\theta)]$ , where  $\rho_c$  = composite reliability,  $\lambda$  = indicator loadings,  $\theta$  = indicator error variances, and  $\Sigma$  = summation over the indicators of the latent variable. Results of the calculated composite reliability summarized in the following table 4.22.

Table 4.22  
Summary Result of Parameter Estimates for the SHS structure

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>Err.Var</b>	<b>CR</b>	<b>AVE</b>
SHS	SHS01	.798	.363	.847	.581
	SHS02	.799	.361		
	SHS03	.690	.523		
	SHS04	.758	.384		
Composite Reliability (CR) of Subjective Happiness Scale				= <b>.847</b>	
Variance Extracted				= <b>.581</b>	

*Note:* SLF=Standardized Loading Factor; Err.Var=Error variance; CR=Composite Reliability; AVE=Average Variance Extracted

As can be read from table 4.22 above, computing reliability test of items obtained a value of composite reliability equals to .847 and Variance Extracted equals to .581. This value exceeds of the .60 cut-off from Bagozzi and Yi (1988), thus presenting sufficient evidence for the construct's acceptable reliability.

*Discriminant Validity Test.* According to Ping (2004), the correlation between the factors did not go beyond .70 is an indicative of measure distinctness. Due to Subjective Happiness Scale is unidimensional construct, or has only one factor, so discriminant validity test is not performed.

#### **4.4 Structural Model**

As aforementioned, the two-step approach for structural equation modeling (SEM) was employed in this study. It began with analysis on the measurement model as was done earlier, and then proceed to the structural model that conducted using partial aggregation approach (Anderson & Gerbing, 1988).

Related to the partial aggregation approach, the summated scales of items is done by calculating the sum of each item that is in accordance with the each of sub latent variables, and subsequently treated as indicators of constructs. Referring to Diamantopoulos and Siguaw (2000), in the case of the constructs possess only one



dimension (single indicator construct), the error variance is fixed to 1-reliability. In the case of the constructs possess more than one dimension, the correlation with the indicator that best indicates the construct also selected to be ‘fixed’ to ‘1’. However, as evidenced by the standardized solutions, it is important to note that these procedures do not interfere with the analyzed results. The structural model depicted in Figure 4.11 below illustrates the partial aggregation approach adopted in this study.

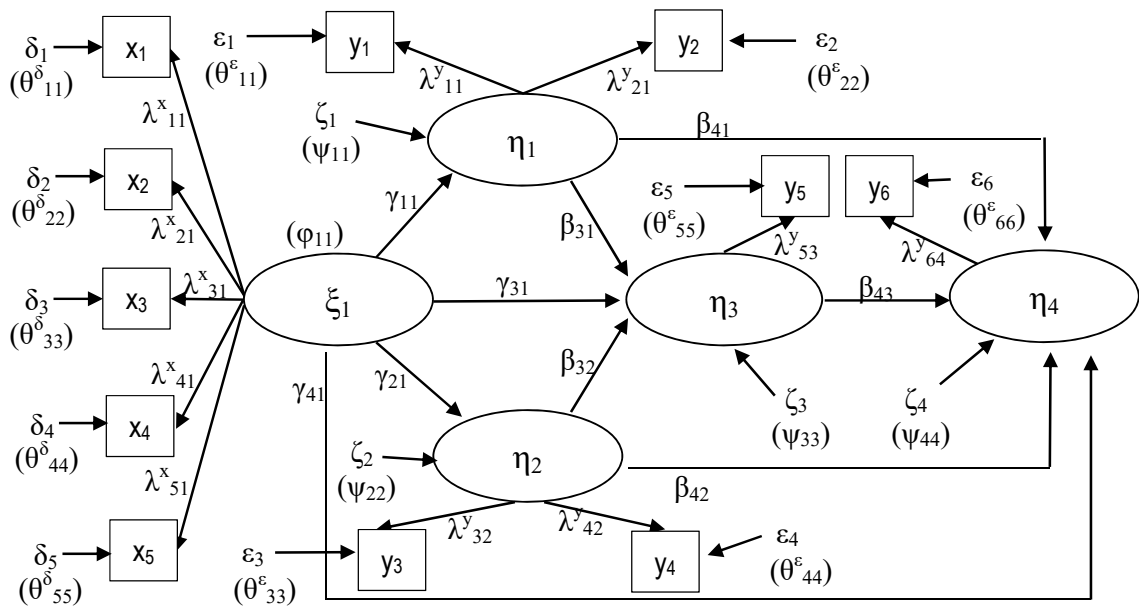


Figure 4.11. Path diagram for structural equation model with one latent predictor variable  $\xi_1$ , three mediator variables  $\eta_1, \eta_2, \eta_3$  and one criterion variable  $\eta_4$

Figure 4.11 above illustrates the path diagram for structural equation model with one latent predictor variable  $\xi_1$  (operationalized by the manifest variables  $X_1, X_2, X_3, X_4,$  and  $X_5$ ), three mediator variables  $\eta_1, \eta_2,$  and  $\eta_3$  (operationalized by the manifest variables  $Y_1, Y_2; Y_3, Y_4;$  and  $Y_5,$  respectively), and one criterion variable  $\eta_4$  (operationalized by  $Y_6$ ). Variances as model parameters are denoted in parentheses next to the respective variables.

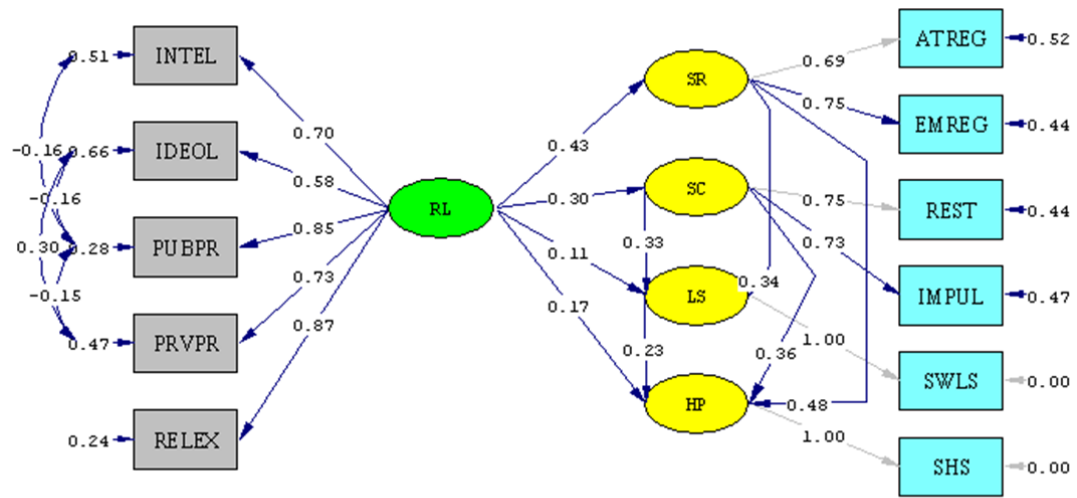
The result of the structural model was initially evaluated in terms of its overall fit to the data using a number of fit indices as discussed before. Table 4.23 below presents the summary results of these indices.

Table 4.23  
Summary result of fit indices for the proposed model structure

Fit Index	Obtained Value	Cut-offs	Remark
$\chi^2$	98.276 (p=.001)	P > .05	Poor Fit
$\chi^2/df$	98.276/33 = 2.978	2-1 or 3-1	Acceptable Fit
RMSEA	.056 (p=.201)	< .05 (p>.50)	Poor Fit
SRMR	.068	< .05	Poor Fit
GFI	.971	> .90	Good Fit
AGFI	.943	> .90	Good Fit
NNFI	.978	> .90	Good Fit
CFI	.987	> .90	Good Fit

As can be read from the table above, five indices ( $\chi^2/df = 2.978$ ; GFI=.971; AGFI=.943; NNFI=.978; and CFI=.987) indicate acceptable model fit, and the other three indices ( $\chi^2=98.276$ ; RMSEA=.056; and SRMR=.068) indicate poor model fit. These results indicate that the proposed model structure almost did not fit the data well. However, the proposed model appears to have some degree of unacceptability as indicated by the three indices and therefore it cannot be totally accepted. Nevertheless, other models need to be tested to determine the structure that fits the data better and to adopt the appropriate model for the assessment investigated in this study.

Apart from the examination of the overall model fit, it was necessary to evaluate the parameter estimates of the proposed structural model. In effect, the results of the proposed structural model indicate that all signs of the correlations between constructs in the model were in line with hypothesized correlations. Moreover, almost all parameter estimates –except the direct link between religiosity and life satisfaction- found statistically significant at  $p < .05$  or better, as illustrated by Figure 4.12 and summarized in Table 4.24 below.



Chi-Square=98.28, df=33, P-value=0.00000, RMSEA=0.056

Figure 4.12. Completely Standardized Path Coefficient for the Proposed Structure Model

Table 4.24  
Structural model assessment – proposed model

Parameter	Path	Std. Coefficient	t-Value	R <sup>2</sup>
RL → SC	$\gamma_{11}$	.298	5.318	.089
RL → SR	$\gamma_{21}$	.425	7.367	.181
RL → LS	$\gamma_{31}$	.109	1.722	
SC → LS	$\beta_{31}$	.328	5.728	
SR → LS	$\beta_{32}$	.336	5.346	
RL → HP	$\gamma_{41}$	.168	3.702	.313
SC → HP	$\beta_{41}$	.359	6.839	
SR → HP	$\beta_{42}$	.484	7.360	
LS → HP	$\beta_{43}$	.233	4.343	
				.786

Note: RL=Religiosity; SC= Self-control; SR=Self-regulation; LS=Life satisfaction; HP=Happiness.

Based on the resulted summary presented in table 4.24 above, it is worth to note that despite most of the significant associations are plausible; however, two of these relationships provide reasons for warning. First, the direct relationship between religiosity and life satisfaction is .109 with  $t$ -value equals to 1.722, which is below the threshold (coefficient of .20 with  $t$ -value  $> |1.96|$ ) for a path to be considered meaningful (Echambadi, et al., 2006). Second, the direct link between religiosity and happiness is .168 though its  $t$ -value  $> |1.96|$ ). Further, it should be also considered that, the overall effect on happiness is within the reasonably accepted thresholds, which comprises the accumulated overall influences (i.e. direct, indirect, and total effects) endeavored by exogenous and endogenous variables -see also Table 4.25.

Table 4.25  
Decomposition of Structural Effects – Proposed Model

	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
Effect on SC			
RL	.298	---	.298
Effect on SR			
RL	.425	---	.425
Effect on LS			
RL	.109	.241	.350
SC	.328	---	.328
SR	.336	---	.336
Effect on HP			
RL	.168	.394	.562
SC	.359	.077	.436
SR	.484	.078	.562
LS	.233	---	.233

On this basis, however, it cannot be concluded that the proposed structural model is the appropriate structure as the overall model appears to have some degree of unacceptability as indicated above. Nevertheless, other models -as suggested by LISREL- need to be tested to determine the structure that fits the data better and to adopt the appropriate model for the assessment investigated in this study. Thus,

examination of alternative model as suggested by LISREL output is substantiated for further consideration.

#### 4.5 Model Modification.

LISREL output suggests potential modification to add the path to self-regulation from self-control or vice versa. This suggested model modification has an appropriate flow of thought with the theoretical analysis discussed (see chapter 2) and is substantively interpretable. In this context, based on theoretical considerations, the model was revised by adding path to self-regulation from self-control. For this, examination of the alternative model investigated in this study.

Results of the statistical test on the modified structural model reveal that the overall fit indices are within acceptable thresholds. These good fits are indicated by:  $\chi^2 = 33.779$  ( $p = .382$ );  $df = 32$ ;  $\chi^2/df = 1.056$ ;  $RMSEA = .009$ ,  $GFI = .990$ ,  $AGFI = .980$ ,  $NNFI = .999$ ,  $CFI = .999$ . The summary results of these indices presented in Table 4.26 below.

Table 4.26  
Summary result of fit indices for the modified model structure

Fit Index	Obtained Value	Cut-offs	Remark
$\chi^2$	33.779 ( $p=.382$ )	$P > .05$	Good Fit
$\chi^2/df$	$33.779/32 = 1.056$	2-1 or 3-1	Good Fit
RMSEA	.009 ( $p=.999$ )	$< .05$ ( $p>.50$ )	Good Fit
SRMR	.023	$< .05$	Good Fit
GFI	.990	$> .90$	Good Fit
AGFI	.980	$> .90$	Good Fit
NNFI	.999	$> .90$	Good Fit
CFI	.999	$> .90$	Good Fit

As can be read from the table presented above, results of fit indices indicate acceptable model fit. These results illuminate the modified model structure is better fit the data. Further, it was necessary to evaluate the parameter estimates of the modified structural model. In effect, statistical test results of the modified structural

model elucidate that parameter signs of the incorporated hypotheses in the modified structural model are as supposed. This is to say that all parameter signs of the links between constructs in the analyzed model were in appropriate with the hypothesized relationships. Furthermore, all the estimated parameter indicates statistically significant results at  $p < .05$  or better, as illustrated by Figure 4.13 and summarized in Table 4.27 below.

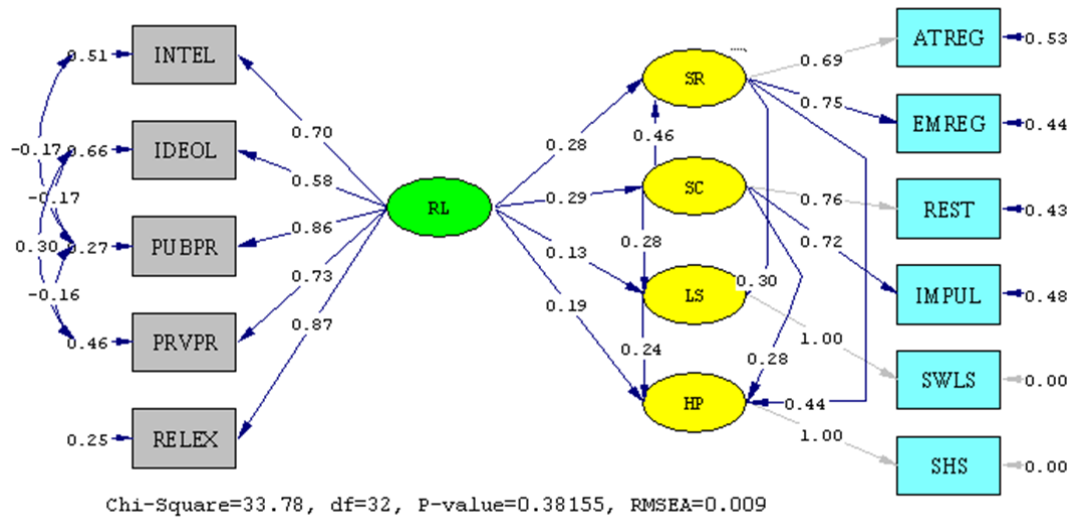


Figure 4.13. Completely Standardized Path Coefficient for the Modified Structure Model

Table 4.27  
Structural model assessment – Modified model

Parameter	Path	Std. Coefficient	t-Value	R <sup>2</sup>
RL → SC	$\gamma_{11}$	.287	5.120	.083
RL → SR	$\gamma_{21}$	.283	4.864	
SC → SR	$\beta_{21}$	.464	6.394	.372
RL → LS	$\gamma_{31}$	.131	2.431	
SC → LS	$\beta_{31}$	.283	3.979	
SR → LS	$\beta_{32}$	.299	3.902	.333
RL → HP	$\gamma_{41}$	.188	5.093	
SC → HP	$\beta_{41}$	.275	4.625	
SR → HP	$\beta_{42}$	.439	5.798	
LS → HP	$\beta_{43}$	.240	4.960	.794

Note: RL=Religiosity; SC= Self-control; SR=Self-regulation; LS=Life satisfaction; HP=Happiness.

Results presented above provide evidences that all signs of the associations between constructs in the model are significantly loads the threshold for a path to be considered practically meaningful, indicated by t-value > 1.96 (Echambadi, et al., 2006). Further, the overall effect on happiness is within the reasonably accepted thresholds, which comprises the accumulated overall influences (direct, indirect, and total effects) endeavored by exogenous and endogenous variables, as summarized in Table 4.28 below.

Table 4. 28  
Decomposition of Structural Effects – Modified Model

	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
Effect on SC			
RL	.287	---	.287
Effect on SR			
RL	.283	.133	.417
SC	.464	---	.464
Effect on LS			
RL	.131	.206	.337
SC	.283	.139	.422
SR	.299	---	.299
Effect on HP			
RL	.188	.343	.531
SC	.275	.305	.580
SR	.439	.072	.511
LS	.240	---	.240

On this basis, it can be deduced that the modified structural model is the appropriate structure as the overall model appears to have some degree of acceptability as indicated above and fits the data better for the assessment investigated in this study. Thus, this modified model is accepted as one of the findings in this study.

#### **4.6 Hypotheses Testing.**

The study's hypotheses were constructed to assess the relationship between religiosity, self-control, self-regulation, life satisfaction and happiness. The

analyzed mediation conducted based on the two-step approach of Structural Equation Model (SEM) principles by means of LISREL software 8.80.

#### **4.6.1 Hypothesis One**

Hypothesis one stated that religiosity is positively related to self-control. The higher the religiosity score a person obtained, the more likely it followed by an increased score in self-control.

Referring to the results of data analysis presented earlier, the summary result of structural model assessment and decomposition of structural effects as illustrated by Table 4.27 and 4.28 above revealed that the signs of the parameter load significantly at  $p < .01$  ( $t$ -values = 5.120). This evidence was reinforced by the substantial path coefficient of .287. The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .083. This indicated that about 8.3% of the variance in self-control was explained by the predictor variable of religiosity. Thus, this finding rejected the null hypothesis and accepted hypothesis one that religiosity is positively related to self-control.

#### **4.6.2 Hypothesis Two**

Hypothesis two stated that religiosity is positively related to self-regulation. The higher the religiosity score a person obtained, the more likely it followed by an increased score in self-regulation.

Referring to the results of data analysis presented earlier, the summary results of structural model assessment and decomposition of structural effects as illustrated by Table 4.27 and 4.28 above revealed that the signs of the parameter load



significantly at  $p < .01$  ( $t$ -values = 4.864). This evidence was reinforced by the substantial path coefficient of .283. The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .174. This indicated that approximately 17.4% of the variance in self-regulation was explained by the predictor variable of religiosity. Thus, this finding rejected the null hypothesis and accepted hypothesis two that religiosity is positively related to self-regulation.

#### **4.6.3 Hypothesis Three**

Hypothesis three stated that self-control and self-regulation are positively mediated the relationship between religiosity and life satisfaction. The higher the religiosity score a person obtained, the higher the self-control and self-regulation score possessed, and in turn, the more likely it followed by an increased score in life satisfaction.

Referring to the results of data analysis presented earlier, the summary results of structural model assessment and decomposition of structural effects as illustrated by Table 4.27 and 4.28 above, revealed that the signs of the parameter load at  $p < .05$  ( $t$ -values = 2.431) for religiosity; and  $p < .01$  ( $t$ -values = 3.979) for self-control; and  $p < .01$  ( $t$ -values = 3.902) for self-regulation. These evidences were reinforced by the substantial path coefficient of .131 for religiosity; of .283 for self-control; and of .299 for self-regulation. The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .333. This indicated that approximately 33.3% of the variance in life satisfaction was explained by the mediator and predictor variable of self-control, self-regulation and religiosity. Thus, this finding rejected the null hypothesis and

accepted hypothesis three that Self-control and self-regulation are positively mediated the relationship between religiosity and life satisfaction.

#### **4.6.4 Hypothesis Four**

Hypothesis four stated that self-control, self-regulation, and life satisfaction are positively mediated the relationship between religiosity and happiness. The higher the religiosity score a person obtained, the higher the self-control, self-regulation, and life satisfaction score gained, and in turn, the more likely it followed by an increased score in happiness.

Referring to the results of data analysis presented earlier, the summary results of structural model assessment and decomposition of structural effects were illustrated by Table 4.27 and 4.28 above. Results of the study revealed that the signs of the parameter load at  $p < .01$  ( $t$ -values = 5.093) for religiosity; and  $p < .01$  ( $t$ -values = 4.625) for self-control; and  $p < .01$  ( $t$ -values = 5.798) for self-regulation; and  $p < .01$  ( $t$ -values = 4.960) for life satisfaction. These evidences were reinforced by the substantial path coefficient of .188 for religiosity; of .275 for self-control; of .439 for self-regulation; and of .240 for life satisfaction. The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .794. This indicated that approximately 79.4% of the variance in happiness was explained by the mediator and predictor variable of self-control, self-regulation, life satisfaction and religiosity. Thus, this finding rejected the null hypothesis and accepted hypothesis four that self-control, self-regulation, and life satisfaction are positively mediated the relationship between religiosity and happiness.

## **CHAPTER 5**

### **DISCUSSION**

#### **5.1 Introduction**

This final chapter presents the discussion of the study. Firstly, summary of findings derived from the research results are presented to address the research questions. The findings are then discussed in relation to previous studies. Next, theoretical and practical implications inferred from the results are presented. This is followed by limitation and then directions for future research. Finally, conclusions drawing from the main findings of this research are presented at the end of this chapter.

#### **5.2 Summary of Findings**

The main research objectives of this study are to investigate the religiosity and its possible influence on happiness by examining the mediating role of self-control, self-regulation, and life satisfaction. Specifically, it looks into the mediating effect of self-control, self-regulation, and life satisfaction on the relationship between religiosity and happiness. Four research questions were formulated in line with the research objectives as previously discussed in the chapter one.

The conceptual framework developed for the research was based on careful consideration of the literature. In the model, relationship between variables then was depicted. The quantitative approach was adopted to validate and to test the interconnectedness of the research framework through the sample from people in Medan, North Sumatera, Indonesia. Cross sectional survey, with overall 628 usable questionnaires gathered. Further, an investigation of the measurement model using

confirmatory factor analysis (CFA) was performed. Subsequently, analysis based on Structural Equation Model (SEM) principles extended to the structural model to assess the relationship between religiosity, self-control, self-regulation, life satisfaction, and happiness.

The results of study provide evidence that religiosity has a positive significant relationship with happiness and this relationship is mediated by self-control, self-regulation, and life satisfaction. These findings are briefly presented with reference to the four research questions as follows:

Referring to hypothesis one, the result rejected the null hypothesis and accepted hypothesis one that religiosity is positively related to self-control. It was reinforced significantly by the substantial path coefficient of .287 ( $p < .01$ ). The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .083. This indicated that the magnitude of variance in self-control explained by the predictor variable of religiosity was approximately 8.3%.

Referring to hypothesis two, the results rejected the null hypothesis and accepted hypothesis two that religiosity is positively related to self-regulation. It was reinforced significantly by the substantial path coefficient of .283 ( $p < .01$ ). The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .174. This indicated the magnitude of variance in self-regulation explained by the predictor variable of religiosity was approximately 17.4%.

Referring to hypothesis three, the results again rejected the null hypothesis and accepted hypothesis three that self-control and self-regulation are positively mediated the relationship between religiosity and life satisfaction. It was reinforced

significantly by the substantial path coefficient of .131 ( $p < .05$ ) for religiosity; .283 ( $p < .01$ ) for self-control; and .299 ( $p < .01$ ) for self-regulation. The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .333. This indicated the magnitude of variance in life satisfaction explained by mediator and predictor variable of self-control, self-regulation, and religiosity was approximately 33.3%.

Lastly, to hypothesis four, the results rejected the null hypothesis and accepted hypothesis four that self-control, self-regulation, and life satisfaction are positively mediated the relationship between religiosity and happiness. It was reinforced significantly by the substantial path coefficient of .188 ( $p < .01$ ) for religiosity; .275 ( $p < .01$ ) for self-control; and .439 ( $p < .01$ ) for self-regulation; and .240 ( $p < .01$ ) for life satisfaction. The directionality of the relationship was positive and the magnitude of the relationship calculated by squaring the coefficient was an effect size of .794. This indicated that approximately 79.4% of the variance in happiness was explained by the mediator and predictor variable of self-control, self-regulation, life satisfaction and religiosity.

### **5.3 Discussion**

This section discusses empirical evidence derived from this study and then relates them to previous research. It also elaborates the findings with theoretical perspective in order to address research questions. The discussion is organized in accordance to the research questions of the study. Each of these research questions is presented and discussed as follow.

### 5.3.1 The Relationship between Religiosity and Self-control

The first research question was formulated to investigate if religiosity is positively related to self-control. As such, hypothesis one was formulated. Hypothesis one stated that religiosity is positively related to self-control. Results of the study confirmed this hypothesis. In this study, religiosity was significantly correlated with self-control ( $\beta = .287, p < .01$ ). Result of squaring the coefficient had an effect size of .083, which indicates that approximately 8.3% of the variance in self-control was explained by religiosity. Of the two self-control factors, restraint was the most accounted for by religiosity than impulsivity, but only slightly so (.218 and .207 respectively).

This positive correlation finding is empirically supported and consistent with previous studies. As noted by McCullough and Willoughby (2009), this association has been replicated among samples from a variety of religious background and nationalities. Additionally, personality research reveals that people who possessed high religiosity tend to have better self-control (Lodi-Smith & Roberts, 2007; Saroglou, 2002). Possible explanations that can be offered related to this finding is that in the face of temptation, people employ religious values to support them performing self-control and, conversely, that religious mental content makes temptation and stimulation to sin become less accessible (Fishbach et al., 2003).

Furthermore, Azzi and Ehrenberg (1975) explained that the ability to postpone pleasures of desire (i.e., gratification or excitement) that underlies the choice of behavior becomes an important dynamic for religious people who believe in the Hereafter. Accordingly, Iannaccone (1998) argued that it should make sense to deny temptation for short-term benefit by engaging in religiously proscribed behavior in order to achieve long-term benefits that may exceed short-term benefits

associated with involvement in the behavior. Religious teachings that emphasize on a judgment in the afterlife may improve people's ability to exercise better self-control so they are more likely to avoid and/or delay gratification. These links between religiosity and the ability to postpone pleasure and delay gratification, however, may help to explain this research finding in which religiosity influences self-control.

Based on result obtained, it is worth to point out that the relationships appeared stronger in other studies addressing the possibility that religiosity has relationship with higher self-control. For example, a study conducted by Bergin, et al., (1987) has reported the link between religiosity and The California Psychological Inventory ( $r = .32$ ) which considered as the self-control scale, and positively correlated to self-control Schedule of Rosenbaum ( $r = .38$ ). Similarly, French et al. (2008) have found that on the basis of parent-reported and self-reported using Indonesia's Muslim 8<sup>th</sup> and 9<sup>th</sup> graders sample, religiosity was related to self-control (standardized coefficient = .36). Also, other study by Aziz & Rehman (1996) have found that religiosity was related to higher self-control ( $r = .35$ ) among postgraduate Pakistani Muslims. A slightly weaker relationship found in this study may be due to using different analysis. However, this study examines the potential roles of the mediating variable on the relationship between several dependent and independent variables using structural equations model in which measurement errors is accounted. Therefore, it can be more accurate to estimate the interaction effects among variables involved (Chin, 1998).

### 5.3.2 The relationship between religiosity and self-regulation

The second research question was formulated to investigate if religiosity is positively related to self-regulation. Accordingly, hypothesis two is set to address this question. Hypothesis two stated that religiosity is positively related to self-regulation. The resulted study confirmed this hypothesis. Based on the current results, religiosity was significantly correlated with self-regulation ( $\beta = .283, p < .01$ ). Result of squaring the coefficient was an effect size of .174, which refers to approximately 17.4% of the variance in self-regulation can be explained by religiosity. Of the two self-regulation factors, emotional regulation was the most accounted for by religiosity than attention regulation, but only slightly so, 0.313 and 0.287 respectively.

This positive correlation is consistent with previous finding. For example, Chan and Woollacott (2007) found that some religious rituals influence attention variables that are the foundation to self-regulation. Wenger (2007) also found that scripture reading might serve self-regulatory functions. On the basis of this result, it can be argued that belief systems of religiosity prescribe the goals that should be achieved by sanctifying its adherents. When goal achievement in line with religious meaning, it should reduce conflict because the integrated goals became easier to attain (Emmons, 1999). Furthermore, religiosity predisposes selection associated with goals; erases goals conflict by influencing the process by which the values derived from religious teachings converted into principles those are personally meaningful. These links between religiosity and goals, however, may help to explain this research finding in which religiosity influences self-regulation.

Another possible explanation for the relationship is the perceived monitoring by God fosters self-regulation. Bering and Johnson (2005) argued that belief system



shaped by religion prescribed that God monitors any peoples' behavior, evaluates, and administers rewards or sanctions. This Being, with His Omnipotence, could not be deceived by people attempts to cheat Him. Inasmuch as religious belief systems posit God that observe humans' behavior and pass judgment, the God should seem to represent an evaluative audience and appeared to modify decision-making. However, several literatures related to self-regulation explained that perception about the presence of other people could increase person's self-awareness and lead to act as expected standards (Carver & Scheier, 1998). These links between religiosity and perceived monitoring by God, however, may help to explain this research finding in which religiosity influences self-regulation.

### **5.3.3 The Mediating Effect of Self-control and Self-regulation on the Relationship between Religiosity and Life Satisfaction**

Hypothesis three is set to address research question three. Hypothesis three defined that self-control and self-regulation are positively mediated the relationship between religiosity and life satisfaction. Results of the study confirmed this hypothesis. The obtained results of structural model revealed path coefficient of .131 ( $p < .05$ ) for religiosity; .283 ( $p < .01$ ) for self-control; and .299 ( $p < .01$ ) for self-regulation. According to these obtained results, the most effect to attain life satisfaction was contributed by self-regulation, following by self-control, and then religiosity as the least.

This evidence is also clearly reflected in the results, which indicate that the total effect of religiosity on life satisfaction was the substantial path coefficient of .337 ( $p < .01$ ). This result is in line with research findings by Leikes (2006) which found that religiosity positively increases individuals' self-reported satisfaction.

Next, it is noteworthy that the total path coefficient consists of only .131 ( $p < .05$ ) for direct path, while the rest of .206 ( $p < .01$ ) for indirect path, suggesting that the relationship was partially mediated. It may mean that the relationship between religiosity and life satisfaction was varied according to the underlying mediation role. When religiosity is related to life satisfaction, it is partially depending on its relationship with self-control and self-regulation.

Based on findings mentioned above, the observed indirect relations between religiosity and life satisfaction revealed that the most effect is through self-control (.121), and then by means of self-regulation (.085). These evidences shed light on the importance of religiosity that emphasizes more on the internalization of religious teachings relating to fostering people's self-control abilities to pursue life satisfaction. Furthermore, it may relate to the notion that religion is able to prescribe health-promoting behaviors and proscribe health-compromising ones (Hill, et al., 2006). Moreover, another explanation for these findings is related to the strong self-regulation that religiosity offers. It is likely that these self-qualities, which build through religious teachings and practices, consequently help building satisfaction with life. Thus, this finding seems to offer insight into understanding the uncertainty about the mechanisms underlying the relationship between religiosity and life satisfaction.

Finally, it is also worth to note that result of squaring the coefficient was an effect size of .333 that refers to approximately 33.3% of the relationship between religiosity and life satisfaction could be illuminated based on self-control and self-regulation. While the rest of 66.7% is determined by other factors were not included in this study, such as gratitude, hope, positive coping (Witvliet, 2018; Li, et al., 2016), and so on.

### **5.3.4 The Mediating Effect of Self-control, Self-regulation and Life**

#### **Satisfaction on the Relationship between Religiosity and Happiness**

Finally, the fourth research question was formulated to investigate whether self-control, self-regulation, and life satisfaction mediate the relationship between religiosity and happiness. Accordingly, hypothesis fourth is set to address it. Hypothesis four stated that self-control, self-regulation, and life satisfaction are positively mediated the relationship between religiosity and happiness. Results of the study confirmed this hypothesis. The obtained results of structural model revealed path coefficient of .188 ( $p < .01$ ) for religiosity; .275 ( $p < .01$ ) for self-control; .439 ( $p < .01$ ) for self-regulation; and .240 ( $p < .01$ ) for life satisfaction. According to the results obtained, the most effect to attain happiness was contributed by self-regulation, which is then followed by self-control, life satisfaction, and religiosity as the least.

This evidence is also clearly reflected in the results, which indicate that the total effect of religiosity on happiness was the substantial path coefficient of .531 ( $p < .01$ ). This positive significant effect was not surprised given that both constructs are characterized by well-being and relative freedom from neurotic stress. In Addition, previous meta-analysis review conducted by Ano and Vasconcelles (2005) have deduced that religiosity positively related to positive psychological outcomes such as life satisfaction and happiness, and on the other hand, negatively related to negative psychological outcomes such as depression and anxiety.

However, what is worth pointing out that the total path coefficient consists of only .188 ( $p < .01$ ) for direct path, while the rest of .343 ( $p < .01$ ) for indirect path, suggesting that the relationship was partially mediated. It may imply that the

association between religiosity and happiness varied in accordance with the underlying mediation role. When religiosity is relating to happiness, it is partially depending on its relationship with self-control, self-regulation, and life satisfaction. Thus, there were three significant indirect pathways found in this study.

First, this pathway made up through self-control and consisted of four parts. (1) Religiosity relates to self-control, which in turn associates with happiness, the indirect path coefficient equals to .079. (2) Religiosity relates to self-control, which in turn associates with better self-regulation, and then more happiness, the indirect path coefficient equals to .058. (3) Religiosity influences self-control, which subsequently relates to self-regulation, and then become more satisfied with life, an association that in turn influences happiness, this indirect path coefficient was .010. (4) Religiosity relates to greater self-control, which in turn associates with higher life satisfaction, and then become happier, the indirect path coefficient equals to .020. Taken together, the total indirect coefficient of this pathway was .166. The findings of this mediation pathway confirm an important piece of the relationship between religiosity and happiness due, in part, to the propensity of religiosity to promote self-control. It seems that when people exerting self-control, they tend to modify responses in a manner that contains an emphasis on one goal in order to chase another one that is considered to get more benefit in the long-term. Definitely, Iannaccone (1998) argued that it should make sense to deny temptation for short-term benefit by engaging in religiously proscribed behavior in order to achieve long-term benefits that may exceed short-term benefits associated with involvement in the behavior. Religious teachings that emphasize on a judgment in the afterlife may improve people's ability to exercise better self-control so they are more likely to avoid and/or delay gratification.

Second, this pathway made up through self-regulation and composed of two parts: (i) people's religiosity relates to better self-regulation, which in turn affects happiness, the indirect path coefficient equals to .124; and (ii) religiosity relates to better self-regulation, which in turn related to higher satisfaction with life, and then become happier, the indirect path coefficient equals to .020. Taken together, the total indirect coefficient of this pathway was .145. The findings of this mediation pathway confirm an important piece of the relationship between religiosity and happiness was due, in part, to the propensity of people's religiosity to enhance self-regulation. It is likely that when people self-regulating, they are adjusting their related behavior to achieve some preferred aim or end state (Carver & Scheier, 1998). Much of self-regulation happens in an unthinking way or somewhat awareness (Fitzsimmons & Bargh, 2004). Perhaps, through this self-regulatory process, the constructs of religiosity may be activated outside of awareness (Shariff & Norenzayan, 2007), and thereby influences people happiness.

Finally, the indirect path coefficient from religiosity through life satisfaction to happiness was .031. The finding of this mediation pathway confirms the relationship between religiosity and happiness was due, in part, to religiosity's ability to promote a fulfilling life. Previous studies have confirmed that people's life satisfaction predisposes the experience of perceived happiness (Haybron, 2007; Lyubomirsky, et al., 2005; Schwartz et al. 2002). Perhaps people who are religious and satisfied with their lives, also subsequently lead them to be happier.

According to the main goal of this study, the evidences found could explain why widespread excitements of religious behavior in Indonesia are still not accompanied by a rise in people happiness. Specifically, why happiness remains such a large problem in spite of rise in euphoria religious happened in Indonesia.

However, the findings of study offer a deeper understanding that the relationship between religiosity and happiness may be due to important implications that constituted by religiosity on the self-controlling processes of its adherents, which is related to better self-regulation, and then to more satisfied with life, an association that in turn relates to happiness. In this sense, religiosity is related to happiness and this relationship is mediated by self-control, self-regulation, and life satisfaction. Thus, the findings seem to offer insight into understanding the uncertainty about the mechanisms underlying the relationship between religiosity and happiness.

Finally, it is noteworthy that result of squaring the coefficient was an effect size of .794 that refers to approximately 79.4% of the relationship between religiosity and happiness could be explained on the basis of self-control, self-regulation, and life satisfaction. Meanwhile, the remaining of 20.6% is determined by other factors not included in the study, such as gratitude, hope, positive coping (Witvliet, 2018; Li, et al., 2016), and so on.

## **5.4 Implication**

The findings of this study have several theoretical and practical implications. The following section discusses the implication found in this study.

### **5.4.1 Theoretical Implication**

Firstly, findings of this study confirmed the connections of religiosity to self-control, self-regulation, life satisfaction, and happiness. Even though the relationships have been found between them, but limited researches have been conducted within the South East Asian context, particularly in the context of Indonesia.

Secondly, religiosity has found to be related to life satisfaction. However, the strength of the relationships found varies (Brough & Frame, 2004; Khatri & Fern, 2001). Therefore, findings of this study contribute new insights to theoretical consideration that self-control and self-regulation have important role in the relationship between religiosity and life satisfaction. Findings of this study provide some further considerations of the variation previously noted in religiosity and life satisfaction literature, and clearly affirm the underlying mechanisms of how the association of religiosity with life satisfaction varies due to the mediating effects of self-control and self-regulation.

Thirdly, religiosity has found to be an inconsistent predictor of happiness. For example, Francis and Robbins (2000) evidenced a significant positive correlation of religiosity with happiness. Conversely, Lewis, et al., (2000) also discovered that religiosity and happiness have no significant association. However, it is noteworthy that all these previous researches examined the direct link of religiosity to happiness. The mechanisms through which religiosity operates and how religiosity influences happiness remain in a black box. Therefore, findings of this study contribute new insights to theoretical consideration that religiosity related to happiness through self-control, self-regulation, and life satisfaction. These findings may illuminate some of the contradictions previously noted in the literatures related to religiosity and happiness. Hence, these findings are important because they shed light on the precise nature of the how relationship between religiosity and happiness is.

Fourthly, most of researchers, from the literature review, do not distinguish between life satisfaction and happiness. Happiness and life satisfaction have been used interchangeably due to interrelated concepts (Lucas, et al., 2003; Staw & Barsade, 1993). Findings of this study provide empirical evidences for this

conceptual difference between happiness and life satisfaction, in which life satisfaction is an antecedent to happiness.

#### **5.4.2 Practical Implication.**

Findings in this study provide several prevention and intervention efforts that can be utilized by *ustadz* in delivering Islamic *da'wah*, government authorities in adopting policies and those with deep interest in developing people. These research findings help to understand how a crisis in religiosity can be an essential factor contributing to unhappiness that occurred in society. Lack of happiness in addition to the rise of religiosity is considered as a potential result of religious ineffectiveness to shape people's conduct in everyday life. Instead of delivering religious egocentrism and fanaticism in Islamic assembly, as it has frequently occurred so far, religious moral values related to the self-developing, such as self-control and self-regulation, should be emphasized more in conveying religious teachings.

Furthermore, the significant link of religiosity and happiness that mediated by self-control and self-regulation has provided new angle for interpretation and implementation of religious ritual more properly. Such as prayer at least five times a day, fasting during Ramadan, giving Zakat, performing Hajj, reading religious scriptures should refer to promote more control over emotions, appetites, and impulses. Such interpretation and implementation of religious ritual that focus on exercising and internalizing values contained in all of those religious rituals should be the main focus of parents in instilling the religiosity of their children at home, of the *ustadz* in shaping the religious personality of the *ummah*, and also the government in formulating religious curriculum in schools, so it might thus be useful



and lead to increase self-control and self-regulation, and in turn affect life satisfaction and happiness.

## **5.5 Limitations and Future Direction**

The present study, however, has some limitations that warrant future investigation. Firstly, the results found in this study should be construed carefully due to the evidences provided concerning the pathways between variables are cross-sectional research design. Future research should use longitudinal or experimental research designs to ensure the more guaranteed causal directions.

Secondly, the main result of the present study has a weakness to be generalized on different age groups because the participants were people aged 40 years and more. Further research with diverse samples is needed to investigate whether the proposed model can be supported in different groups.

Thirdly, findings of this study based on a convenience sample of people from Medan only, which limits the generalizability of the findings to other places and cultures. There are some evidences suggested that the influences of religiosity have a tendency to be larger in more religious societies as well to be smaller in nations with high economic and existential security (Diener, et al., 2011). Thus, studies investigated the generalizability of this model to other places and cultures are required to establish a confidence in the findings reported. Future researches should consider all of these limitations.

## 5.6 Conclusion

On the basis of this study, four conclusions can be made. Firstly, religiosity has a positive relationship with self-control. Approximately 8.3% of the variance in self-control was explained by religiosity. Of the two self-control factors, restraint was the most accounted for by religiosity than impulsivity. Secondly, religiosity has a positive relationship with self-regulation. Approximately 17.4% of the variance in self-regulation was explained by religiosity. Of the two self-regulation factors, emotional regulation was the most accounted for by religiosity than attention regulation. Thirdly, religiosity has a positive relationship with life satisfaction. This relationship is partially mediated by self-control and self-regulation. Approximately 33.3% of the relationship between religiosity and life satisfaction could be explained based on self-control and self-regulation, in which self-control contribute more. Fourthly, religiosity has a positive relationship with happiness. This relationship is partially mediated by self-control, self-regulation, and life satisfaction. Approximately 79.4% of the relationship between religiosity and happiness could be explained on the basis of self-control, self-regulation, and life satisfaction. The most effect was contributed by self-regulation, then by self-control, life satisfaction, and religiosity as the least.

Briefly, the meaning of being religious based on the relationship between religiosity and happiness may be due to implications constituted by religion on the self-controlling and self-regulating processes of its adherents, and then related to be more satisfied with life, an association that in turn predicted more on happiness.

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## APPENDICES

### APPENDIX A: RESEARCH INSTRUMENT

#### Appendix A1: Research Instrument (English version)

##### Subjective Happiness Scale (Lyubomirsky, S)

Instructions: For each of the following statements, please circle the point on the scale that you feel is most appropriate in describing you.

1. In general, I consider myself :

not a very happy person    1    2    3    4    5    6    7    a very happy person

2. Compared to most of my peers, I consider myself :

less happy    1    2    3    4    5    6    7    more happy

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

Not at all    1    2    3    4    5    6    7    a great deal

4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

not at all    1    2    3    4    5    6    7    a great deal

##### Satisfaction With Life Scale (Diener, E.)

Instructions: Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

\_\_\_\_\_ In most ways my life is close to my ideal.

\_\_\_\_\_ The conditions of my life are excellent.

\_\_\_\_\_ I am satisfied with my life.

\_\_\_\_\_ So far I have gotten the important things I want in life.

\_\_\_\_\_ If I could live my life over, I would change almost nothing.

### Self-control Scale (Tangney)

Instructions: using the 1 to 5 scale below, please indicate by placing the appropriate number on the line subsequent that is most appropriate in describing how you typically are:

- 5 – Very much      • 4 – Quite a bit      • 3 – Moderately      • 2 – Not very much  
• 1 – Not at all

1. I am good at resisting temptation. \_\_\_\_
2. I have a hard time breaking bad habits. \_\_\_\_
3. I am lazy. \_\_\_\_
4. I say inappropriate things. \_\_\_\_
5. I do certain things that are bad for me, if they are fun. \_\_\_\_
6. I refuse things that are bad for me. \_\_\_\_
7. I wish I had more self-discipline. \_\_\_\_
8. People would say that I have iron self-discipline. \_\_\_\_
9. Pleasure and fun sometimes keep me from getting work done. \_\_\_\_
10. I have trouble concentrating. \_\_\_\_
11. I am able to work effectively toward long-term goals. \_\_\_\_
12. Sometimes I can't stop myself from doing something, even if I know it is wrong. \_\_\_\_
13. I often act without thinking through all the alternatives. \_\_\_\_

### Self-regulation Scale (Schwarzer)

Instructions: using the 1 to 4 scale below, please indicate by placing the appropriate number on the line subsequent that is most appropriate in describing how you typically are:

- 4 – Completely true      • 3 – Somewhat true      • 2 – Barely true      • 1 – Not at all true

1. I can concentrate on one activity for a long time, if necessary. \_\_\_\_
2. If I am distracted from an activity, I don't have any problem coming back to the topic quickly. \_\_\_\_
3. If an activity arouses my feelings too much, I can calm myself down so that I can continue with the activity soon. \_\_\_\_
4. If an activity requires a problem-oriented attitude, I can control my feelings. \_\_\_\_
5. It is difficult for me to suppress thoughts that interfere with what I need to do. \_\_\_\_
6. I can control my thoughts from distracting me from the task at hand. \_\_\_\_
7. When I worry about something, I cannot concentrate on an activity. \_\_\_\_
8. After an interruption, I don't have any problem resuming my concentrated style of working. \_\_\_\_
9. I usually have a whole bunch of thoughts and feelings that interfere with my ability to work in a focused way. \_\_\_\_
10. I stay focused on my goal and don't allow anything to distract me from my plan of action. \_\_\_\_

Centrality of Religiosity Scale (Huber)

Instructions: For each of the following statements and/or questions, please indicate your frequency with each item by placing the appropriate number on the line subsequent that is most appropriate in describing you.

- 5 - Very often      • 4 - Often      • 3 - Occasionally      • 2 - Rarely  
• 1 - Never

- 01: How often do you think about religious issues? \_\_\_\_  
03: How often do you take part in religious services? \_\_\_\_  
04: How often do you pray? \_\_\_\_  
05: How often do you experience situations in which you have the feeling that God or something divine intervenes in your life? \_\_\_\_  
10: How often do you experience situations in which you have the feeling that God or something divine wants to communicate or to reveal something to you? \_\_\_\_  
11: How often do you keep yourself informed about religious questions through radio, television, internet, newspapers, or books? \_\_\_\_  
14: How often do you pray spontaneously when inspired by daily situations? \_\_\_\_  
15: How often do you experience situations in which you have the feeling that God or something divine is present? \_\_\_\_

Instructions: For each of the following statements and/or questions, please indicate your importance with each item by placing the appropriate number on the line subsequent that is most appropriate in describing you.

- 5 – Very much      • 4 – Quite a bit      • 3 - Moderately      • 2 – Not very much  
• 1 – Not at all

- 02: To what extent do you believe that God or something divine exists? \_\_\_\_  
06: How interested are you in learning more about religious topics? \_\_\_\_  
07: To what extend do you believe in an afterlife - e.g. immortality of the soul, resurrection of the dead or reincarnation? \_\_\_\_  
08: How important is to take part in religious services? \_\_\_\_  
09: How important is personal prayer for you? \_\_\_\_  
12: In your opinion, how probable is it that a higher power really exists? \_\_\_\_  
13: How important is it for you to be connected to a religious community? \_\_\_\_

## Appendix A2: Translated Research Instrument (Indonesian Version)

### ANGKET PENELITIAN

Terimakasih telah berkenan ikut berpartisipasi dalam penelitian ini. Perlu kami informasikan bahwa pilihan jawaban Anda dijamin tingkat kerahasiaannya secara penuh. Dengan memberikan jawaban yang terbuka, jujur, dan akurat, Anda telah ikut membantu kami untuk memahami secara lebih baik tentang bagaimana keberagaman berperan dalam meningkatkan kepuasan hidup dan kebahagiaan.

#### A. Data diri

Petunjuk : Isilah daftar berikut ini dengan benar.

1. Nama : ..... (boleh dikosongkan)
2. Umur : ..... tahun
3. Jenis Kelamin : Laki-laki / Perempuan.
4. Kecamatan : ..... (wajib diisi )

#### B. Angket I (SHS)

Petunjuk: Berikut ini terdapat empat pernyataan. Dengan menggunakan skala 1 – 7 berikut ini, pilihlah angka jawaban yang paling sesuai dengan cara melingkarinya.

1. Secara umum, saya adalah orang yang :

Sangat tidak bahagia 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat bahagia

2. Dibandingkan dengan orang lain, saya adalah orang yang :

Kurang bahagia 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Lebih bahagia

3. Sebagian orang pada umumnya adalah orang yang bahagia. Mereka menikmati hidup tanpa menghiraukan yang sedang terjadi, mendapatkan apa yang diinginkan. Sejauh mana ciri-ciri tersebut sesuai dengan Anda?

Sangat tidak sesuai 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat sesuai

4. Sebagian orang pada umumnya sangat tidak bahagia. Meskipun mereka tidak merasa sedih, mereka tidak bahagia sebagaimana seharusnya. Sejauhmana ciri-ciri tersebut sesuai dengan Anda.

Sangat tidak sesuai 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat sesuai

### C. Angket II (SWLS)

Petunjuk: Berikut ini terdapat lima pernyataan. Dengan menggunakan skala 1 – 7 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong sebelumnya.

- 7 - Sangat Setuju                      • 6 – Setuju                      • 5 – Agak Setuju                      • 4 – Tidak Tahu
- 3 – Agak Tidak Setuju                      • 2 – Tidak Setuju                      • 1 – Sangat Tidak Setuju

- \_\_\_\_\_ Sebagian besar kondisi hidup saya mendekati ideal.
- \_\_\_\_\_ Kondisi kehidupan saya sangat baik
- \_\_\_\_\_ Saya puas dengan kehidupan yang telah saya jalani
- \_\_\_\_\_ Sejauh ini saya telah mendapatkan hal-hal penting yang saya inginkan dalam kehidupan
- \_\_\_\_\_ Jika saya bisa hidup lebih lama, hampir tidak ada yang saya ingin ubah.

### D. Angket III (SCS)

Petunjuk: Berikut ini terdapat tiga belas pernyataan. Dengan menggunakan skala 1 – 5 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

- 5 – Sangat sesuai                      • 4 - Sesuai                      • 3 - Kadang
- 2 - Jarang                      • 1 – Tidak sesuai

1. Saya adalah orang yang kuat dalam menghadapi godaan. \_\_\_\_\_
2. Saya memiliki masa yang sulit untuk mengubah kebiasaan buruk. \_\_\_\_\_
3. Saya adalah seorang pemalas. \_\_\_\_\_
4. Saya mengucapkan kata-kata yang tidak pantas. \_\_\_\_\_
5. Saya melakukan hal-hal yang tidak baik, jika menyenangkan. \_\_\_\_\_
6. Saya menghindari hal-hal yang tidak baik bagi saya. \_\_\_\_\_
7. Saya berharap memiliki lebih banyaki lagi disiplin diri. \_\_\_\_\_
8. Orang lain mengatakan bahwa saya memiliki disiplin diri yang kuat. \_\_\_\_\_
9. Kenikmatan dan kesenangan terkadang membuat saya tidak menyelesaikan pekerjaan.  
\_\_\_\_\_
10. Saya susah untuk berkonsentrasi. \_\_\_\_\_
11. Saya mampu bekerja secara efektif dalam meraih tujuan jangka panjang. \_\_\_\_\_

12. Terkadang saya tidak dapat menahan diri untuk melakukan sesuatu, meskipun saya menyadari hal tersebut salah. \_\_\_\_
13. Saya sering bertindak tanpa memikirkan kemungkinan adanya alternatif lain. \_\_\_\_

#### **E. Angket IV (SRS)**

Petunjuk: Berikut ini terdapat sepuluh pernyataan. Dengan menggunakan skala 1 – 4 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

• 4 – Sangat benar      • 3 – Benar      • 2 – Kurang benar      • 1 – Tidak benar

1. Jika diperlukan, saya mampu berkonsentrasi pada satu aktivitas untuk waktu yang lama. \_\_\_\_
2. Jika saya mendapat gangguan dalam beraktivitas, saya tidak mengalami kesulitan untuk melakukan kembali aktivitas tersebut dengan segera. \_\_\_\_
3. Bila sebuah aktivitas terlalu mengganggu perasaan saya, saya mampu menenangkan diri agar dapat melanjutkan kembali aktivitas tersebut dengan segera. \_\_\_\_
4. Bila sebuah pekerjaan membutuhkan sikap yang berorientasi pada masalah, saya mampu untuk mengendalikan perasaan saya. \_\_\_\_
5. Sulit bagi saya untuk mengendalikan pikiran yang mengganggu apa yang harus saya kerjakan. \_\_\_\_
6. Saya mampu mengendalikan pikiran yang mengganggu dalam melaksanakan pekerjaan yang ada. \_\_\_\_
7. Ketika saya khawatir akan sesuatu, saya tidak bisa konsentrasi dalam beraktivitas. \_\_\_\_
8. Setelah menghadapi gangguan, Saya tidak mengalami kesulitan untuk melanjutkan aktivitas. \_\_\_\_
9. Saya selalu memiliki banyak pikiran dan perasaan yang mengganggu kemampuan saya beraktivitas dengan fokus. \_\_\_\_
10. Saya selalu fokus pada tujuan dan tidak membenarkan apa pun untuk mengganggu saya dalam meraihnya. \_\_\_\_

## F. Angket V (CRS)

Petunjuk: Berikut ini terdapat delapan pernyataan. Dengan menggunakan skala 1 – 5 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

- 5 – Sangat sering
- 4 - Sering
- 3 - Kadang
- 2 - Jarang
- 1 – Tidak pernah

- 01: Seberapa seringkah Anda memikirkan masalah keberagamaan? \_\_\_\_
- 03: Seberapa seringkah Anda terlibat dalam kegiatan-kegiatan beragama? \_\_\_\_
- 04: Seberapa seringkah Anda melakukan kewajiban-kewajiban beragama? \_\_\_\_
- 05: Seberapa seringkah Anda mengalami situasi dimana Tuhan turut campur tangan dalam hidup Anda? \_\_\_\_
- 10: Seberapa seringkah Anda mengalami situasi dimana Tuhan hendak memberikan yang terbaik untuk Anda? \_\_\_\_
- 11: Seberapa seringkah Anda berusaha untuk mendapatkan pengetahuan agama melalui radio, televisi, internet, koran, atau buku? \_\_\_\_
- 14: Seberapa seringkah Anda bersyukur secara spontan ketika mendapat hikmah dalam kegiatan sehari-hari. \_\_\_\_
- 15: Seberapa seringkah Anda mengalami kondisi dimana Anda merasa bahwa Tuhan hadir dalam kehidupan Anda? \_\_\_\_

Petunjuk: Berikut ini terdapat tujuh pernyataan. Dengan menggunakan skala 1 – 5 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

- 5 – Sangat Banyak
- 4 – Banyak
- 3 – Sedikit
- 2 – Tidak banyak
- 1 – Tidak sama sekali

- 02: Sejauhmana Anda meyakini bahwa Tuhan itu ada? \_\_\_\_
- 06: Seberapa besar minat Anda mempelajari lebih banyak topik keagamaan? \_\_\_\_
- 07: Sejauhmana Anda meyakini kehidupan setelah mati –seperti kekekalan ruh, atau hari kebangkitan? \_\_\_\_
- 08: Seberapa pentingkah bagi Anda untuk ikut terlibat dalam kegiatan agama? \_\_\_\_
- 09: Seberapa pentingkah kewajiban beragama bagi Anda? \_\_\_\_
- 12: Menurut Anda, seberapa besarkah kemungkinan bahwa kekuatan yang lebih besar itu benar ada? \_\_\_\_
- 13: Seberapa pentingkah bagi Anda untuk ikut terlibat dalam komunitas beragama? \_\_\_\_

## Appendix A3: Revised Research Instrument (Pre-Test)

### ANGKET PENELITIAN

Terimakasih telah berkenan ikut berpartisipasi dalam penelitian ini. Perlu kami informasikan bahwa pilihan jawaban Anda dijamin tingkat kerahasiaannya secara penuh. Dengan memberikan jawaban yang terbuka, jujur, dan akurat, Anda telah ikut membantu kami untuk memahami secara lebih baik tentang bagaimana keberagaman berperan dalam meningkatkan kepuasan hidup dan kebahagiaan.

#### A. Data diri

Petunjuk : Isilah daftar berikut ini dengan benar.

1. Nama : ..... (boleh dikosongkan)
2. Umur : ..... tahun
3. Jenis Kelamin : Laki-laki / Perempuan.
4. Kecamatan : ..... (wajib diisi )

#### B. Angket I (SHS)

Petunjuk: Berikut ini terdapat empat pernyataan. Dengan menggunakan skala 1 – 7 berikut ini, pilihlah angka jawaban yang paling sesuai dengan cara melingkarinya.

1. Secara umum, saya adalah orang yang :

Sangat tidak bahagia 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat bahagia

2. Dibandingkan dengan orang lain, saya adalah orang yang :

Kurang bahagia 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Lebih bahagia

3. Sebagian orang pada umumnya adalah orang yang bahagia. Mereka menikmati hidup tanpa menghiraukan yang sedang terjadi **dan** mendapatkan apa yang diinginkan. Sejauh mana ciri-ciri tersebut sesuai dengan Anda?

Sangat tidak sesuai 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat sesuai



4. Sebagian orang pada umumnya sangat tidak bahagia. Meskipun mereka tidak merasa sedih, **namun** mereka tidak bahagia sebagaimana seharusnya. Sejuahmana ciri-ciri tersebut sesuai dengan Anda.

Sangat tidak sesuai 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat sesuai

### C. Angket II (SWLS)

Petunjuk: Berikut ini terdapat lima pernyataan. Dengan menggunakan skala 1 – 7 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong sebelumnya.

- 7 - Sangat Setuju                      • 6 – Setuju                      • 5 – Agak Setuju                      • 4 – Tidak Tahu
- 3 – Agak Tidak Setuju                      • 2 – Tidak Setuju                      • 1 – Sangat Tidak Setuju

- \_\_\_\_\_ Sebagian besar kondisi **perjalanan** hidup saya mendekati ideal.
- \_\_\_\_\_ Kondisi kehidupan saya sangat baik
- \_\_\_\_\_ Saya puas dengan kehidupan yang telah saya jalani
- \_\_\_\_\_ Sejuah ini saya telah ~~mendapatkan~~ **meraih** hal-hal penting yang saya inginkan dalam kehidupan
- \_\_\_\_\_ Jika saya bisa hidup lebih lama, hampir tidak ada yang saya ingin ubah.

### D. Angket III (SCS)

Petunjuk: Berikut ini terdapat tiga belas pernyataan. Dengan menggunakan skala 1 – 5 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

- 5 – Sangat sesuai                      • 4 - Sesuai                      • 3 - Kadang
- 2 - Jarang                      • 1 – Tidak sesuai

1. Saya ~~adalah~~ orang yang kuat dalam menghadapi godaan. \_\_\_\_\_
2. Saya ~~memiliki masa yang~~ **merasa** sulit untuk mengubah kebiasaan buruk. \_\_\_\_\_
3. Saya ~~adalah~~ seorang pemalas. \_\_\_\_\_
4. Saya mengucapkan kata-kata yang tidak pantas. \_\_\_\_\_
5. Saya melakukan hal-hal yang tidak baik jika menyenangkan. \_\_\_\_\_
6. Saya menghindari hal-hal yang tidak baik bagi saya. \_\_\_\_\_
7. Saya berharap **mampu** ~~memiliki lebih banyak lagi~~ lebih disiplin diri lagi. \_\_\_\_\_
8. Orang lain mengatakan bahwa saya memiliki disiplin diri yang kuat. \_\_\_\_\_
9. Kenikmatan dan kesenangan terkadang membuat saya tidak menyelesaikan pekerjaan.
- \_\_\_\_\_
10. Saya susah untuk berkonsentrasi. \_\_\_\_\_

11. Saya mampu bekerja secara efektif dalam meraih tujuan jangka panjang. \_\_\_\_
12. ~~Terkadang~~ Saya tidak dapat menahan diri untuk melakukan sesuatu, meskipun saya menyadari hal tersebut salah. \_\_\_\_
13. Saya ~~sering~~ bertindak tanpa memikirkan kemungkinan adanya alternatif lain. \_\_\_\_

#### E. Angket IV (SRS)

Petunjuk: Berikut ini terdapat sepuluh pernyataan. Dengan menggunakan skala 1 – 4 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

• 4 – Sangat benar                      • 3 – Benar            • 2 – Kurang benar            • 1 – Tidak benar

1. Jika diperlukan, saya mampu berkonsentrasi pada satu aktivitas untuk waktu yang lama. \_\_\_\_
2. Jika saya mendapat gangguan dalam beraktivitas, saya tidak mengalami kesulitan untuk melakukan kembali aktivitas tersebut dengan segera. \_\_\_\_
3. Bila sebuah aktivitas terlalu mengganggu perasaan saya, saya mampu menenangkan diri agar dapat melanjutkan kembali aktivitas tersebut dengan segera. \_\_\_\_
4. Bila sebuah pekerjaan membutuhkan sikap yang berorientasi pada masalah, saya mampu untuk mengendalikan perasaan saya. \_\_\_\_
5. ~~Sulit bagi~~ Saya untuk ~~mengendalikan~~ **merasa** kesulitan mengendalikan pikiran yang mengganggu tentang apa yang harus saya kerjakan. \_\_\_\_
6. Saya mampu mengendalikan pikiran yang mengganggu dalam melaksanakan pekerjaan yang ada. \_\_\_\_
7. Ketika saya khawatir akan sesuatu, saya tidak bisa konsentrasi dalam beraktivitas. \_\_\_\_
8. Setelah menghadapi gangguan, Saya tidak mengalami kesulitan untuk melanjutkan aktivitas. \_\_\_\_
9. Saya ~~selalu~~ memiliki ~~banyak~~ pikiran dan perasaan yang mengganggu kemampuan saya beraktivitas dengan fokus. \_\_\_\_
10. Saya ~~selalu~~ **mampu** berfokus pada tujuan dan tidak ~~membenarkan~~ **membiarkan** apa pun mengganggu saya dalam meraihnya. \_\_\_\_

## F. Angket V (CRS)

Petunjuk: Berikut ini terdapat delapan pernyataan. Dengan menggunakan skala 1 – 5 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

- 5 – Sangat sering
- 4 - Sering
- 3 - Kadang
- 2 - Jarang
- 1 – Tidak pernah

- 01: Seberapa seringkah Anda memikirkan masalah keberagamaan? \_\_\_\_
- 03: Seberapa seringkah Anda terlibat dalam kegiatan-kegiatan beragama? \_\_\_\_
- 04: Seberapa seringkah Anda melakukan kewajiban-kewajiban beragama? \_\_\_\_
- 05: Seberapa seringkah Anda mengalami **situasi** dimana Tuhan ~~turut campur tangan~~ **ikut berperan** dalam hidup Anda? \_\_\_\_
- 10: Seberapa seringkah Anda mengalami situasi dimana Tuhan **berkehendak** memberikan yang terbaik untuk Anda? \_\_\_\_
- 11: Seberapa seringkah Anda berusaha untuk mendapatkan pengetahuan agama melalui radio, televisi, internet, koran, ataupun buku? \_\_\_\_
- 14: Seberapa seringkah Anda bersyukur secara spontan ketika mendapat hikmah dalam kegiatan sehari-hari. \_\_\_\_
- 15: Seberapa seringkah Anda mengalami kondisi dimana Anda merasa bahwa Tuhan hadir dalam kehidupan Anda? \_\_\_\_

Petunjuk: Berikut ini terdapat tujuh pernyataan. Dengan menggunakan skala 1 – 5 berikut ini, pilihlah angka jawaban yang paling sesuai dengan mengisikannya pada garis kosong setelahnya.

- 5 – Sangat Banyak
- 4 – Banyak
- 3 – Sedikit
- 2 – Tidak banyak
- 1 – Tidak sama sekali

- 02: Sejauhmana Anda meyakini bahwa Tuhan itu ada? \_\_\_\_
- 06: Seberapa besar minat Anda mempelajari lebih banyak topik keagamaan? \_\_\_\_
- 07: Sejauhmana Anda meyakini kehidupan setelah mati –seperti kekekalan ruh, atau hari kebangkitan? \_\_\_\_
- 08: Seberapa pentingkah bagi Anda untuk ikut terlibat dalam kegiatan agama? \_\_\_\_
- 09: Seberapa pentingkah kewajiban beragama bagi Anda? \_\_\_\_
- 12: Menurut Anda, seberapa besarkah kemungkinan bahwa ~~kekuatan yang lebih besar~~ **Yang Maha Kuasa** itu benar ada? \_\_\_\_
- 13: Seberapa pentingkah bagi Anda untuk ikut terlibat dalam komunitas beragama? \_\_\_\_

**Appendix A4: Research Instrument (Pilot Test & Main Test)**

# **Survey Penelitian**



**Disusun Oleh:**

**Abdul Aziz Rusman**

**Universiti Sains Malaysia**

## Surat Pernyataan Persetujuan

Nama saya Abdul Aziz Rusman, mahasiswa program doktor di Universitas Sains Malaysia, Penang. Saya sedang melakukan penelitian untuk kepentingan disertasi program doktor yang sedang saya tempuh.

Pengisian survey ini memakan waktu kurang lebih 30 menit. Jika Anda memilih untuk ikut berpartisipasi, Anda boleh tidak mengisi nama Anda pada kolom yang tersedia. Survey ini tidak untuk meraih keuntungan pribadi, dan juga tidak mengandung resiko apapun ketika Anda memilih untuk tidak ikut. Hasil penelitian ini mungkin akan dipublikasikan di jurnal akademis atau disajikan dalam seminar atau konferensi. Namun demikian, data hasil penelitian ini hanya akan disajikan secara umum. Dengan kata lain, hasil survey per individu tidak akan pernah disajikan dalam laporan sehingga apa pun jawaban Anda tidak akan mungkin bisa ditelusuri.

Partisipasi Anda dalam penelitian ini adalah bersifat suka rela. Jika Anda memutuskan untuk ikut, dimohon untuk mengisi setiap butir pernyataan dengan lengkap. Anda juga masih boleh untuk membatalkan keterlibatan dengan tidak mengembalikan survey ini kepada kami. Partisipasi dan dukungan Anda dalam penelitian ini amat sangat dihargai. Semoga penelitian ini dapat bermanfaat untuk kesejahteraan umat manusia. Jika ada pertanyaan dan saran dikemudian hari, Anda dapat menghubungi kami. Terimakasih.

Abdul Aziz Rusman  
Jl. Brigjend Katamsa,  
Gg. Jarak, No.1  
Medan.  
Hp : 0813 6227 2002  
Email : [azizrusman@yahoo.com](mailto:azizrusman@yahoo.com)

## A. Data diri

Petunjuk : Isilah daftar berikut ini dengan benar.

1. Nama :  
.....  
(boleh dikosongkan)
2. Umur : ..... tahun
3. Jenis Kelamin : Laki-laki / Perempuan.
4. Tempat Tinggal : Kecamatan ..... (wajib diisi )

## B. Angket SHS

Petunjuk: Dengan menggunakan skala 1 – 7 berikut ini, lingkarilah angka jawaban yang paling sesuai dengan kondisi Anda.

1. Secara umum, saya adalah orang yang :

Sangat tidak bahagia 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat bahagia

2. Dibandingkan dengan orang lain, saya adalah orang yang :

Kurang bahagia 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Lebih bahagia

3. Sebagian orang pada umumnya adalah orang yang bahagia. Mereka menikmati hidup tanpa menghiraukan yang sedang terjadi dan mendapatkan apa yang diinginkan. Sejauh mana ciri-ciri tersebut sesuai dengan Anda?

Sangat tidak sesuai 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat sesuai

4. Sebagian orang pada umumnya sangat tidak bahagia. Meskipun mereka tidak merasa sedih, namun mereka tidak bahagia sebagaimana seharusnya. Sejauhmana ciri-ciri tersebut sesuai dengan Anda.

Sangat tidak sesuai 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

 Sangat sesuai

### C. Angket LS

Petunjuk: Dengan menggunakan skala 1 – 7 berikut ini, lingkarilah angka jawaban yang paling sesuai dengan kondisi Anda.

- 7 - Sangat Setuju    • 6 – Setuju    • 5 – Agak Setuju    • 4 – Tidak Tahu  
• 3 – Agak Tidak Setuju    • 2 – Tidak Setuju    • 1 – Sangat Tidak Setuju

1. Sebagian besar perjalanan hidup saya mendekati ideal.	1	2	3	4	5	6	7
2. Kondisi kehidupan saya sangat baik	1	2	3	4	5	6	7
3. Saya puas dengan kehidupan yang telah saya jalani	1	2	3	4	5	6	7
4. Sejauh ini saya telah meraih hal-hal penting yang saya inginkan dalam hidup	1	2	3	4	5	6	7
5. Jika saya bisa hidup lebih lama, hampir tidak ada yang saya ingin ubah	1	2	3	4	5	6	7

### D. Angket RL

Petunjuk: Dengan menggunakan skala 1 – 5 berikut ini, lingkarilah angka jawaban yang paling sesuai dengan kondisi Anda.

- 5 – Sangat sering    • 4 – Sering    • 3 – Kadang    • 2 – Jarang  
• 1 – Tidak pernah

1. Seberapa seringkah Anda memikirkan masalah keberagaman?	1	2	3	4	5
2. Seberapa seringkah Anda terlibat dalam kegiatan-kegiatan beragama?	1	2	3	4	5
3. Seberapa seringkah Anda melakukan kewajiban-kewajiban beragama?	1	2	3	4	5
4. Seberapa seringkah Anda mengalami situasi dimana Tuhan ikut berperan dalam hidup Anda?	1	2	3	4	5
5. Seberapa seringkah Anda mengalami situasi dimana Tuhan berkehendak memberikan yang terbaik untuk Anda?	1	2	3	4	5
6. Seberapa seringkah Anda berusaha untuk mendapatkan pengetahuan agama melalui radio, televisi, internet, koran, ataupun buku?	1	2	3	4	5
7. Seberapa seringkah Anda bersyukur secara spontan ketika mendapat hikmah dalam kegiatan sehari-hari.	1	2	3	4	5
8. Seberapa seringkah Anda mengalami kondisi dimana Anda merasa bahwa Tuhan hadir dalam kehidupan Anda?	1	2	3	4	5

Petunjuk: Dengan menggunakan skala 1 – 5 berikut ini, lingkarilah angka jawaban yang paling sesuai dengan kondisi Anda.

- 5 – Sangat Banyak
- 4 – Banyak
- 3 – Sedikit
- 2 – Tidak banyak
- 1 – Tidak sama sekali

9. Sejauhmana Anda meyakini bahwa Tuhan itu ada?	1	2	3	4	5
10. Seberapa besar minat Anda mempelajari lebih banyak topik keagamaan?	1	2	3	4	5
11. Sejauhmana Anda meyakini kehidupan setelah mati –seperti kekekalan ruh, atau hari kebangkitan?	1	2	3	4	5
12. Seberapa pentingkah bagi Anda untuk ikut terlibat dalam kegiatan agama?	1	2	3	4	5
13. Seberapa pentingkah kewajiban beragama bagi Anda?	1	2	3	4	5
14. Menurut Anda, seberapa besarkah kemungkinan bahwa Yang Maha Kuasa itu benar ada?	1	2	3	4	5
15. Seberapa pentingkah bagi Anda untuk ikut terlibat dalam komunitas beragama?	1	2	3	4	5

#### E. Angket SR

Petunjuk: Dengan menggunakan skala 1 – 4 berikut ini, lingkarilah angka jawaban yang paling sesuai dengan kondisi Anda.

- 4 – Sangat benar
- 3 – Benar
- 2 – Kurang benar
- 1 – Tidak benar

1. Jika diperlukan, saya mampu berkonsentrasi pada satu aktivitas untuk waktu yang lama.	1	2	3	4
2. Jika saya mendapat gangguan dalam beraktivitas, saya tidak mengalami kesulitan untuk melakukan kembali aktivitas tersebut dengan segera.	1	2	3	4
3. Bila sebuah aktivitas terlalu mengganggu perasaan saya, saya mampu menenangkan diri agar dapat melanjutkan kembali aktivitas tersebut dengan segera.	1	2	3	4
4. Bila sebuah pekerjaan membutuhkan sikap yang berorientasi pada masalah, saya mampu untuk mengendalikan perasaan saya.	1	2	3	4
5. Saya merasa kesulitan mengendalikan pikiran yang mengganggu tentang apa yang seharusnya saya kerjakan.	1	2	3	4
6. Saya mampu mengendalikan pikiran yang mengganggu dalam melaksanakan pekerjaan yang ada.	1	2	3	4
7. Ketika saya khawatir akan sesuatu, saya tidak bisa konsentrasi dalam beraktivitas.	1	2	3	4
8. Setelah menghadapi gangguan, Saya tidak mengalami kesulitan	1	2	3	4



	untuk melanjutkan aktivitas.				
9.	Saya memiliki banyak pertimbangan pikiran dan perasaan sehingga mengganggu kemampuan saya beraktivitas dengan fokus.	1	2	3	4
10.	Saya mampu berfokus pada tujuan dan tidak membiarkan apa pun mengganggu saya dalam meraihnya.	1	2	3	4

## F. Angket SC

Petunjuk: Dengan menggunakan skala 1 – 5 berikut ini, lingkarilah angka jawaban yang paling sesuai dengan kondisi Anda.

- 5 – Sangat Sesuai    • 4 – Sesuai    • 3 – Kadang    • 2 – Jarang  
• 1 – Tidak Sesuai

1.	Saya orang yang kuat dalam menghadapi godaan.	1	2	3	4	5
2.	Saya merasa sulit mengubah kebiasaan buruk.	1	2	3	4	5
3.	Saya seorang pemalas.	1	2	3	4	5
4.	Saya mengucapkan kata-kata yang tidak pantas.	1	2	3	4	5
5.	Saya melakukan hal-hal yang tidak baik jika menyenangkan.	1	2	3	4	5
6.	Saya menghindari hal-hal yang tidak baik bagi saya.	1	2	3	4	5
7.	Saya berharap mampu lebih disiplin diri lagi.	1	2	3	4	5
8.	Orang lain mengatakan bahwa saya memiliki disiplin diri yang kuat.	1	2	3	4	5
9.	Kenikmatan dan kesenangan terkadang membuat saya tidak menyelesaikan pekerjaan.	1	2	3	4	5
10.	Saya susah untuk berkonsentrasi.	1	2	3	4	5
11.	Saya mampu bekerja secara efektif dalam meraih tujuan jangka panjang.	1	2	3	4	5
12.	Saya tidak dapat menahan diri untuk melakukan sesuatu, meskipun saya menyadari hal tersebut salah.	1	2	3	4	5
13.	Saya bertindak tanpa memikirkan kemungkinan adanya alternatif lain.	1	2	3	4	5

Terimakasih telah berkenan ikut berpartisipasi dalam penelitian ini. Perlu kami informasikan bahwa pilihan jawaban Anda dijamin tingkat kerahasiaannya secara penuh.

## APPENDIX B: PILOT STUDY RESULT

### Appendix B1: Validity and Reliability of The Subjective Happiness Scale

DATE: 9/12/2017

TIME: 20:02

L I S R E L 8.80

BY

Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\Tryout\Pilot  
HP.sp1**:

CFA by Robust Maximum Likelihood  
Raw Data from file 'D:Study.psf'  
Asymptotic Covariance Matrix from file Pilot.acm  
Latent Variables HP  
Relationships  
SHS01 = HP  
SHS02 = HP  
SHS03 = HP  
SHS04 = HP  
Path Diagram  
End of Problem

Sample Size = 50

#### Measurement Model Of Happiness

#### Covariance Matrix

	<b>SHS01</b>	<b>SHS02</b>	<b>SHS03</b>	<b>SHS04</b>
<b>SHS01</b>	4.488			
<b>SHS02</b>	2.238	2.916		
<b>SHS03</b>	2.597	2.398	4.021	
<b>SHS04</b>	2.537	1.824	2.811	3.875

### Measurement Model Of Happiness

Number of Iterations = 4

## **LISREL Estimates (Robust Maximum Likelihood)**

### Measurement Equations

SHS01 = 1.556\*HP, Errorvar.= 2.067 , R<sup>2</sup> = 0.539  
(0.208) (0.508)  
7.472 4.067

SHS02 = 1.325\*HP, Errorvar.= 1.161 , R<sup>2</sup> = 0.602  
(0.208) (0.346)  
6.383 3.356

SHS03 = 1.776\*HP, Errorvar.= 0.866 , R<sup>2</sup> = 0.785  
(0.162) (0.330)  
10.940 2.622

SHS04 = 1.542\*HP, Errorvar.= 1.496 , R<sup>2</sup> = 0.614  
(0.208) (0.486)  
7.409 3.079

## **Goodness of Fit Statistics**

Degrees of Freedom = 2  
Minimum Fit Function Chi-Square = 3.813 (P = 0.149)  
Normal Theory Weighted Least Squares Chi-Square = 3.353 (P = 0.187)  
Satorra-Bentler Scaled Chi-Square = 3.349 (P = 0.187)  
Chi-Square Corrected for Non-Normality = 4.341 (P = 0.114)  
Estimated Non-centrality Parameter (NCP) = 1.349  
90 Percent Confidence Interval for NCP = (0.0 ; 10.670)

Minimum Fit Function Value = 0.0778  
Population Discrepancy Function Value (F0) = 0.0275  
90 Percent Confidence Interval for F0 = (0.0 ; 0.218)  
Root Mean Square Error of Approximation (RMSEA) = 0.117  
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.330)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.225

Expected Cross-Validation Index (ECVI) = 0.395  
90 Percent Confidence Interval for ECVI = (0.367 ; 0.585)  
ECVI for Saturated Model = 0.408  
ECVI for Independence Model = 2.582

Chi-Square for Independence Model with 6 Degrees of Freedom = 118.526  
Independence AIC = 126.526  
Model AIC = 19.349  
Saturated AIC = 20.000  
Independence CAIC = 138.174  
Model CAIC = 42.645  
Saturated CAIC = 49.120  
Normed Fit Index (NFI) = 0.972  
Non-Normed Fit Index (NNFI) = 0.964  
Parsimony Normed Fit Index (PNFI) = 0.324  
Comparative Fit Index (CFI) = 0.988  
Incremental Fit Index (IFI) = 0.988

Relative Fit Index (RFI) = 0.915

Critical N (CN) = 135.775

Root Mean Square Residual (RMR) = 0.115

Standardized RMR = 0.0313

Goodness of Fit Index (GFI) = 0.967

Adjusted Goodness of Fit Index (AGFI) = 0.835

Parsimony Goodness of Fit Index (PGFI) = 0.193

Measurement Model Of Happiness

**Standardized Solution**

**LAMBDA-X**

	<b>HP</b>
<b>SHS01</b>	1.556
<b>SHS02</b>	1.325
<b>SHS03</b>	1.776
<b>SHS04</b>	1.542

**PHI**

<b>HP</b>
1.000

Measurement Model Of Happiness

**Completely Standardized Solution**

**LAMBDA-X**

	<b>HP</b>
<b>SHS01</b>	0.734
<b>SHS02</b>	0.776
<b>SHS03</b>	0.886
<b>SHS04</b>	0.784

**PHI**

<b>HP</b>
1.000

**THETA-DELTA**

<b>SHS01</b>	<b>SHS02</b>	<b>SHS03</b>	<b>SHS04</b>
0.461	0.398	0.215	0.386

Time used: 0.234 Seconds

## Composite Reliability (CR) and Variance Extracted of

## The Subjective Happiness Scale

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>t-Value</b>	<b>Note</b>
SHS	SHS01	.72	5.54	Valid
	SHS02	.61	4.41	Valid
	SHS03	.87	7.13	Valid
	SHS04	.81	6.42	Valid
Composite Reliability (CR) of Subjective Happiness Scale				= <b>.843</b>
Variance Extracted				= <b>.578</b>

Note: Acceptable Level of Standardized Loading Factor (SLF):  $\geq .50$ ;  $t$ -value  $\geq 1.96$  (Igbaria, 1990).  
 Acceptable level of Composite Reliability (CR) :  $\geq .70$  (Hair, et al., 2006)  
 Acceptable Level of Variance Extracted (VE) :  $\geq .50$  (Hair, et al., 2006)

## Appendix B2: Validity and Reliability of The Satisfaction with Life Scale

DATE: 9/12/2017

TIME: 20:01

L I S R E L 8.80

BY

Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\Tryout\Pilot  
LS.spl**:

CFA by Robust Maximum Likelihood  
Raw Data from file 'D:Study.psf'  
Asymptotic Covariance Matrix from file Pilot.acm  
Latent Variables LS  
Relationships  
SWLS01 = LS  
SWLS02 = LS  
SWLS03 = LS  
SWLS04 = LS  
SWLS05 = LS  
Path Diagram  
End of Problem

Sample Size = 50

### Measurement Model Of Life Satisfaction

#### Covariance Matrix

	<b>SWLS01</b>	<b>SWLS02</b>	<b>SWLS03</b>	<b>SWLS04</b>	<b>SWLS05</b>
<b>SWLS01</b>	1.466				
<b>SWLS02</b>	1.095	1.641			
<b>SWLS03</b>	0.958	0.908	1.690		
<b>SWLS04</b>	1.545	1.563	1.396	3.687	
<b>SWLS05</b>	0.763	0.948	0.962	1.300	1.164

**Measurement Model Of Life Satisfaction**

Number of Iterations = 7

**LISREL Estimates (Robust Maximum Likelihood)**

Measurement Equations

SWLS01 = 0.981\*LS, Errorvar.= 0.504 , R<sup>2</sup> = 0.656  
(0.179) (0.104)  
5.475 4.855

SWLS02 = 1.056\*LS, Errorvar.= 0.525 , R<sup>2</sup> = 0.680  
(0.185) (0.109)  
5.709 4.815

SWLS03 = 0.965\*LS, Errorvar.= 0.758 , R<sup>2</sup> = 0.552  
(0.212) (0.127)  
4.564 5.968

SWLS04 = 1.501\*LS, Errorvar.= 1.434 , R<sup>2</sup> = 0.611  
(0.189) (0.310)  
7.938 4.624

SWLS05 = 0.875\*LS, Errorvar.= 0.399 , R<sup>2</sup> = 0.657  
(0.174) (0.0935)  
5.033 4.269

**Goodness of Fit Statistics**

Degrees of Freedom = 5  
Minimum Fit Function Chi-Square = 8.433 (P = 0.134)  
Normal Theory Weighted Least Squares Chi-Square = 7.320 (P = 0.198)  
Satorra-Bentler Scaled Chi-Square = 6.885 (P = 0.229)  
Chi-Square Corrected for Non-Normality = 9.110 (P = 0.105)  
Estimated Non-centrality Parameter (NCP) = 1.885  
90 Percent Confidence Interval for NCP = (0.0 ; 13.025)

Minimum Fit Function Value = 0.172  
Population Discrepancy Function Value (F0) = 0.0385  
90 Percent Confidence Interval for F0 = (0.0 ; 0.266)  
Root Mean Square Error of Approximation (RMSEA) = 0.0877  
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.231)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.294

Expected Cross-Validation Index (ECVI) = 0.549  
90 Percent Confidence Interval for ECVI = (0.510 ; 0.776)  
ECVI for Saturated Model = 0.612  
ECVI for Independence Model = 4.204

Chi-Square for Independence Model with 10 Degrees of Freedom = 195.993  
Independence AIC = 205.993  
Model AIC = 26.885  
Saturated AIC = 30.000  
Independence CAIC = 220.553  
Model CAIC = 56.006  
Saturated CAIC = 73.680

Normed Fit Index (NFI) = 0.965  
Non-Normed Fit Index (NNFI) = 0.980  
Parsimony Normed Fit Index (PNFI) = 0.482  
Comparative Fit Index (CFI) = 0.990  
Incremental Fit Index (IFI) = 0.990  
Relative Fit Index (RFI) = 0.930  
  
Critical N (CN) = 108.379  
  
Root Mean Square Residual (RMR) = 0.0568  
Standardized RMR = 0.0367  
Goodness of Fit Index (GFI) = 0.944  
Adjusted Goodness of Fit Index (AGFI) = 0.831  
Parsimony Goodness of Fit Index (PGFI) = 0.315

**Measurement Model Of Life Satisfaction**

**Standardized Solution**

**LAMBDA-X**

	<b>LS</b>
<b>SWLS01</b>	0.981
<b>SWLS02</b>	1.056
<b>SWLS03</b>	0.965
<b>SWLS04</b>	1.501
<b>SWLS05</b>	0.875

**PHI**

<b>LS</b>
1.000



Measurement Model Of Life Satisfaction

**Completely Standardized Solution**

**LAMBDA-X**

	<b>LS</b>
<b>SWLS01</b>	0.810
<b>SWLS02</b>	0.825
<b>SWLS03</b>	0.743
<b>SWLS04</b>	0.782
<b>SWLS05</b>	0.811

**PHI**

**LS**  
1.000

**THETA-DELTA**

<b>SWLS01</b>	<b>SWLS02</b>	<b>SWLS03</b>	<b>SWLS04</b>	<b>SWLS05</b>
0.344	0.320	0.448	0.389	0.343

Time used: 0.203 Seconds

Composite Reliability (CR) and Variance Extracted of  
The Satisfaction With Life Scale

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>t-Value</b>	<b>Note</b>
SWLS	SWLS01	.81	6.63	Valid
	SWLS02	.83	6.82	Valid
	SWLS03	.74	5.85	Valid
	SWLS04	.78	6.30	Valid
	SWLS05	.81	6.64	Valid
Composite Reliability (CR) of Satisfaction With Life Scale				= <b>.869</b>
Variance Extracted				= <b>.631</b>

Note: Acceptable Level of Standardized Loading Factor (SLF) :  $\geq .50$ ;  $t$ -value  $\geq 1.96$  (Igbaria, 1990).  
Acceptable level of Composite Reliability (CR) :  $\geq .70$  (Hair, et al., 2006)  
Acceptable Level of Variance Extracted (VE) :  $\geq .50$  (Hair, et al., 2006)

## Appendix B3: Validity and Reliability of The Self-Regulation Scale

DATE: 9/12/2017

TIME: 19:59

L I S R E L 8.80

BY

Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\Tryout\SR Pilot.spl**:

```
Second Order CFA by Robust Maximum Likelihood
Raw Data from file 'D:Study.psf'
Asymptotic Covariance Matrix from file Pilot.acm
Latent Variables  ATREG EMREG SR
Relationships
ATREG01 = ATREG
ATREG02 = ATREG
ATREG03 = ATREG
ATREG04 = ATREG
ATREG05 = ATREG
EMREG01 = EMREG
EMREG02 = EMREG
EMREG03 = EMREG
EMREG04 = EMREG
EMREG05 = EMREG
ATREG = SR
EMREG = SR
Set error Variance of ATREG and EMREG free
Path Diagram
End of Problem
```

Sample Size = 50

Measurement Model Of Self-regulation

**Covariance Matrix**

	ATREG01	ATREG02	ATREG03	ATREG04	ATREG05	EMREG01
ATREG01	1.105					
ATREG02	0.541	0.876				
ATREG03	0.749	0.590	0.894			
ATREG04	0.536	0.558	0.610	0.950		
ATREG05	0.520	0.594	0.461	0.565	0.804	
EMREG01	0.299	0.269	0.295	0.413	0.344	1.003
EMREG02	0.206	0.215	0.259	0.291	0.296	0.646
EMREG03	0.372	0.440	0.419	0.405	0.570	0.713
EMREG04	0.315	0.334	0.270	0.307	0.360	0.500
EMREG05	0.436	0.282	0.369	0.322	0.442	0.712

**Covariance Matrix** (continued)

	EMREG02	EMREG03	EMREG04	EMREG05
EMREG02	0.860			
EMREG03	0.740	1.210		
EMREG04	0.560	0.700	0.979	
EMREG05	0.783	0.828	0.663	1.055

Measurement Model Of Self-regulation

Number of Iterations = 16

**LISREL Estimates (Robust Maximum Likelihood)**

Measurement Equations

ATREG01 = 0.796\*ATREG, Errorvar.= 0.471 , R<sup>2</sup> = 0.582  
(0.126)  
3.750

ATREG02 = 0.751\*ATREG, Errorvar.= 0.312 , R<sup>2</sup> = 0.651  
(0.134) (0.0808)  
5.587 3.867

ATREG03 = 0.792\*ATREG, Errorvar.= 0.267 , R<sup>2</sup> = 0.709  
(0.0923) (0.0840)  
8.587 3.172

ATREG04 = 0.754\*ATREG, Errorvar.= 0.381 , R<sup>2</sup> = 0.606  
(0.136) (0.0969)  
5.546 3.938

ATREG05 = 0.695\*ATREG, Errorvar.= 0.321 , R<sup>2</sup> = 0.608  
(0.107) (0.0848)  
6.513 3.786

EMREG01 = 0.770\*EMREG, Errorvar.= 0.411 , R<sup>2</sup> = 0.590  
(0.167)  
2.460

EMREG02 = 0.821\*EMREG, Errorvar.= 0.186 , R<sup>2</sup> = 0.784  
(0.163) (0.0522)  
5.021 3.559

EMREG03 = 0.913\*EMREG, Errorvar.= 0.377 , R<sup>2</sup> = 0.688  
 (0.181) (0.121)  
 5.056 3.122

EMREG04 = 0.707\*EMREG, Errorvar.= 0.479 , R<sup>2</sup> = 0.511  
 (0.168) (0.0850)  
 4.204 5.631

EMREG05 = 0.934\*EMREG, Errorvar.= 0.181 , R<sup>2</sup> = 0.828  
 (0.171) (0.0771)  
 5.475 2.355

Structural Equations

ATREG = 0.730\*SR, Errorvar.= 0.500 , R<sup>2</sup> = 0.516  
 (0.178) (0.191)  
 4.107 2.619

EMREG = 0.707\*SR, Errorvar.= 0.500 , R<sup>2</sup> = 0.500  
 (0.231) (0.191)  
 3.068 2.619

**Correlation Matrix of Independent Variables**

**SR**  
 1.000

**Covariance Matrix of Latent Variables**

	<b>ATREG</b>	<b>EMREG</b>	<b>SR</b>
<b>ATREG</b>	1.033		
<b>EMREG</b>	0.517	1.000	
<b>SR</b>	0.730	0.707	1.000

**Goodness of Fit Statistics**

Degrees of Freedom = 34  
 Minimum Fit Function Chi-Square = 51.122 (P = 0.0299)  
 Normal Theory Weighted Least Squares Chi-Square = 44.194 (P = 0.113)  
 Satorra-Bentler Scaled Chi-Square = 44.430 (P = 0.109)  
 Chi-Square Corrected for Non-Normality = 176.799 (P = 0.0)  
 Estimated Non-centrality Parameter (NCP) = 10.430  
 90 Percent Confidence Interval for NCP = (0.0 ; 31.808)

Minimum Fit Function Value = 1.043  
 Population Discrepancy Function Value (F0) = 0.213  
 90 Percent Confidence Interval for F0 = (0.0 ; 0.649)  
 Root Mean Square Error of Approximation (RMSEA) = 0.0791  
 90 Percent Confidence Interval for RMSEA = (0.0 ; 0.138)  
 P-Value for Test of Close Fit (RMSEA < 0.05) = 0.234

Expected Cross-Validation Index (ECVI) = 1.764  
 90 Percent Confidence Interval for ECVI = (1.551 ; 2.200)  
 ECVI for Saturated Model = 2.245  
 ECVI for Independence Model = 12.146

Chi-Square for Independence Model with 45 Degrees of Freedom = 575.162

Independence AIC = 595.162

Model AIC = 86.430

Saturated AIC = 110.000

Independence CAIC = 624.282

Model CAIC = 147.583

Saturated CAIC = 270.161

Normed Fit Index (NFI) = 0.923

Non-Normed Fit Index (NNFI) = 0.974

Parsimony Normed Fit Index (PNFI) = 0.697

Comparative Fit Index (CFI) = 0.980

Incremental Fit Index (IFI) = 0.981

Relative Fit Index (RFI) = 0.898

Critical N (CN) = 62.827

Root Mean Square Residual (RMR) = 0.0623

Standardized RMR = 0.0646

Goodness of Fit Index (GFI) = 0.846

Adjusted Goodness of Fit Index (AGFI) = 0.751

Parsimony Goodness of Fit Index (PGFI) = 0.523

### Measurement Model Of Self-regulation

## Standardized Solution

### LAMBDA-Y

	<b>ATREG</b>	<b>EMREG</b>
<b>ATREG01</b>	0.809	- -
<b>ATREG02</b>	0.763	- -
<b>ATREG03</b>	0.805	- -
<b>ATREG04</b>	0.766	- -
<b>ATREG05</b>	0.706	- -
<b>EMREG01</b>	- -	0.770
<b>EMREG02</b>	- -	0.821
<b>EMREG03</b>	- -	0.913
<b>EMREG04</b>	- -	0.707
<b>EMREG05</b>	- -	0.934

### GAMMA

	<b>SR</b>
<b>ATREG</b>	0.719
<b>EMREG</b>	0.707

### Correlation Matrix of ETA and KSI

	<b>ATREG</b>	<b>EMREG</b>	<b>SR</b>
<b>ATREG</b>	1.000		
<b>EMREG</b>	0.508	1.000	
<b>SR</b>	0.719	0.707	1.000

### PSI

Note: This matrix is diagonal.

<b>ATREG</b>	<b>EMREG</b>
0.484	0.500

Measurement Model Of Self-regulation

**Completely Standardized Solution**

**LAMBDA-Y**

	<b>ATREG</b>	<b>EMREG</b>
<b>ATREG01</b>	0.763	- -
<b>ATREG02</b>	0.807	- -
<b>ATREG03</b>	0.842	- -
<b>ATREG04</b>	0.778	- -
<b>ATREG05</b>	0.780	- -
<b>EMREG01</b>	- -	0.768
<b>EMREG02</b>	- -	0.885
<b>EMREG03</b>	- -	0.830
<b>EMREG04</b>	- -	0.715
<b>EMREG05</b>	- -	0.910

**GAMMA**

	<b>SR</b>
<b>ATREG</b>	0.719
<b>EMREG</b>	0.707

**Correlation Matrix of ETA and KSI**

	<b>ATREG</b>	<b>EMREG</b>	<b>SR</b>
<b>ATREG</b>	1.000		
<b>EMREG</b>	0.508	1.000	
<b>SR</b>	0.719	0.707	1.000

**PSI**

Note: This matrix is diagonal.

<b>ATREG</b>	<b>EMREG</b>
0.484	0.500

**THETA-EPS**

<b>ATREG01</b>	<b>ATREG02</b>	<b>ATREG03</b>	<b>ATREG04</b>	<b>ATREG05</b>	<b>EMREG01</b>
0.418	0.349	0.291	0.394	0.392	0.410

**THETA-EPS (continued)**

<b>EMREG02</b>	<b>EMREG03</b>	<b>EMREG04</b>	<b>EMREG05</b>
0.216	0.312	0.489	0.172

Time used: 0.234 Seconds

Composite Reliability (CR) and Variance Extracted of  
The Self-Regulation Scale

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>t-Value</b>	<b>Note</b>
Attention Regulation	AtReg01	.65	4.93	Valid
	AtReg02	.75	5.93	Valid
	AtReg03	.59	4.41	Valid
	AtReg04	.82	6.77	Valid
	AtReg05	.65	4.90	Valid
Emotion Regulation	EmReg01	.55	4.05	Valid
	EmReg02	.62	4.60	Valid
	EmReg03	.71	5.56	Valid
	EmReg04	.82	6.80	Valid
	EmReg05	.73	5.74	Valid
Composite Reliability (CR) of Self-Regulation Scale				= <b>.797</b>
Variance Extracted				= <b>.482</b>

*Note:* Acceptable Level of Standardized Loading Factor (SLF):  $\geq .50$ ; t-value  $\geq 1.96$  (Igbaria, 1990).  
 Acceptable level of Composite Reliability (CR) :  $\geq .70$  (Hair, et al., 2006)  
 Acceptable Level of Variance Extracted (VE) :  $\geq .50$  (Hair, et al., 2006)

## Appendix B4: Validity and Reliability of The Brief Self-Control Scale

DATE: 9/12/2017

TIME: 20:00

L I S R E L 8.80

BY

Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\Tryout\Pilot  
SC.spl**:

```
Second Order CFA by Robust Maximum Likelihood
Raw Data from file 'D:Study.psf'
Asymptotic Covariance Matrix from file Pilot.acm
Sample Size = 628
Latent Variables  Rest Impul SC
Relationships
REST01 = Rest
REST02 = Rest
REST03 = Rest
REST04 = Rest
REST05 = Rest
REST06 = Rest
REST07 = Rest
IMPUL01 = Impul
IMPUL02 = Impul
IMPUL03 = Impul
IMPUL04 = Impul
IMPUL05 = Impul
IMPUL06 = Impul
Rest = SC
Impul = SC
Set the Error Variance of Rest and Impul correlate
Path Diagram
End of Problem

Sample Size = 628
```



Measurement Model Of Self-control

**Covariance Matrix**

	REST01	REST02	REST03	REST04	REST05	REST06
REST01	1.360					
REST02	0.860	1.151				
REST03	1.005	0.827	1.414			
REST04	0.661	0.913	0.732	1.148		
REST05	0.951	0.780	0.963	0.686	1.144	
REST06	0.711	0.870	0.766	0.817	0.641	1.017
REST07	0.738	0.905	0.805	0.979	0.849	0.882
IMPUL01	0.366	0.262	0.454	0.451	0.273	0.320
IMPUL02	0.234	0.305	0.277	0.373	0.176	0.447
IMPUL03	0.264	0.425	0.474	0.390	0.273	0.402
IMPUL04	0.384	0.380	0.440	0.368	0.273	0.444
IMPUL05	0.223	0.384	0.311	0.451	0.212	0.422
IMPUL06	0.450	0.430	0.447	0.417	0.261	0.432

**Covariance Matrix** (continued)

	REST07	IMPUL01	IMPUL02	IMPUL03	IMPUL04	IMPUL05
REST07	1.385					
IMPUL01	0.333	1.268				
IMPUL02	0.471	0.847	1.366			
IMPUL03	0.353	0.818	0.786	1.268		
IMPUL04	0.372	0.789	0.753	0.647	1.017	
IMPUL05	0.415	0.798	0.847	0.798	0.728	1.146
IMPUL06	0.507	0.816	0.780	0.775	0.718	0.754

**Covariance Matrix** (continued)

	IMPUL06
IMPUL06	0.930

Measurement Model Of Self-control

Number of Iterations = 27

**LISREL Estimates (Robust Maximum Likelihood)**

Measurement Equations

$$\text{REST01} = 0.873 \cdot \text{Rest}, \text{ Errorvar.} = 0.597, R^2 = 0.544$$

(0.0396)  
15.091

$$\text{REST02} = 0.965 \cdot \text{Rest}, \text{ Errorvar.} = 0.219, R^2 = 0.799$$

(0.0429) (0.0241)  
22.516 9.099

$$\text{REST03} = 0.905 \cdot \text{Rest}, \text{ Errorvar.} = 0.594, R^2 = 0.563$$

(0.0330) (0.0519)  
27.459 11.450

REST04 = 0.908\*Rest, Errorvar.= 0.323 , R<sup>2</sup> = 0.705  
           (0.0501)                  (0.0285)  
           18.116                  11.314

REST05 = 0.837\*Rest, Errorvar.= 0.444 , R<sup>2</sup> = 0.596  
           (0.0323)                  (0.0346)  
           25.937                  12.830

REST06 = 0.873\*Rest, Errorvar.= 0.254 , R<sup>2</sup> = 0.737  
           (0.0410)                  (0.0225)  
           21.315                  11.282

REST07 = 0.975\*Rest, Errorvar.= 0.434 , R<sup>2</sup> = 0.672  
           (0.0515)                  (0.0264)  
           18.916                  16.425

IMPUL01 = 0.930\*Impul, Errorvar.= 0.403 , R<sup>2</sup> = 0.682  
           (0.0624)  
           6.454

IMPUL02 = 0.911\*Impul, Errorvar.= 0.537 , R<sup>2</sup> = 0.607  
           (0.0326)                  (0.0542)  
           27.941                  9.906

IMPUL03 = 0.870\*Impul, Errorvar.= 0.511 , R<sup>2</sup> = 0.597  
           (0.0338)                  (0.0414)  
           25.748                  12.341

IMPUL04 = 0.820\*Impul, Errorvar.= 0.345 , R<sup>2</sup> = 0.661  
           (0.0361)                  (0.0338)  
           22.714                  10.212

IMPUL05 = 0.881\*Impul, Errorvar.= 0.369 , R<sup>2</sup> = 0.678  
           (0.0342)                  (0.0486)  
           25.732                  7.600

IMPUL06 = 0.873\*Impul, Errorvar.= 0.167 , R<sup>2</sup> = 0.820  
           (0.0283)                  (0.0171)  
           30.892                  9.743

Structural Equations

Rest = 0.668\*SC, Errorvar.= 0.489 , R<sup>2</sup> = 0.477  
           (0.0566)                  (0.0351)  
           11.788                  13.938

Impul = 0.715\*SC, Errorvar.= 0.489 , R<sup>2</sup> = 0.511  
           (0.0513)                  (0.0351)  
           13.950                  13.938

## Correlation Matrix of Independent Variables

SC  
1.000

## Covariance Matrix of Latent Variables

	Rest	Impul	SC
Rest	0.934		
Impul	0.477	1.000	
SC	0.668	0.715	1.000

## Goodness of Fit Statistics

Degrees of Freedom = 64  
Minimum Fit Function Chi-Square = 1285.003 (P = 0.0)  
Normal Theory Weighted Least Squares Chi-Square = 1170.226 (P = 0.0)  
Satorra-Bentler Scaled Chi-Square = 1041.230 (P = 0.0)  
Estimated Non-centrality Parameter (NCP) = 977.230  
90 Percent Confidence Interval for NCP = (876.392 ; 1085.485)

Minimum Fit Function Value = 2.049  
Population Discrepancy Function Value (F0) = 1.559  
90 Percent Confidence Interval for F0 = (1.398 ; 1.731)  
Root Mean Square Error of Approximation (RMSEA) = 0.156  
90 Percent Confidence Interval for RMSEA = (0.148 ; 0.164)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000

Expected Cross-Validation Index (ECVI) = 1.747  
90 Percent Confidence Interval for ECVI = (1.586 ; 1.919)  
ECVI for Saturated Model = 0.290  
ECVI for Independence Model = 20.902

Chi-Square for Independence Model with 78 Degrees of Freedom = 13079.464  
Independence AIC = 13105.464  
Model AIC = 1095.230  
Saturated AIC = 182.000  
Independence CAIC = 13176.217  
Model CAIC = 1242.179  
Saturated CAIC = 677.271

Normed Fit Index (NFI) = 0.920  
Non-Normed Fit Index (NNFI) = 0.908  
Parsimony Normed Fit Index (PNFI) = 0.755  
Comparative Fit Index (CFI) = 0.925  
Incremental Fit Index (IFI) = 0.925  
Relative Fit Index (RFI) = 0.903

Critical N (CN) = 57.133

Root Mean Square Residual (RMR) = 0.0818  
Standardized RMR = 0.0683  
Goodness of Fit Index (GFI) = 0.779  
Adjusted Goodness of Fit Index (AGFI) = 0.686  
Parsimony Goodness of Fit Index (PGFI) = 0.548

Measurement Model Of Self-control

**Standardized Solution**

**LAMBDA-Y**

	<b>Rest</b>	<b>Impul</b>
REST01	0.844	- -
REST02	0.933	- -
REST03	0.875	- -
REST04	0.878	- -
REST05	0.809	- -
REST06	0.844	- -
REST07	0.943	- -
IMPUL01	- -	0.930
IMPUL02	- -	0.911
IMPUL03	- -	0.870
IMPUL04	- -	0.820
IMPUL05	- -	0.881
IMPUL06	- -	0.873

**GAMMA**

	<b>SC</b>
Rest	0.691
Impul	0.715

**Correlation Matrix of ETA and KSI**

	<b>Rest</b>	<b>Impul</b>	<b>SC</b>
Rest	1.000		
Impul	0.494	1.000	
SC	0.691	0.715	1.000

**PSI**

Note: This matrix is diagonal.

<b>Rest</b>	<b>Impul</b>
0.523	0.489

Measurement Model Of Self-control

**Completely Standardized Solution**

**LAMBDA-Y**

	<b>Rest</b>	<b>Impul</b>
<b>REST01</b>	0.738	- -
<b>REST02</b>	0.894	- -
<b>REST03</b>	0.750	- -
<b>REST04</b>	0.840	- -
<b>REST05</b>	0.772	- -
<b>REST06</b>	0.859	- -
<b>REST07</b>	0.820	- -
<b>IMPUL01</b>	- -	0.826
<b>IMPUL02</b>	- -	0.779
<b>IMPUL03</b>	- -	0.773
<b>IMPUL04</b>	- -	0.813
<b>IMPUL05</b>	- -	0.823
<b>IMPUL06</b>	- -	0.906

**GAMMA**

	<b>SC</b>
<b>Rest</b>	0.691
<b>Impul</b>	0.715

**Correlation Matrix of ETA and KSI**

	<b>Rest</b>	<b>Impul</b>	<b>SC</b>
<b>Rest</b>	1.000		
<b>Impul</b>	0.494	1.000	
<b>SC</b>	0.691	0.715	1.000

**PSI**

Note: This matrix is diagonal.

<b>Rest</b>	<b>Impul</b>
0.523	0.489

**THETA-EPS**

<b>REST01</b>	<b>REST02</b>	<b>REST03</b>	<b>REST04</b>	<b>REST05</b>	<b>REST06</b>
0.456	0.201	0.437	0.295	0.404	0.263

**THETA-EPS (continued)**

<b>REST07</b>	<b>IMPUL01</b>	<b>IMPUL02</b>	<b>IMPUL03</b>	<b>IMPUL04</b>	<b>IMPUL05</b>
0.328	0.318	0.393	0.403	0.339	0.322

THETA-EPS (continued)

IMPUL06  
0.180

Time used: 0.422 Seconds

Composite Reliability (CR) and Variance Extracted of  
The Brief Self-Control Scale

Factor	Item	SLF	t-Value	Note
Restraint	Rest01	.83	7.01	Valid
	Rest02	.84	7.26	Valid
	Rest03	.76	6.21	Valid
	Rest04	.67	5.21	Valid
	Rest05	.85	7.33	Valid
	Rest06	.75	6.04	Valid
	Rest07	.76	6.20	Valid
Impulsivity	Impul01	.74	5.95	Valid
	Impul02	.75	6.14	Valid
	Impul03	.83	7.12	Valid
	Impul04	.76	6.23	Valid
	Impul05	.64	4.91	Valid
	Impul06	.73	5.88	Valid
Composite Reliability (CR) of Brief Self-Control Scale				= <b>.858</b>
Variance Extracted				= <b>.584</b>

Note: Acceptable Level of Standardized Loading Factor (SLF):  $\geq .50$ ;  $t$ -value  $\geq 1.96$  (Igbaria, 1990).  
 Acceptable level of Composite Reliability (CR) :  $\geq .70$  (Hair, et al., 2006)  
 Acceptable Level of Variance Extracted (VE) :  $\geq .50$  (Hair, et al., 2006)

## Appendix B5: Validity and Reliability of The Centralistic Religious Scale

DATE: 9/12/2017

TIME: 19:56

L I S R E L 8.80

BY

Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\Tryout\RL  
Pilot.spl:**

Second Order CFA Estimated by Robust Maximum Likelihood

Raw Data from file 'D:Study.psf'

Asymptotic Covariance Matrix from file Pilot.acm

Latent Variables Intel Ideol PubPr PrvPr RelEx RL

Relationships

INTEL01 = Intel

INTEL02 = Intel

INTEL03 = Intel

IDEOL01 = Ideol

IDEOL02 = Ideol

IDEOL03 = Ideol

PUBPR01 = PubPr

PUBPR02 = PubPr

PUBPR03 = PubPr

PRVPR01 = PrvPr

PRVPR02 = PrvPr

PRVPR03 = PrvPr

RELEX01 = RelEx

RELEX02 = RelEx

RELEX03 = RelEx

Intel = RL

Ideol = RL

PubPr = RL

PrvPr = RL

RelEx = RL

Path Diagram

End of Problem

Sample Size = 50

Measurement Validity Of Religiosity

**Covariance Matrix**

	<b>INTEL01</b>	<b>INTEL02</b>	<b>INTEL03</b>	<b>IDEOL01</b>	<b>IDEOL02</b>	<b>IDEOL03</b>
<b>INTEL01</b>	1.118					
<b>INTEL02</b>	0.649	1.144				
<b>INTEL03</b>	0.696	0.698	1.126			
<b>IDEOL01</b>	0.635	0.771	0.585	1.298		
<b>IDEOL02</b>	0.477	0.682	0.531	0.705	1.189	
<b>IDEOL03</b>	0.648	0.620	0.625	0.836	0.661	1.115
<b>PUBPR01</b>	0.499	0.543	0.452	0.597	0.423	0.439
<b>PUBPR02</b>	0.435	0.567	0.540	0.811	0.626	0.593
<b>PUBPR03</b>	0.309	0.486	0.524	0.623	0.726	0.448
<b>PRVPR01</b>	0.184	0.604	0.318	0.487	0.429	0.221
<b>PRVPR02</b>	0.279	0.657	0.439	0.516	0.578	0.387
<b>PRVPR03</b>	0.296	0.547	0.536	0.570	0.567	0.575
<b>RELEX01</b>	0.362	0.404	0.144	0.737	0.620	0.607
<b>RELEX02</b>	0.213	0.339	0.207	0.515	0.423	0.480
<b>RELEX03</b>	0.353	0.241	0.316	0.627	0.442	0.573

**Covariance Matrix** (continued)

	<b>PUBPR01</b>	<b>PUBPR02</b>	<b>PUBPR03</b>	<b>PRVPR01</b>	<b>PRVPR02</b>	<b>PRVPR03</b>
<b>PUBPR01</b>	1.244					
<b>PUBPR02</b>	0.707	1.561				
<b>PUBPR03</b>	0.719	0.709	1.257			
<b>PRVPR01</b>	0.389	0.403	0.384	1.466		
<b>PRVPR02</b>	0.395	0.461	0.455	0.883	1.275	
<b>PRVPR03</b>	0.552	0.635	0.590	0.748	0.691	1.028
<b>RELEX01</b>	0.580	0.741	0.574	0.287	0.504	0.419
<b>RELEX02</b>	0.508	0.544	0.658	0.206	0.375	0.409
<b>RELEX03</b>	0.687	0.600	0.688	0.260	0.461	0.553

**Covariance Matrix** (continued)

	<b>RELEX01</b>	<b>RELEX02</b>	<b>RELEX03</b>
<b>RELEX01</b>	1.363		
<b>RELEX02</b>	0.784	1.203	
<b>RELEX03</b>	0.823	0.891	1.602



**Measurement Validity Of Religiosity**

Number of Iterations = 20

**LISREL Estimates (Robust Maximum Likelihood)**

Measurement Equations

INTEL01 = 0.767\*Intel, Errorvar.= 0.529 , R<sup>2</sup> = 0.527  
(0.110)  
4.803

INTEL02 = 0.881\*Intel, Errorvar.= 0.367 , R<sup>2</sup> = 0.679  
(0.158) (0.103)  
5.588 3.551

INTEL03 = 0.815\*Intel, Errorvar.= 0.462 , R<sup>2</sup> = 0.589  
(0.165) (0.127)  
4.934 3.653

IDEOL01 = 0.954\*Ideol, Errorvar.= 0.388 , R<sup>2</sup> = 0.701  
(0.118)  
3.285

IDEOL02 = 0.798\*Ideol, Errorvar.= 0.551 , R<sup>2</sup> = 0.536  
(0.119) (0.128)  
6.709 4.315

IDEOL03 = 0.831\*Ideol, Errorvar.= 0.424 , R<sup>2</sup> = 0.620  
(0.118) (0.126)  
7.048 3.371

PUBPR01 = 0.798\*PubPr, Errorvar.= 0.607 , R<sup>2</sup> = 0.512  
(0.156)  
3.893

PUBPR02 = 0.899\*PubPr, Errorvar.= 0.754 , R<sup>2</sup> = 0.517  
(0.151) (0.239)  
5.942 3.152

PUBPR03 = 0.840\*PubPr, Errorvar.= 0.552 , R<sup>2</sup> = 0.561  
(0.185) (0.142)  
4.526 3.888

PRVPR01 = 0.875\*PrvPr, Errorvar.= 0.702 , R<sup>2</sup> = 0.522  
(0.147)  
4.777

PRVPR02 = 0.857\*PrvPr, Errorvar.= 0.540 , R<sup>2</sup> = 0.576  
(0.157) (0.117)  
5.457 4.621

PRVPR03 = 0.863\*PrvPr, Errorvar.= 0.283 , R<sup>2</sup> = 0.725  
(0.167) (0.0834)  
5.180 3.388

RELEX01 = 0.905\*RelEx, Errorvar.= 0.544 , R<sup>2</sup> = 0.601  
(0.178)  
3.064

RELEX02 = 0.875\*RelEx, Errorvar.= 0.438 , R<sup>2</sup> = 0.636  
 (0.138) (0.192)  
 6.346 2.282

RELEX03 = 0.963\*RelEx, Errorvar.= 0.675 , R<sup>2</sup> = 0.579  
 (0.209) (0.244)  
 4.609 2.765

#### Structural Equations

Intel = 0.840\*RL, Errorvar.= 0.294 , R<sup>2</sup> = 0.706  
 (0.163) (0.171)  
 5.158 1.724

Ideol = 0.971\*RL, Errorvar.= 0.0579, R<sup>2</sup> = 0.942  
 (0.129) (0.132)  
 7.499 0.437

PubPr = 0.875\*RL, Errorvar.= 0.234 , R<sup>2</sup> = 0.766  
 (0.194) (0.188)  
 4.504 1.249

PrvPr = 0.732\*RL, Errorvar.= 0.464 , R<sup>2</sup> = 0.536  
 (0.171) (0.262)  
 4.275 1.767

RelEx = 0.713\*RL, Errorvar.= 0.492 , R<sup>2</sup> = 0.508  
 (0.142) (0.222)  
 5.019 2.220

#### Correlation Matrix of Independent Variables

RL  
 1.000

#### Covariance Matrix of Latent Variables

	Intel	Ideol	PubPr	PrvPr	RelEx	RL
Intel	1.000					
Ideol	0.815	1.000				
PubPr	0.735	0.849	1.000			
PrvPr	0.615	0.711	0.641	1.000		
RelEx	0.599	0.692	0.624	0.522	1.000	
RL	0.840	0.971	0.875	0.732	0.713	1.000

#### Goodness of Fit Statistics

Degrees of Freedom = 85  
 Minimum Fit Function Chi-Square = 102.592 (P = 0.0940)  
 Normal Theory Weighted Least Squares Chi-Square = 90.484 (P = 0.322)  
 Satorra-Bentler Scaled Chi-Square = 90.228 (P = 0.329)  
 Estimated Non-centrality Parameter (NCP) = 5.228  
 90 Percent Confidence Interval for NCP = (0.0 ; 32.216)

Minimum Fit Function Value = 2.094  
 Population Discrepancy Function Value (F0) = 0.107

90 Percent Confidence Interval for F0 = (0.0 ; 0.657)  
 Root Mean Square Error of Approximation (RMSEA) = 0.0354  
 90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0879)  
 P-Value for Test of Close Fit (RMSEA < 0.05) = 0.623

Expected Cross-Validation Index (ECVI) = 3.270  
 90 Percent Confidence Interval for ECVI = (3.163 ; 3.821)  
 ECVI for Saturated Model = 4.898  
 ECVI for Independence Model = 21.119

Chi-Square for Independence Model with 105 Degrees of Freedom = 1004.833  
 Independence AIC = 1034.833  
 Model AIC = 160.228  
 Saturated AIC = 240.000  
 Independence CAIC = 1078.514  
 Model CAIC = 262.149  
 Saturated CAIC = 589.443

Normed Fit Index (NFI) = 0.910  
 Non-Normed Fit Index (NNFI) = 0.993  
 Parsimony Normed Fit Index (PNFI) = 0.737  
 Comparative Fit Index (CFI) = 0.994  
 Incremental Fit Index (IFI) = 0.994  
 Relative Fit Index (RFI) = 0.889

Critical N (CN) = 65.212

Root Mean Square Residual (RMR) = 0.103  
 Standardized RMR = 0.0812  
 Goodness of Fit Index (GFI) = 0.802  
 Adjusted Goodness of Fit Index (AGFI) = 0.721  
 Parsimony Goodness of Fit Index (PGFI) = 0.568

Measurement Validity Of Religiosity

**Standardized Solution**

**LAMBDA-Y**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>
<b>INTEL01</b>	0.767	--	--	--	--
<b>INTEL02</b>	0.881	--	--	--	--
<b>INTEL03</b>	0.815	--	--	--	--
<b>IDEOL01</b>	--	0.954	--	--	--
<b>IDEOL02</b>	--	0.798	--	--	--
<b>IDEOL03</b>	--	0.831	--	--	--
<b>PUBPR01</b>	--	--	0.798	--	--
<b>PUBPR02</b>	--	--	0.899	--	--
<b>PUBPR03</b>	--	--	0.840	--	--
<b>PRVPR01</b>	--	--	--	0.875	--
<b>PRVPR02</b>	--	--	--	0.857	--
<b>PRVPR03</b>	--	--	--	0.863	--
<b>RELEX01</b>	--	--	--	--	0.905
<b>RELEX02</b>	--	--	--	--	0.875
<b>RELEX03</b>	--	--	--	--	0.963

## GAMMA

	RL
Intel	0.840
Ideol	0.971
PubPr	0.875
PrvPr	0.732
RelEx	0.713

## Correlation Matrix of ETA and KSI

	Intel	Ideol	PubPr	PrvPr	RelEx	RL
Intel	1.000					
Ideol	0.815	1.000				
PubPr	0.735	0.849	1.000			
PrvPr	0.615	0.711	0.641	1.000		
RelEx	0.599	0.692	0.624	0.522	1.000	
RL	0.840	0.971	0.875	0.732	0.713	1.000

## PSI

Note: This matrix is diagonal.

	Intel	Ideol	PubPr	PrvPr	RelEx
	0.294	0.058	0.234	0.464	0.492

## Measurement Validity Of Religiosity

## Completely Standardized Solution

### LAMBDA-Y

	Intel	Ideol	PubPr	PrvPr	RelEx
INTEL01	0.726	- -	- -	- -	- -
INTEL02	0.824	- -	- -	- -	- -
INTEL03	0.768	- -	- -	- -	- -
IDEOL01	- -	0.837	- -	- -	- -
IDEOL02	- -	0.732	- -	- -	- -
IDEOL03	- -	0.787	- -	- -	- -
PUBPR01	- -	- -	0.715	- -	- -
PUBPR02	- -	- -	0.719	- -	- -
PUBPR03	- -	- -	0.749	- -	- -
PRVPR01	- -	- -	- -	0.722	- -
PRVPR02	- -	- -	- -	0.759	- -
PRVPR03	- -	- -	- -	0.852	- -
RELEX01	- -	- -	- -	- -	0.775
RELEX02	- -	- -	- -	- -	0.797
RELEX03	- -	- -	- -	- -	0.761

**GAMMA**

	<b>RL</b>
<b>Intel</b>	0.840
<b>Ideol</b>	0.971
<b>PubPr</b>	0.875
<b>PrvPr</b>	0.732
<b>RelEx</b>	0.713

**Correlation Matrix of ETA and KSI**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>	<b>RL</b>
<b>Intel</b>	1.000					
<b>Ideol</b>	0.815	1.000				
<b>PubPr</b>	0.735	0.849	1.000			
<b>PrvPr</b>	0.615	0.711	0.641	1.000		
<b>RelEx</b>	0.599	0.692	0.624	0.522	1.000	
<b>RL</b>	0.840	0.971	0.875	0.732	0.713	1.000

**PSI**

Note: This matrix is diagonal.

<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>
0.294	0.058	0.234	0.464	0.492

**THETA-EPS**

<b>INTEL01</b>	<b>INTEL02</b>	<b>INTEL03</b>	<b>IDEOL01</b>	<b>IDEOL02</b>	<b>IDEOL03</b>
0.473	0.321	0.411	0.299	0.464	0.380

**THETA-EPS (continued)**

<b>PUBPR01</b>	<b>PUBPR02</b>	<b>PUBPR03</b>	<b>PRVPR01</b>	<b>PRVPR02</b>	<b>PRVPR03</b>
0.488	0.483	0.439	0.478	0.424	0.275

**THETA-EPS (continued)**

<b>RELEX01</b>	<b>RELEX02</b>	<b>RELEX03</b>
0.399	0.364	0.421

Time used: 0.703 Seconds

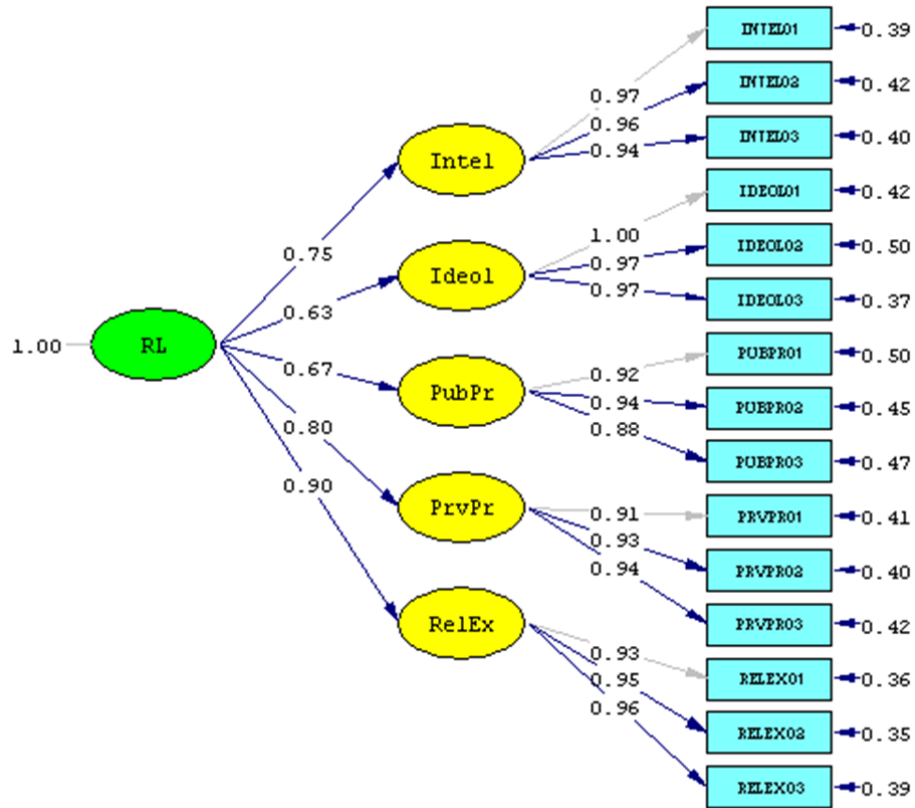
Composite Reliability (CR) and Variance Extracted of  
The Centrality of Religiosity Scale

<b>Factor</b>	<b>Item</b>	<b>SLF</b>	<b>t-Value</b>	<b>Note</b>
Intellectual	Intel01	.65	4.99	Valid
	Intel02	.75	6.04	Valid
	Intel03	.67	5.23	Valid
Ideology	Ideol01	.81	6.75	Valid
	Ideol02	.74	5.91	Valid
	Ideol03	.90	8.12	Valid
Public Practice	PubPr01	.58	4.32	Valid
	PubPr02	.68	4.91	Valid
	PubPr03	.83	7.02	Valid
Private Practice	PrvPr01	.68	5.33	Valid
	PrvPr02	.59	4.43	Valid
	PrvPr03	.61	4.66	Valid
Religious Experience	RelEx01	.61	4.60	Valid
	RelEx02	.59	4.42	Valid
	RelEx03	.55	4.11	Valid
Composite Reliability (CR) of Centralistic Religiosity Scale				= <b>.818</b>
Variance Extracted				= <b>.472</b>

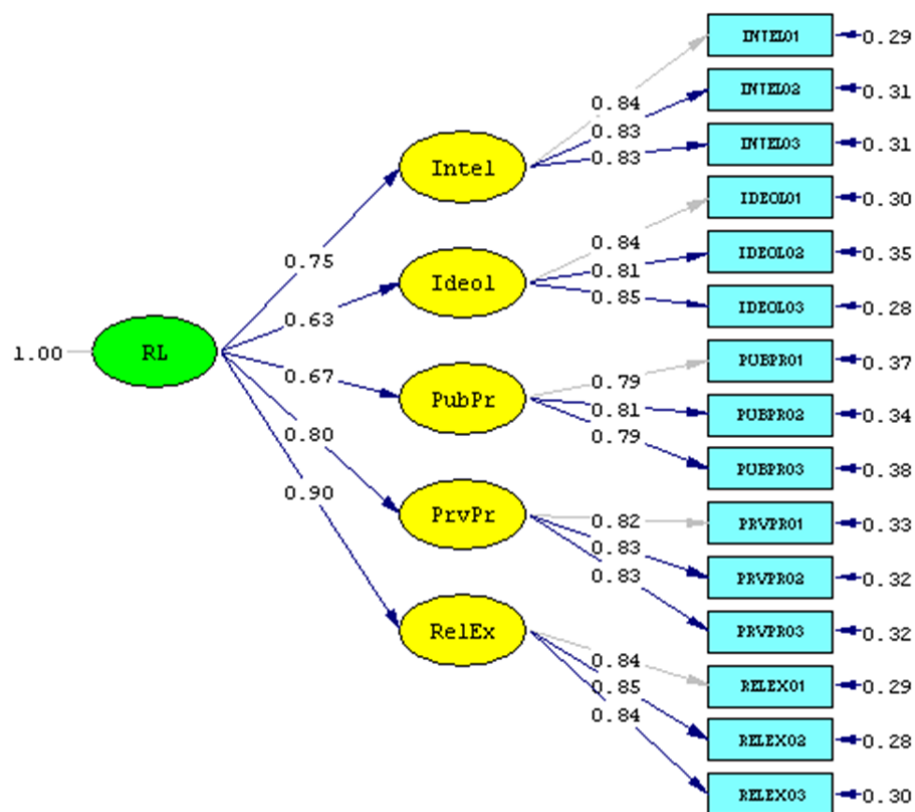
*Note:* Acceptable Level of Standardized Loading Factor (SLF):  $\geq .50$ ; *t-value*  $\geq 1.96$  (Igbaria, 1990).  
 Acceptable level of Composite Reliability (CR) :  $\geq .70$  (Hair, et al., 2006)  
 Acceptable Level of Variance Extracted (VE) :  $\geq .50$  (Hair, et al., 2006)

## APPENDIX C: MAIN STUDY RESULTS

### Appendix C1: Measurement Model Of Centralistic Religious Scale (CRS)

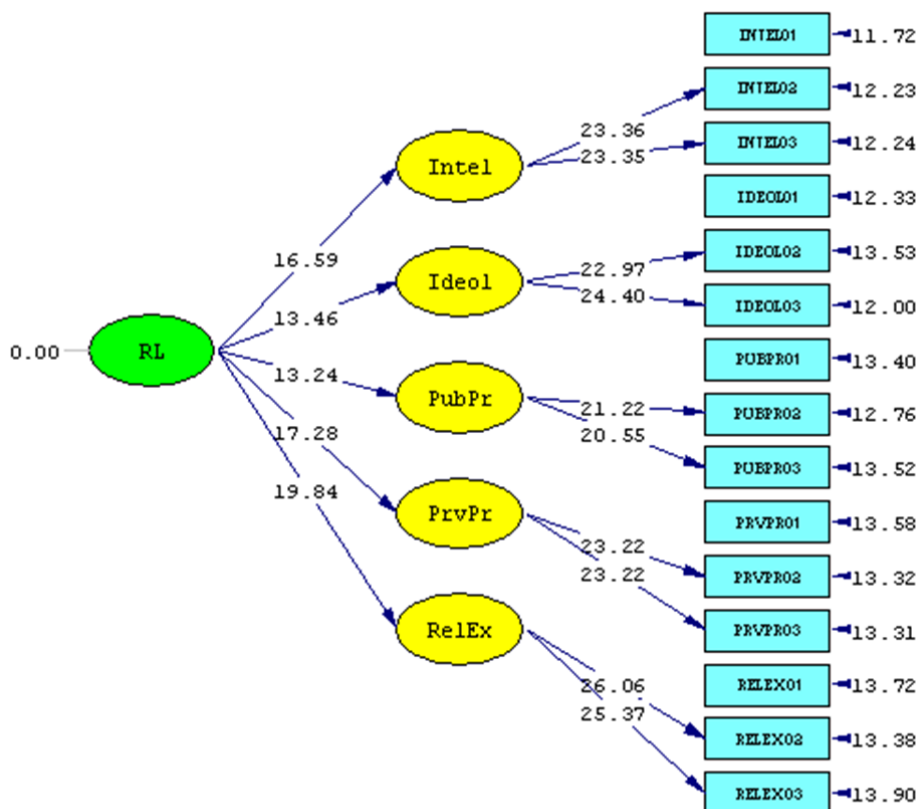


Chi-Square=89.91, df=83, P-value=0.28324, RMSEA=0.012



Chi-Square=89.91, df=83, P-value=0.28324, RMSEA=0.012





Chi-Square=89.91, df=83, P-value=0.28324, RMSEA=0.012

L I S R E L 8.80  
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Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\01 main study  
Raw score\RL.spl:**

```
Second Order CFA Estimated by Maximum Likelihood
Raw Data from file 'D:Study1 main study Raw score.psf'
Latent Variables Intel Ideol PubPr PrvPr RelEx RL
Relationships
INTEL01 = Intel
INTEL02 = Intel
INTEL03 = Intel
IDEOL01 = Ideol
IDEOL02 = Ideol
IDEOL03 = Ideol
PUBPR01 = PubPr
PUBPR02 = PubPr
PUBPR03 = PubPr
PRVPR01 = PrvPr
PRVPR02 = PrvPr
PRVPR03 = PrvPr
RELEX01 = RelEx
RELEX02 = RelEx
RELEX03 = RelEx
Intel = RL
Ideol = RL
PubPr = RL
PrvPr = RL
RelEx = RL
Set the Error Covariance of PrvPr and Ideol Correlate
Set the Error Covariance of RelEx and PubPr Correlate
Path Diagram
End of Problem

Sample Size = 628
```

Measurement Model Of Religiosity

**Covariance Matrix**

	<b>INTEL01</b>	<b>INTEL02</b>	<b>INTEL03</b>	<b>IDEOL01</b>	<b>IDEOL02</b>	<b>IDEOL03</b>
<b>INTEL01</b>	1.340					
<b>INTEL02</b>	0.952	1.350				
<b>INTEL03</b>	0.920	0.897	1.293			
<b>IDEOL01</b>	0.392	0.432	0.403	1.406		
<b>IDEOL02</b>	0.414	0.469	0.465	0.952	1.439	
<b>IDEOL03</b>	0.405	0.422	0.403	0.987	0.928	1.319
<b>PUBPR01</b>	0.433	0.455	0.465	0.335	0.357	0.364
<b>PUBPR02</b>	0.421	0.464	0.445	0.368	0.367	0.395
<b>PUBPR03</b>	0.434	0.415	0.446	0.332	0.308	0.341
<b>PRVPR01</b>	0.489	0.514	0.540	0.726	0.773	0.732
<b>PRVPR02</b>	0.520	0.574	0.551	0.741	0.770	0.724
<b>PRVPR03</b>	0.523	0.575	0.557	0.794	0.799	0.760
<b>RELEX01</b>	0.611	0.606	0.627	0.499	0.493	0.500
<b>RELEX02</b>	0.604	0.617	0.637	0.555	0.555	0.552
<b>RELEX03</b>	0.610	0.613	0.630	0.572	0.507	0.564

**Covariance Matrix** (continued)

	<b>PUBPR01</b>	<b>PUBPR02</b>	<b>PUBPR03</b>	<b>PRVPR01</b>	<b>PRVPR02</b>	<b>PRVPR03</b>
<b>PUBPR01</b>	1.342					
<b>PUBPR02</b>	0.885	1.343				
<b>PUBPR03</b>	0.788	0.838	1.250			
<b>PRVPR01</b>	0.438	0.430	0.371	1.238		
<b>PRVPR02</b>	0.471	0.504	0.460	0.850	1.258	
<b>PRVPR03</b>	0.472	0.523	0.474	0.867	0.857	1.305
<b>RELEX01</b>	0.776	0.731	0.717	0.572	0.651	0.630
<b>RELEX02</b>	0.750	0.776	0.776	0.588	0.691	0.642
<b>RELEX03</b>	0.766	0.778	0.733	0.630	0.656	0.642

**Covariance Matrix** (continued)

	<b>RELEX01</b>	<b>RELEX02</b>	<b>RELEX03</b>
<b>RELEX01</b>	1.223		
<b>RELEX02</b>	0.882	1.258	
<b>RELEX03</b>	0.898	0.910	1.310

Measurement Model Of Religiosity

Number of Iterations = 38

**LISREL Estimates (Maximum Likelihood)**

Measurement Equations

INTEL01 = 0.974\*Intel, Errorvar.= 0.391 , R<sup>2</sup> = 0.708  
(0.0334)  
11.724

INTEL02 = 0.965\*Intel, Errorvar.= 0.419 , R<sup>2</sup> = 0.689  
(0.0413) (0.0343)  
23.357 12.233

INTEL03 = 0.944\*Intel, Errorvar.= 0.402 , R<sup>2</sup> = 0.689  
(0.0404) (0.0329)  
23.350 12.244

IDEOL01 = 0.996\*Ideol, Errorvar.= 0.415 , R<sup>2</sup> = 0.705  
(0.0337)  
12.329

IDEOL02 = 0.968\*Ideol, Errorvar.= 0.502 , R<sup>2</sup> = 0.651  
(0.0422) (0.0371)  
22.969 13.533

IDEOL03 = 0.972\*Ideol, Errorvar.= 0.373 , R<sup>2</sup> = 0.717  
(0.0399) (0.0311)  
24.395 11.999

PUBPR01 = 0.920\*PubPr, Errorvar.= 0.495 , R<sup>2</sup> = 0.631  
(0.0369)  
13.404

PUBPR02 = 0.943\*PubPr, Errorvar.= 0.454 , R<sup>2</sup> = 0.662  
(0.0444) (0.0356)  
21.222 12.757

PUBPR03 = 0.884\*PubPr, Errorvar.= 0.469 , R<sup>2</sup> = 0.625  
(0.0430) (0.0347)  
20.555 13.525

PRVPR01 = 0.910\*PrvPr, Errorvar.= 0.411 , R<sup>2</sup> = 0.668  
(0.0303)  
13.580

PRVPR02 = 0.926\*PrvPr, Errorvar.= 0.401 , R<sup>2</sup> = 0.681  
(0.0399) (0.0301)  
23.215 13.315

PRVPR03 = 0.943\*PrvPr, Errorvar.= 0.416 , R<sup>2</sup> = 0.681  
(0.0406) (0.0313)  
23.217 13.313

RELEX01 = 0.930\*RelEx, Errorvar.= 0.358 , R<sup>2</sup> = 0.707  
(0.0261)  
13.724

RELEX02 = 0.954\*RelEx, Errorvar.= 0.348 , R<sup>2</sup> = 0.723  
(0.0366) (0.0260)  
26.064 13.383

RELEX03 = 0.957\*RelEx, Errorvar.= 0.395 , R<sup>2</sup> = 0.699  
(0.0377) (0.0284)  
25.374 13.898

#### Structural Equations

Intel = 0.750\*RL, Errorvar.= 0.438 , R<sup>2</sup> = 0.562  
(0.0452) (0.0483)  
16.593 9.056

Ideol = 0.627\*RL, Errorvar.= 0.607 , R<sup>2</sup> = 0.393  
(0.0466) (0.0580)  
13.455 10.467

PubPr = 0.672\*RL, Errorvar.= 0.549 , R<sup>2</sup> = 0.451  
(0.0507) (0.0629)  
13.245 8.719

PrvPr = 0.801\*RL, Errorvar.= 0.358 , R<sup>2</sup> = 0.642  
(0.0464) (0.0473)  
17.278 7.573

RelEx = 0.904\*RL, Errorvar.= 0.182 , R<sup>2</sup> = 0.818  
(0.0456) (0.0453)  
19.840 4.017

Error Covariance for PrvPr and Ideol = 0.331  
(0.0405)  
8.160

Error Covariance for RelEx and PubPr = 0.264  
(0.0428)  
6.165

## Correlation Matrix of Independent Variables

RL  
1.000

## Covariance Matrix of Latent Variables

	Intel	Ideol	PubPr	PrvPr	RelEx	RL
Intel	1.000					
Ideol	0.470	1.000				
PubPr	0.504	0.421	1.000			
PrvPr	0.601	0.833	0.538	1.000		
RelEx	0.678	0.567	0.871	0.724	1.000	
RL	0.750	0.627	0.672	0.801	0.904	1.000

## Goodness of Fit Statistics

Degrees of Freedom = 83  
Minimum Fit Function Chi-Square = 90.351 (P = 0.272)  
Normal Theory Weighted Least Squares Chi-Square = 89.906 (P = 0.283)  
Estimated Non-centrality Parameter (NCP) = 6.906  
90 Percent Confidence Interval for NCP = (0.0 ; 34.038)

Minimum Fit Function Value = 0.144  
Population Discrepancy Function Value (F0) = 0.0110  
90 Percent Confidence Interval for F0 = (0.0 ; 0.0543)  
Root Mean Square Error of Approximation (RMSEA) = 0.0115  
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0256)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 1.00

Expected Cross-Validation Index (ECVI) = 0.261  
90 Percent Confidence Interval for ECVI = (0.250 ; 0.305)  
ECVI for Saturated Model = 0.383  
ECVI for Independence Model = 24.064

Chi-Square for Independence Model with 105 Degrees of Freedom = 15058.080  
Independence AIC = 15088.080  
Model AIC = 163.906  
Saturated AIC = 240.000  
Independence CAIC = 15169.719  
Model CAIC = 365.280  
Saturated CAIC = 893.105

Normed Fit Index (NFI) = 0.994  
Non-Normed Fit Index (NNFI) = 0.999  
Parsimony Normed Fit Index (PNFI) = 0.786  
Comparative Fit Index (CFI) = 1.00  
Incremental Fit Index (IFI) = 1.00  
Relative Fit Index (RFI) = 0.992

Critical N (CN) = 805.162

Root Mean Square Residual (RMR) = 0.0242  
Standardized RMR = 0.0184  
Goodness of Fit Index (GFI) = 0.981  
Adjusted Goodness of Fit Index (AGFI) = 0.973  
Parsimony Goodness of Fit Index (PGFI) = 0.679

Measurement Model Of Religiosity

**Fitted Covariance Matrix**

	<b>INTEL01</b>	<b>INTEL02</b>	<b>INTEL03</b>	<b>IDEOL01</b>	<b>IDEOL02</b>	<b>IDEOL03</b>
<b>INTEL01</b>	1.340					
<b>INTEL02</b>	0.939	1.350				
<b>INTEL03</b>	0.919	0.911	1.293			
<b>IDEOL01</b>	0.456	0.452	0.442	1.406		
<b>IDEOL02</b>	0.443	0.439	0.430	0.964	1.439	
<b>IDEOL03</b>	0.445	0.441	0.432	0.968	0.942	1.319
<b>PUBPR01</b>	0.451	0.447	0.438	0.386	0.375	0.377
<b>PUBPR02</b>	0.463	0.458	0.448	0.396	0.385	0.386
<b>PUBPR03</b>	0.433	0.429	0.420	0.371	0.360	0.362
<b>PRVPR01</b>	0.532	0.527	0.516	0.754	0.734	0.737
<b>PRVPR02</b>	0.541	0.536	0.525	0.768	0.747	0.750
<b>PRVPR03</b>	0.551	0.546	0.535	0.782	0.761	0.764
<b>RELEX01</b>	0.614	0.608	0.595	0.525	0.511	0.513
<b>RELEX02</b>	0.630	0.624	0.611	0.539	0.524	0.526
<b>RELEX03</b>	0.632	0.626	0.612	0.540	0.525	0.528

**Fitted Covariance Matrix** (continued)

	<b>PUBPR01</b>	<b>PUBPR02</b>	<b>PUBPR03</b>	<b>PRVPR01</b>	<b>PRVPR02</b>	<b>PRVPR03</b>
<b>PUBPR01</b>	1.342					
<b>PUBPR02</b>	0.868	1.343				
<b>PUBPR03</b>	0.813	0.833	1.250			
<b>PRVPR01</b>	0.450	0.461	0.432	1.238		
<b>PRVPR02</b>	0.458	0.470	0.440	0.842	1.258	
<b>PRVPR03</b>	0.467	0.478	0.448	0.858	0.873	1.305
<b>RELEX01</b>	0.746	0.764	0.716	0.613	0.624	0.635
<b>RELEX02</b>	0.765	0.784	0.734	0.628	0.639	0.651
<b>RELEX03</b>	0.767	0.786	0.736	0.630	0.641	0.653

**Fitted Covariance Matrix** (continued)

	<b>RELEX01</b>	<b>RELEX02</b>	<b>RELEX03</b>
<b>RELEX01</b>	1.223		
<b>RELEX02</b>	0.887	1.258	
<b>RELEX03</b>	0.890	0.912	1.310

## Fitted Residuals

	<b>INTEL01</b>	<b>INTEL02</b>	<b>INTEL03</b>	<b>IDEOL01</b>	<b>IDEOL02</b>	<b>IDEOL03</b>
<b>INTEL01</b>	0.000					
<b>INTEL02</b>	0.013	0.000				
<b>INTEL03</b>	0.000	-0.014	0.000			
<b>IDEOL01</b>	-0.064	-0.020	-0.039	0.000		
<b>IDEOL02</b>	-0.030	0.029	0.035	-0.011	0.000	
<b>IDEOL03</b>	-0.041	-0.019	-0.029	0.019	-0.013	0.000
<b>PUBPR01</b>	-0.019	0.008	0.027	-0.051	-0.019	-0.013
<b>PUBPR02</b>	-0.041	0.006	-0.003	-0.028	-0.017	0.008
<b>PUBPR03</b>	0.001	-0.014	0.026	-0.039	-0.052	-0.020
<b>PRVPR01</b>	-0.043	-0.013	0.025	-0.029	0.040	-0.004
<b>PRVPR02</b>	-0.021	0.038	0.027	-0.027	0.023	-0.026
<b>PRVPR03</b>	-0.028	0.028	0.022	0.012	0.038	-0.004
<b>RELEX01</b>	-0.004	-0.002	0.032	-0.026	-0.017	-0.013
<b>RELEX02</b>	-0.026	-0.007	0.026	0.016	0.031	0.026
<b>RELEX03</b>	-0.022	-0.013	0.017	0.032	-0.018	0.037

## Fitted Residuals (continued)

	<b>PUBPR01</b>	<b>PUBPR02</b>	<b>PUBPR03</b>	<b>PRVPR01</b>	<b>PRVPR02</b>	<b>PRVPR03</b>
<b>PUBPR01</b>	0.000					
<b>PUBPR02</b>	0.017	0.000				
<b>PUBPR03</b>	-0.025	0.005	0.000			
<b>PRVPR01</b>	-0.012	-0.031	-0.062	0.000		
<b>PRVPR02</b>	0.013	0.035	0.020	0.008	0.000	
<b>PRVPR03</b>	0.006	0.044	0.026	0.009	-0.016	0.000
<b>RELEX01</b>	0.030	-0.033	0.001	-0.041	0.027	-0.005
<b>RELEX02</b>	-0.015	-0.008	0.042	-0.040	0.052	-0.009
<b>RELEX03</b>	-0.001	-0.008	-0.003	0.000	0.014	-0.012

## Fitted Residuals (continued)

	<b>RELEX01</b>	<b>RELEX02</b>	<b>RELEX03</b>
<b>RELEX01</b>	0.000		
<b>RELEX02</b>	-0.005	0.000	
<b>RELEX03</b>	0.009	-0.003	0.000

## Summary Statistics for Fitted Residuals

Smallest Fitted Residual = -0.064  
 Median Fitted Residual = 0.000  
 Largest Fitted Residual = 0.052



## Stemleaf Plot

```

- 6|42
- 5|21
- 4|31110
- 3|99310
- 2|9988766652100
- 1|99987765443333221
- 0|988755444333210000000000000000
 0|1156688899
 1|23346779
 2|0235666677789
 3|012255788
 4|024
 5|2

```

## Standardized Residuals

	INTEL01	INTEL02	INTEL03	IDEOL01	IDEOL02	IDEOL03
INTEL01	- -					
INTEL02	1.919	- -				
INTEL03	0.059	-1.957	- -			
IDEOL01	-1.937	-0.594	-1.188	- -		
IDEOL02	-0.850	0.830	1.017	-1.141	- -	
IDEOL03	-1.296	-0.604	-0.921	2.613	-1.430	- -
PUBPR01	-0.569	0.230	0.824	-1.346	-0.467	-0.342
PUBPR02	-1.294	0.170	-0.090	-0.743	-0.443	0.237
PUBPR03	0.027	-0.423	0.818	-1.055	-1.366	-0.577
PRVPR01	-1.695	-0.491	0.966	-1.514	1.899	-0.251
PRVPR02	-0.853	1.473	1.052	-1.440	1.122	-1.462
PRVPR03	-1.113	1.079	0.866	0.617	1.820	-0.230
RELEX01	-0.160	-0.107	1.393	-0.984	-0.597	-0.522
RELEX02	-1.172	-0.315	1.179	0.604	1.089	1.040
RELEX03	-0.946	-0.525	0.722	1.144	-0.605	1.367

## Standardized Residuals (continued)

	PUBPR01	PUBPR02	PUBPR03	PRVPR01	PRVPR02	PRVPR03
PUBPR01	- -					
PUBPR02	1.571	- -				
PUBPR03	-2.069	0.491	- -			
PRVPR01	-0.402	-1.027	-2.050	- -		
PRVPR02	0.429	1.151	0.656	0.770	- -	
PRVPR03	0.176	1.450	0.861	0.874	-1.641	- -
RELEX01	1.708	-1.978	0.041	-1.853	1.264	-0.245
RELEX02	-0.849	-0.482	2.452	-1.853	2.426	-0.423
RELEX03	-0.073	-0.473	-0.191	-0.003	0.624	-0.504

### Standardized Residuals (continued)

	RELEX01	RELEX02	RELEX03
RELEX01	- -		
RELEX02	-0.575	- -	
RELEX03	0.869	-0.288	- -

### Summary Statistics for Standardized Residuals

Smallest Standardized Residual = -2.069  
Median Standardized Residual = -0.002  
Largest Standardized Residual = 2.613

### Stemleaf Plot

```
-20|75
-18|86455
-16|94
-14|1643
-12|7509
-10|974153
- 8|852555
- 6|4000
- 4|987732098774220
- 2|429543
- 0|9619700000000000000000
 0|34678
 2|34
 4|39
 6|022627
 8|22367777
10|245892458
12|679
14|577
16|1
18|202
20|
22|
24|35
26|1
```

### Largest Positive Standardized Residuals

Residual for **IDEOL03** and **IDEOL01** 2.613

Measurement Model Of Religiosity

**Standardized Solution**

**LAMBDA-Y**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>
<b>INTEL01</b>	0.974	--	--	--	--
<b>INTEL02</b>	0.965	--	--	--	--
<b>INTEL03</b>	0.944	--	--	--	--
<b>IDEOL01</b>	--	0.996	--	--	--
<b>IDEOL02</b>	--	0.968	--	--	--
<b>IDEOL03</b>	--	0.972	--	--	--
<b>PUBPR01</b>	--	--	0.920	--	--
<b>PUBPR02</b>	--	--	0.943	--	--
<b>PUBPR03</b>	--	--	0.884	--	--
<b>PRVPR01</b>	--	--	--	0.910	--
<b>PRVPR02</b>	--	--	--	0.926	--
<b>PRVPR03</b>	--	--	--	0.943	--
<b>RELEX01</b>	--	--	--	--	0.930
<b>RELEX02</b>	--	--	--	--	0.954
<b>RELEX03</b>	--	--	--	--	0.957

**GAMMA**

	<b>RL</b>
<b>Intel</b>	0.750
<b>Ideol</b>	0.627
<b>PubPr</b>	0.672
<b>PrvPr</b>	0.801
<b>RelEx</b>	0.904

**Correlation Matrix of ETA and KSI**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>	<b>RL</b>
<b>Intel</b>	1.000					
<b>Ideol</b>	0.470	1.000				
<b>PubPr</b>	0.504	0.421	1.000			
<b>PrvPr</b>	0.601	0.833	0.538	1.000		
<b>RelEx</b>	0.678	0.567	0.871	0.724	1.000	
<b>RL</b>	0.750	0.627	0.672	0.801	0.904	1.000

**PSI**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>
<b>Intel</b>	0.438				
<b>Ideol</b>	--	0.607			
<b>PubPr</b>	--	--	0.549		
<b>PrvPr</b>	--	0.331	--	0.358	
<b>RelEx</b>	--	--	0.264	--	0.182

Measurement Model Of Religiosity

**Completely Standardized Solution**

**LAMBDA-Y**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>
<b>INTEL01</b>	0.841	--	--	--	--
<b>INTEL02</b>	0.830	--	--	--	--
<b>INTEL03</b>	0.830	--	--	--	--
<b>IDEOL01</b>	--	0.840	--	--	--
<b>IDEOL02</b>	--	0.807	--	--	--
<b>IDEOL03</b>	--	0.847	--	--	--
<b>PUBPR01</b>	--	--	0.794	--	--
<b>PUBPR02</b>	--	--	0.814	--	--
<b>PUBPR03</b>	--	--	0.790	--	--
<b>PRVPR01</b>	--	--	--	0.817	--
<b>PRVPR02</b>	--	--	--	0.825	--
<b>PRVPR03</b>	--	--	--	0.825	--
<b>RELEX01</b>	--	--	--	--	0.841
<b>RELEX02</b>	--	--	--	--	0.851
<b>RELEX03</b>	--	--	--	--	0.836

**GAMMA**

	<b>RL</b>
<b>Intel</b>	0.750
<b>Ideol</b>	0.627
<b>PubPr</b>	0.672
<b>PrvPr</b>	0.801
<b>RelEx</b>	0.904

**Correlation Matrix of ETA and KSI**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>	<b>RL</b>
<b>Intel</b>	1.000					
<b>Ideol</b>	0.470	1.000				
<b>PubPr</b>	0.504	0.421	1.000			
<b>PrvPr</b>	0.601	0.833	0.538	1.000		
<b>RelEx</b>	0.678	0.567	0.871	0.724	1.000	
<b>RL</b>	0.750	0.627	0.672	0.801	0.904	1.000

**PSI**

	<b>Intel</b>	<b>Ideol</b>	<b>PubPr</b>	<b>PrvPr</b>	<b>RelEx</b>
<b>Intel</b>	0.438				
<b>Ideol</b>	- -	0.607			
<b>PubPr</b>	- -	- -	0.549		
<b>PrvPr</b>	- -	0.331	- -	0.358	
<b>RelEx</b>	- -	- -	0.264	- -	0.182

**THETA-EPS**

<b>INTEL01</b>	<b>INTEL02</b>	<b>INTEL03</b>	<b>IDEOL01</b>	<b>IDEOL02</b>	<b>IDEOL03</b>
0.292	0.311	0.311	0.295	0.349	0.283

**THETA-EPS** (continued)

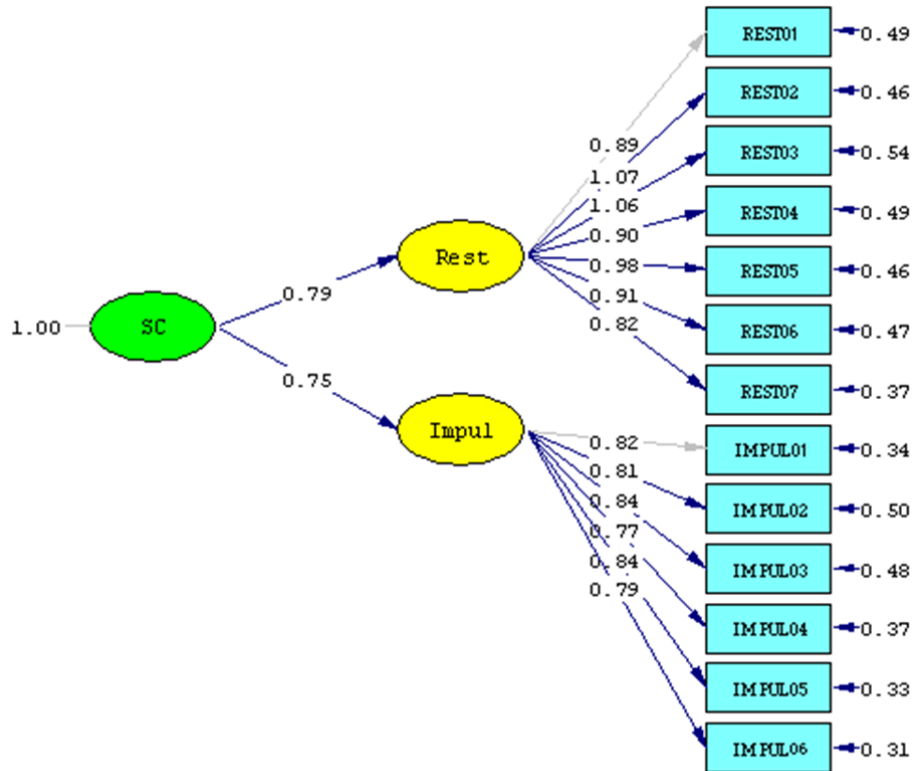
<b>PUBPR01</b>	<b>PUBPR02</b>	<b>PUBPR03</b>	<b>PRVPR01</b>	<b>PRVPR02</b>	<b>PRVPR03</b>
0.369	0.338	0.375	0.332	0.319	0.319

**THETA-EPS** (continued)

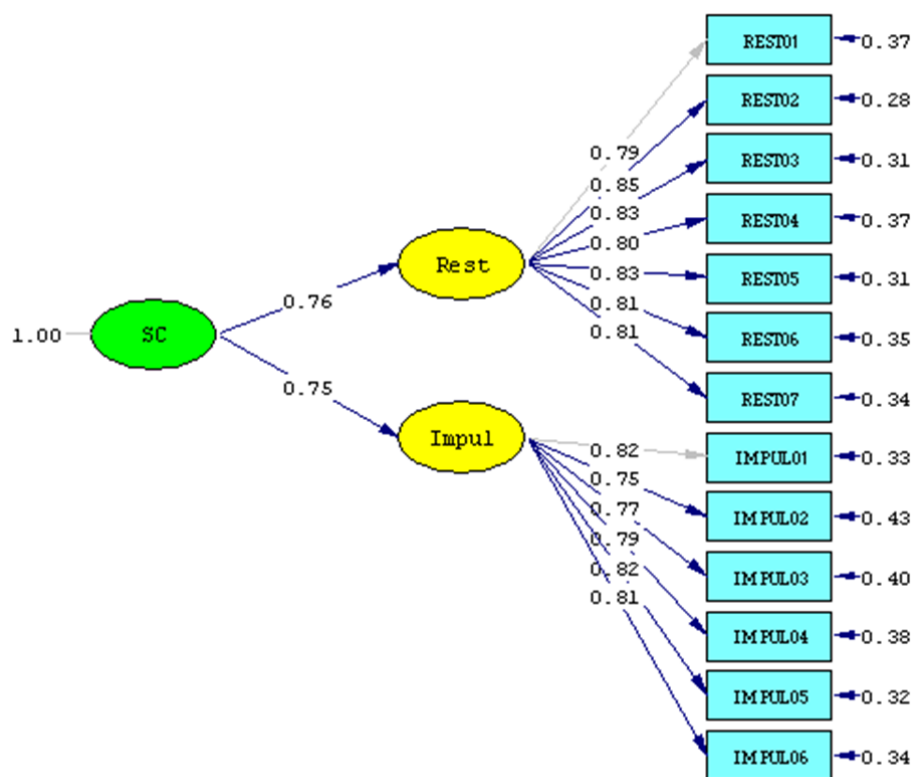
<b>RELEX01</b>	<b>RELEX02</b>	<b>RELEX03</b>
0.293	0.277	0.301

Time used: 0.094 Seconds

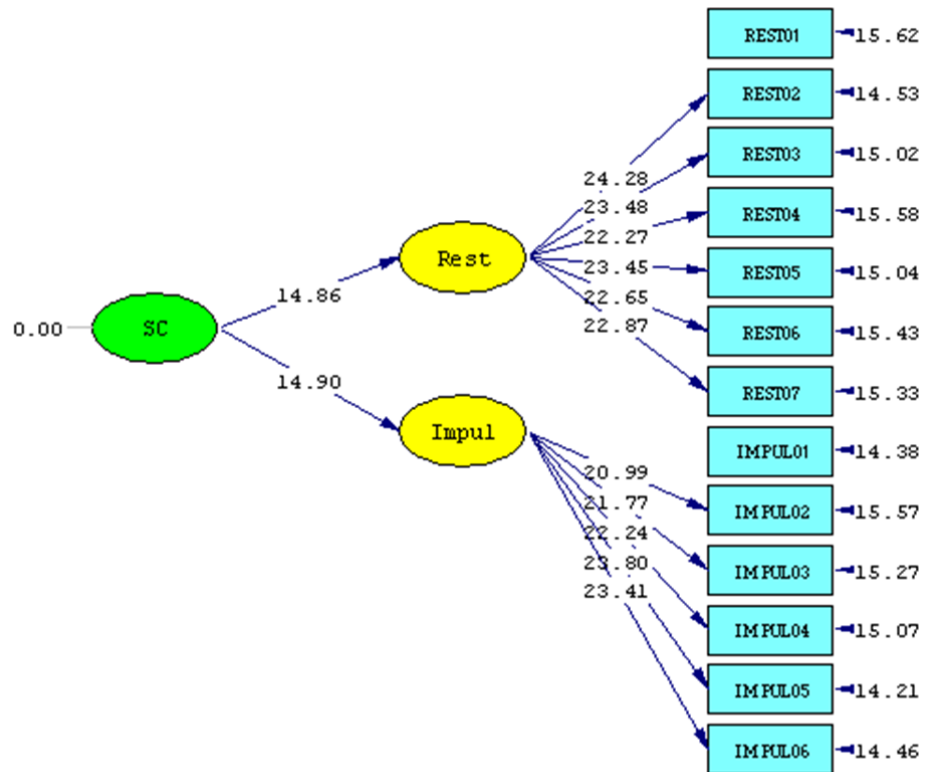
## Appendix C2: Measurement Model Of Brief Self Control Scale (BSCS)



Chi-Square=64.52, df=64, P-value=0.45834, RMSEA=0.004



Chi-Square=64.52, df=64, P-value=0.45834, RMSEA=0.004



Chi-Square=64.52, df=64, P-value=0.45834, RMSEA=0.004



L I S R E L 8.80  
BY  
Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\01 main study  
Raw score\SC.spl:**

```
Second Order CFA by Maximum Likelihood
Raw Data from file 'D:Study1 main study Raw score.psf'
Sample Size = 628
Latent Variables Rest Impul SC
Relationships
REST01 = Rest
REST02 = Rest
REST03 = Rest
REST04 = Rest
REST05 = Rest
REST06 = Rest
REST07 = Rest
IMPUL01 = Impul
IMPUL02 = Impul
IMPUL03 = Impul
IMPUL04 = Impul
IMPUL05 = Impul
IMPUL06 = Impul
Rest = SC
Impul = SC
Set the Error Variance of Rest and Impul correlate
Path Diagram
End of Problem

Sample Size = 628
```

Measurement Model Of Self-control

**Covariance Matrix**

	REST01	REST02	REST03	REST04	REST05	REST06
REST01	1.270					
REST02	0.928	1.603				
REST03	0.931	1.125	1.654			
REST04	0.782	0.966	0.940	1.300		
REST05	0.840	1.043	1.029	0.911	1.415	
REST06	0.827	0.966	0.968	0.815	0.886	1.296
REST07	0.761	0.892	0.870	0.718	0.794	0.747
IMPUL01	0.416	0.466	0.489	0.402	0.443	0.368
IMPUL02	0.461	0.598	0.540	0.433	0.505	0.431
IMPUL03	0.468	0.523	0.556	0.491	0.528	0.433
IMPUL04	0.410	0.483	0.522	0.442	0.442	0.412
IMPUL05	0.451	0.526	0.559	0.451	0.492	0.423
IMPUL06	0.410	0.475	0.498	0.437	0.436	0.358

**Covariance Matrix** (continued)

	REST07	IMPUL01	IMPUL02	IMPUL03	IMPUL04	IMPUL05
REST07	1.051					
IMPUL01	0.358	1.013				
IMPUL02	0.441	0.663	1.144			
IMPUL03	0.408	0.695	0.685	1.189		
IMPUL04	0.362	0.630	0.606	0.642	0.958	
IMPUL05	0.389	0.692	0.674	0.713	0.641	1.032
IMPUL06	0.350	0.661	0.627	0.651	0.621	0.655

**Covariance Matrix** (continued)

	IMPUL06
IMPUL06	0.935

Measurement Model Of Self-control

Number of Iterations = 16

**LISREL Estimates (Maximum Likelihood)**

Measurement Equations

REST01 = 0.885\*Rest, Errorvar.= 0.486 , R<sup>2</sup> = 0.631  
(0.0311)  
15.622

REST02 = 1.067\*Rest, Errorvar.= 0.465 , R<sup>2</sup> = 0.722  
(0.0439) (0.0320)  
24.284 14.527

REST03 = 1.056\*Rest, Errorvar.= 0.538 , R<sup>2</sup> = 0.687  
(0.0450) (0.0358)  
23.481 15.021

REST04 = 0.899\*Rest, Errorvar.= 0.492 , R<sup>2</sup> = 0.635  
           (0.0403)                  (0.0316)  
           22.272                  15.585

REST05 = 0.976\*Rest, Errorvar.= 0.462 , R<sup>2</sup> = 0.686  
           (0.0416)                  (0.0308)  
           23.450                  15.038

REST06 = 0.909\*Rest, Errorvar.= 0.469 , R<sup>2</sup> = 0.651  
           (0.0401)                  (0.0304)  
           22.654                  15.425

REST07 = 0.825\*Rest, Errorvar.= 0.370 , R<sup>2</sup> = 0.661  
           (0.0361)                  (0.0242)  
           22.867                  15.329

IMPUL01 = 0.823\*Impul, Errorvar.= 0.335 , R<sup>2</sup> = 0.669  
           (0.0233)  
           14.382

IMPUL02 = 0.805\*Impul, Errorvar.= 0.496 , R<sup>2</sup> = 0.566  
           (0.0384)                  (0.0319)  
           20.992                  15.570

IMPUL03 = 0.843\*Impul, Errorvar.= 0.478 , R<sup>2</sup> = 0.598  
           (0.0387)                  (0.0313)  
           21.771                  15.272

IMPUL04 = 0.769\*Impul, Errorvar.= 0.367 , R<sup>2</sup> = 0.617  
           (0.0346)                  (0.0244)  
           22.242                  15.067

IMPUL05 = 0.838\*Impul, Errorvar.= 0.330 , R<sup>2</sup> = 0.680  
           (0.0352)                  (0.0232)  
           23.801                  14.212

IMPUL06 = 0.788\*Impul, Errorvar.= 0.314 , R<sup>2</sup> = 0.664  
           (0.0337)                  (0.0217)  
           23.408                  14.458

Structural Equations

Rest = 0.764\*SC, Errorvar.= 0.441 , R<sup>2</sup> = 0.584  
           (0.0529)                  (0.0346)  
           14.861                  12.735

Impul = 0.748\*SC, Errorvar.= 0.441 , R<sup>2</sup> = 0.559  
           (0.0502)                  (0.0346)  
           14.903                  12.735

**Correlation Matrix of Independent Variables**

**SC**  
 1.000

## Covariance Matrix of Latent Variables

	Rest	Impul	SC
Rest	1.060		
Impul	0.588	1.000	
SC	0.787	0.748	1.000

## Goodness of Fit Statistics

Degrees of Freedom = 64  
Minimum Fit Function Chi-Square = 64.720 (P = 0.451)  
Normal Theory Weighted Least Squares Chi-Square = 64.518 (P = 0.458)  
Estimated Non-centrality Parameter (NCP) = 0.518  
90 Percent Confidence Interval for NCP = (0.0 ; 23.592)

Minimum Fit Function Value = 0.103  
Population Discrepancy Function Value (F0) = 0.000827  
90 Percent Confidence Interval for F0 = (0.0 ; 0.0376)  
Root Mean Square Error of Approximation (RMSEA) = 0.00359  
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0242)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 1.00

Expected Cross-Validation Index (ECVI) = 0.189  
90 Percent Confidence Interval for ECVI = (0.188 ; 0.226)  
ECVI for Saturated Model = 0.290  
ECVI for Independence Model = 21.120

Chi-Square for Independence Model with 78 Degrees of Freedom = 13216.057  
Independence AIC = 13242.057  
Model AIC = 118.518  
Saturated AIC = 182.000  
Independence CAIC = 13312.810  
Model CAIC = 265.467  
Saturated CAIC = 677.271

Normed Fit Index (NFI) = 0.995  
Non-Normed Fit Index (NNFI) = 1.00  
Parsimony Normed Fit Index (PNFI) = 0.816  
Comparative Fit Index (CFI) = 1.00  
Incremental Fit Index (IFI) = 1.00  
Relative Fit Index (RFI) = 0.994

Critical N (CN) = 904.083

Root Mean Square Residual (RMR) = 0.0385  
Standardized RMR = 0.0286  
Goodness of Fit Index (GFI) = 0.984  
Adjusted Goodness of Fit Index (AGFI) = 0.978  
Parsimony Goodness of Fit Index (PGFI) = 0.692

Measurement Model Of Self-control

**Fitted Covariance Matrix**

	<b>REST01</b>	<b>REST02</b>	<b>REST03</b>	<b>REST04</b>	<b>REST05</b>	<b>REST06</b>
<b>REST01</b>	1.317					
<b>REST02</b>	1.001	1.671				
<b>REST03</b>	0.991	1.194	1.721			
<b>REST04</b>	0.843	1.016	1.006	1.348		
<b>REST05</b>	0.916	1.103	1.092	0.929	1.472	
<b>REST06</b>	0.853	1.028	1.018	0.866	0.941	1.346
<b>REST07</b>	0.774	0.933	0.923	0.785	0.853	0.795
<b>IMPUL01</b>	0.428	0.516	0.511	0.435	0.472	0.440
<b>IMPUL02</b>	0.419	0.505	0.500	0.425	0.462	0.431
<b>IMPUL03</b>	0.439	0.529	0.523	0.445	0.484	0.451
<b>IMPUL04</b>	0.400	0.482	0.477	0.406	0.441	0.411
<b>IMPUL05</b>	0.436	0.525	0.520	0.442	0.480	0.448
<b>IMPUL06</b>	0.410	0.494	0.489	0.416	0.452	0.421

**Fitted Covariance Matrix** (continued)

	<b>REST07</b>	<b>IMPUL01</b>	<b>IMPUL02</b>	<b>IMPUL03</b>	<b>IMPUL04</b>	<b>IMPUL05</b>
<b>REST07</b>	1.091					
<b>IMPUL01</b>	0.399	1.013				
<b>IMPUL02</b>	0.390	0.663	1.144			
<b>IMPUL03</b>	0.409	0.694	0.679	1.189		
<b>IMPUL04</b>	0.373	0.633	0.619	0.648	0.958	
<b>IMPUL05</b>	0.406	0.689	0.674	0.706	0.644	1.032
<b>IMPUL06</b>	0.382	0.649	0.634	0.664	0.606	0.660

**Fitted Covariance Matrix** (continued)

	<b>IMPUL06</b>
<b>IMPUL06</b>	0.935

**Fitted Residuals**

	<b>REST01</b>	<b>REST02</b>	<b>REST03</b>	<b>REST04</b>	<b>REST05</b>	<b>REST06</b>
<b>REST01</b>	-0.047					
<b>REST02</b>	-0.073	-0.068				
<b>REST03</b>	-0.060	-0.069	-0.067			
<b>REST04</b>	-0.061	-0.050	-0.066	-0.048		
<b>REST05</b>	-0.076	-0.060	-0.064	-0.019	-0.057	
<b>REST06</b>	-0.026	-0.063	-0.050	-0.051	-0.054	-0.049
<b>REST07</b>	-0.013	-0.040	-0.053	-0.067	-0.059	-0.048
<b>IMPUL01</b>	-0.012	-0.050	-0.022	-0.033	-0.029	-0.072
<b>IMPUL02</b>	0.042	0.093	0.040	0.008	0.043	0.001
<b>IMPUL03</b>	0.030	-0.006	0.032	0.046	0.045	-0.018
<b>IMPUL04</b>	0.009	0.001	0.044	0.035	0.001	0.001
<b>IMPUL05</b>	0.015	0.001	0.039	0.008	0.011	-0.025
<b>IMPUL06</b>	0.000	-0.020	0.008	0.021	-0.016	-0.063

**Fitted Residuals** (continued)

	<b>REST07</b>	<b>IMPUL01</b>	<b>IMPUL02</b>	<b>IMPUL03</b>	<b>IMPUL04</b>	<b>IMPUL05</b>
<b>REST07</b>	-0.041					
<b>IMPUL01</b>	-0.041	0.000				
<b>IMPUL02</b>	0.051	0.000	0.000			
<b>IMPUL03</b>	-0.001	0.001	0.006	0.000		
<b>IMPUL04</b>	-0.011	-0.003	-0.013	-0.006	0.000	
<b>IMPUL05</b>	-0.017	0.002	-0.001	0.007	-0.003	0.000
<b>IMPUL06</b>	-0.032	0.012	-0.007	-0.013	0.015	-0.005

**Fitted Residuals** (continued)

	<b>IMPUL06</b>
<b>IMPUL06</b>	0.000

**Summary Statistics for Fitted Residuals**

Smallest Fitted Residual = -0.076  
 Median Fitted Residual = -0.007  
 Largest Fitted Residual = 0.093

**Stemleaf Plot**

```

- 6|63298776433100
- 4|974310009887110
- 2|3296520
- 0|9876333217665331100000000
  0|11111126788891255
  2|10259
  4|0234561
  6|
  8|3
    
```

**Standardized Residuals**

	<b>REST01</b>	<b>REST02</b>	<b>REST03</b>	<b>REST04</b>	<b>REST05</b>	<b>REST06</b>
<b>REST01</b>	-	-				
<b>REST02</b>	-4.758	-				
<b>REST03</b>	-3.546	-4.413	-			
<b>REST04</b>	-3.664	-3.261	-3.871	-		
<b>REST05</b>	-4.787	-4.119	-3.953	-1.171	-	
<b>REST06</b>	-1.601	-4.188	-3.018	-3.141	-3.533	-
<b>REST07</b>	-0.896	-3.046	-3.647	-4.690	-4.322	-3.423
<b>IMPUL01</b>	-0.442	-1.748	-0.722	-1.178	-1.029	-2.606
<b>IMPUL02</b>	1.317	2.741	1.146	0.237	1.327	0.018
<b>IMPUL03</b>	0.924	-0.178	0.924	1.424	1.375	-0.552
<b>IMPUL04</b>	0.335	0.028	1.435	1.241	0.028	0.045
<b>IMPUL05</b>	0.543	0.021	1.293	0.296	0.410	-0.905
<b>IMPUL06</b>	-0.007	-0.703	0.286	0.778	-0.580	-2.372

**Standardized Residuals** (continued)

	<b>REST07</b>	<b>IMPUL01</b>	<b>IMPUL02</b>	<b>IMPUL03</b>	<b>IMPUL04</b>	<b>IMPUL05</b>
<b>REST07</b>	- -					
<b>IMPUL01</b>	-1.647	- -				
<b>IMPUL02</b>	1.785	0.026	- -			
<b>IMPUL03</b>	-0.032	0.073	0.373	- -		
<b>IMPUL04</b>	-0.425	-0.276	-0.908	-0.415	- -	
<b>IMPUL05</b>	-0.677	0.221	-0.055	0.557	-0.295	- -
<b>IMPUL06</b>	-1.349	1.261	-0.572	-1.056	1.401	-0.556

**Standardized Residuals** (continued)

	<b>IMPUL06</b>
<b>IMPUL06</b>	- -

**Summary Statistics for Standardized Residuals**

Smallest Standardized Residual = -4.787  
 Median Standardized Residual = -0.032  
 Largest Standardized Residual = 2.741

**The Modification Indices Suggest to Add an Error Covariance**

<b>Between</b>	<b>and</b>	<b>Decrease in Chi-Square</b>	<b>New Estimate</b>
<b>IMPUL02</b>	<b>REST02</b>	10.1	0.07 intbl

*Measurement Model Of Self-control*

**Standardized Solution**

**LAMBDA-Y**

	<b>Rest</b>	<b>Impul</b>
<b>REST01</b>	0.911	- -
<b>REST02</b>	1.098	- -
<b>REST03</b>	1.087	- -
<b>REST04</b>	0.925	- -
<b>REST05</b>	1.005	- -
<b>REST06</b>	0.936	- -
<b>REST07</b>	0.849	- -
<b>IMPUL01</b>	- -	0.823
<b>IMPUL02</b>	- -	0.805
<b>IMPUL03</b>	- -	0.843
<b>IMPUL04</b>	- -	0.769
<b>IMPUL05</b>	- -	0.838
<b>IMPUL06</b>	- -	0.788

**GAMMA**

	<b>SC</b>
<b>Rest</b>	0.764
<b>Impul</b>	0.748

**Correlation Matrix of ETA and KSI**

	<b>Rest</b>	<b>Impul</b>	<b>SC</b>
<b>Rest</b>	1.000		
<b>Impul</b>	0.571	1.000	
<b>SC</b>	0.764	0.748	1.000

**PSI**

Note: This matrix is diagonal.

<b>Rest</b>	<b>Impul</b>
0.416	0.441

**Measurement Model Of Self-control**

**Completely Standardized Solution**

**LAMBDA-Y**

	<b>Rest</b>	<b>Impul</b>
<b>REST01</b>	0.794	- -
<b>REST02</b>	0.850	- -
<b>REST03</b>	0.829	- -
<b>REST04</b>	0.797	- -
<b>REST05</b>	0.828	- -
<b>REST06</b>	0.807	- -
<b>REST07</b>	0.813	- -
<b>IMPUL01</b>	- -	0.818
<b>IMPUL02</b>	- -	0.753
<b>IMPUL03</b>	- -	0.773
<b>IMPUL04</b>	- -	0.785
<b>IMPUL05</b>	- -	0.825
<b>IMPUL06</b>	- -	0.815

**GAMMA**

	<b>SC</b>
<b>Rest</b>	0.764
<b>Impul</b>	0.748



**Correlation Matrix of ETA and KSI**

	<b>Rest</b>	<b>Impul</b>	<b>SC</b>
<b>Rest</b>	1.000		
<b>Impul</b>	0.571	1.000	
<b>SC</b>	0.764	0.748	1.000

**PSI**

Note: This matrix is diagonal.

<b>Rest</b>	<b>Impul</b>
0.416	0.441

**THETA-EPS**

<b>REST01</b>	<b>REST02</b>	<b>REST03</b>	<b>REST04</b>	<b>REST05</b>	<b>REST06</b>
0.369	0.278	0.313	0.365	0.314	0.349

**THETA-EPS** (continued)

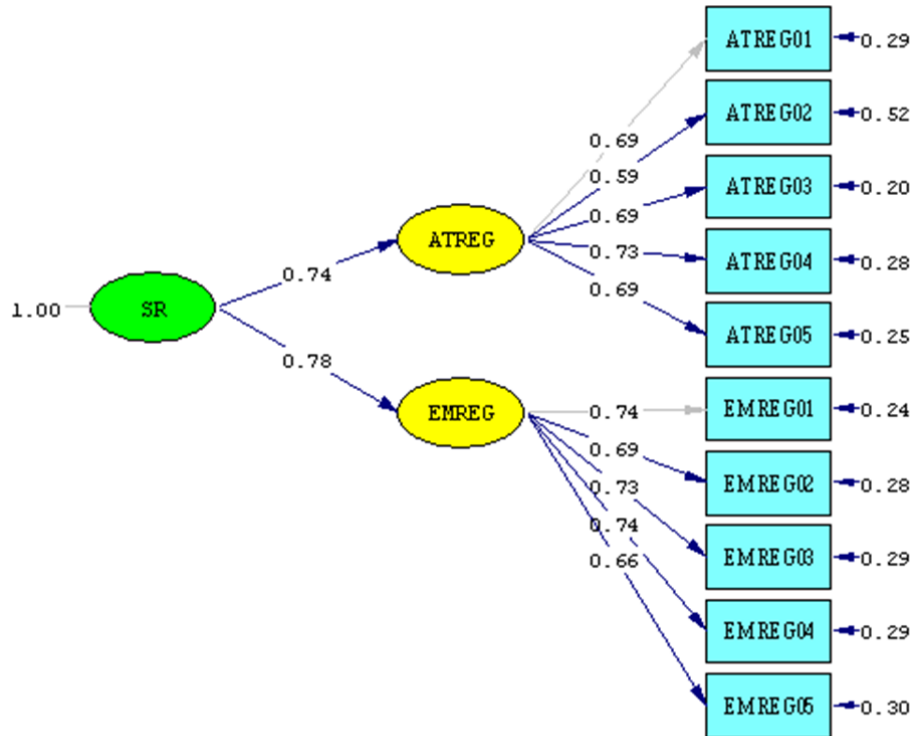
<b>REST07</b>	<b>IMPUL01</b>	<b>IMPUL02</b>	<b>IMPUL03</b>	<b>IMPUL04</b>	<b>IMPUL05</b>
0.339	0.331	0.434	0.402	0.383	0.320

**THETA-EPS** (continued)

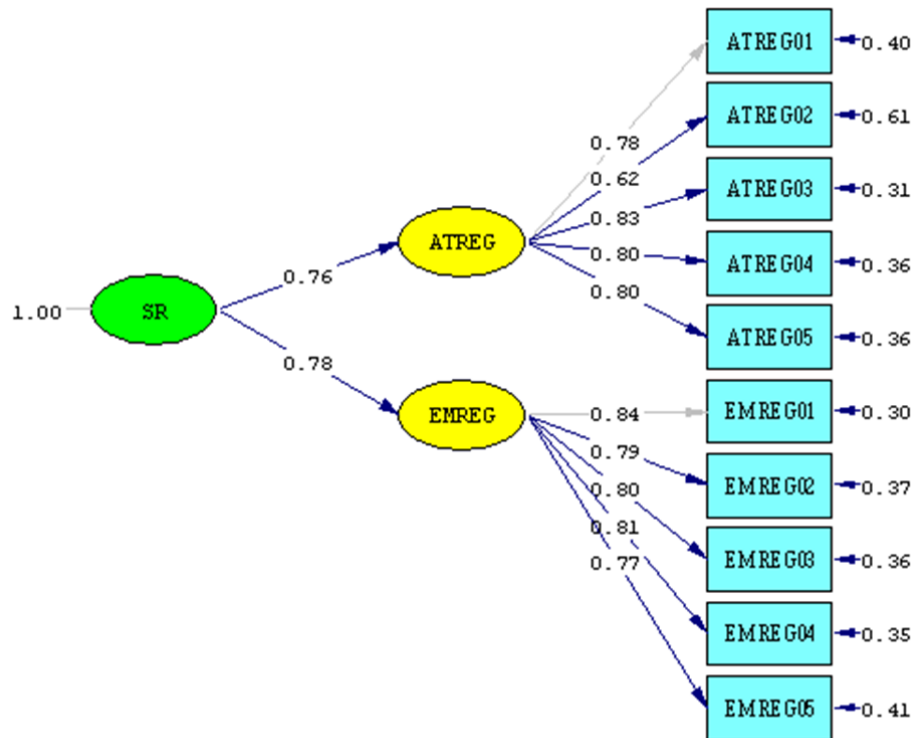
<b>IMPUL06</b>
0.336

Time used: 0.078 Seconds

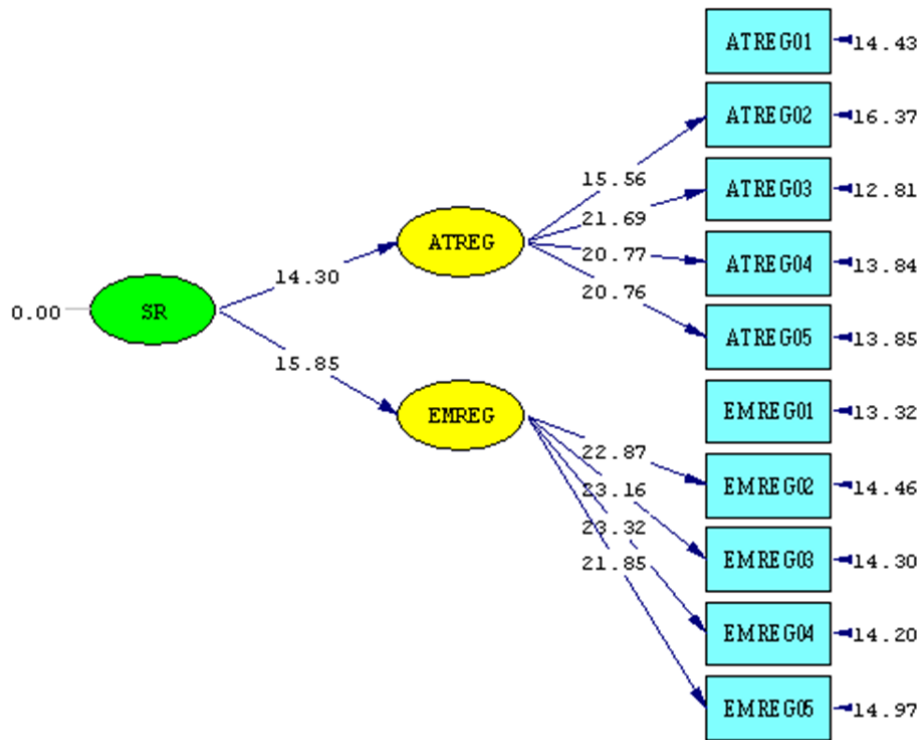
### Appendix C3: Measurement Model Of Self Regulation Scale (SRS)



Chi-Square=39.47, df=34, P-value=0.23862, RMSEA=0.016



Chi-Square=39.47, df=34, P-value=0.23862, RMSEA=0.016



Chi-Square=39.47, df=34, P-value=0.23862, RMSEA=0.016

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Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\01 main study  
Raw score\SR.spl:**

```
Second Order CFA by Maximum Likelihood
Raw Data from file 'D:Study1 main study Raw score.psf'
Latent Variables  ATREG EMREG SR
Relationships
ATREG01 = ATREG
ATREG02 = ATREG
ATREG03 = ATREG
ATREG04 = ATREG
ATREG05 = ATREG
EMREG01 = EMREG
EMREG02 = EMREG
EMREG03 = EMREG
EMREG04 = EMREG
EMREG05 = EMREG
ATREG = SR
EMREG = SR
Set Error variance ATREG and EMREG correlate
Path Diagram
End of Problem
```

Sample Size = 628

Measurement Model Of Self-regulation

**Covariance Matrix**

	ATREG01	ATREG02	ATREG03	ATREG04	ATREG05	EMREG01
ATREG01	0.765					
ATREG02	0.412	0.863				
ATREG03	0.472	0.401	0.675			
ATREG04	0.494	0.452	0.501	0.807		
ATREG05	0.477	0.373	0.484	0.497	0.720	
EMREG01	0.294	0.299	0.277	0.325	0.281	0.783
EMREG02	0.263	0.243	0.280	0.287	0.293	0.515
EMREG03	0.286	0.278	0.265	0.286	0.284	0.532
EMREG04	0.293	0.262	0.273	0.291	0.273	0.542
EMREG05	0.288	0.238	0.259	0.276	0.270	0.493

**Covariance Matrix** (continued)

	EMREG02	EMREG03	EMREG04	EMREG05
EMREG02	0.758			
EMREG03	0.504	0.824		
EMREG04	0.504	0.547	0.833	
EMREG05	0.454	0.479	0.486	0.741

Measurement Model Of Self-regulation

Number of Iterations = 25

**LISREL Estimates (Maximum Likelihood)**

Measurement Equations

ATREG01 = 0.688\*ATREG, Errorvar.= 0.292 , R<sup>2</sup> = 0.603  
(0.0202)  
14.429

ATREG02 = 0.589\*ATREG, Errorvar.= 0.517 , R<sup>2</sup> = 0.386  
(0.0378) (0.0316)  
15.559 16.372

ATREG03 = 0.690\*ATREG, Errorvar.= 0.198 , R<sup>2</sup> = 0.693  
(0.0318) (0.0155)  
21.689 12.811

ATREG04 = 0.727\*ATREG, Errorvar.= 0.278 , R<sup>2</sup> = 0.641  
(0.0350) (0.0201)  
20.770 13.841

ATREG05 = 0.687\*ATREG, Errorvar.= 0.248 , R<sup>2</sup> = 0.641  
(0.0331) (0.0179)  
20.763 13.848

EMREG01 = 0.739\*EMREG, Errorvar.= 0.237 , R<sup>2</sup> = 0.698  
(0.0178)  
13.316

EMREG02 = 0.692\*EMREG, Errorvar.= 0.279 , R<sup>2</sup> = 0.631  
 (0.0302) (0.0193)  
 22.873 14.463

EMREG03 = 0.728\*EMREG, Errorvar.= 0.295 , R<sup>2</sup> = 0.643  
 (0.0314) (0.0206)  
 23.160 14.298

EMREG04 = 0.735\*EMREG, Errorvar.= 0.292 , R<sup>2</sup> = 0.649  
 (0.0315) (0.0206)  
 23.323 14.200

EMREG05 = 0.662\*EMREG, Errorvar.= 0.303 , R<sup>2</sup> = 0.592  
 (0.0303) (0.0202)  
 21.851 14.973

Structural Equations

ATREG = 0.736\*SR, Errorvar.= 0.397 , R<sup>2</sup> = 0.577  
 (0.0515) (0.0332)  
 14.304 11.959

EMREG = 0.777\*SR, Errorvar.= 0.397 , R<sup>2</sup> = 0.603  
 (0.0490) (0.0332)  
 15.853 11.959

**Correlation Matrix of Independent Variables**

**SR**  
 1.000

**Covariance Matrix of Latent Variables**

	<b>ATREG</b>	<b>EMREG</b>	<b>SR</b>
<b>ATREG</b>	0.938		
<b>EMREG</b>	0.572	1.000	
<b>SR</b>	0.736	0.777	1.000

## Goodness of Fit Statistics

Degrees of Freedom = 34  
Minimum Fit Function Chi-Square = 38.140 (P = 0.287)  
Normal Theory Weighted Least Squares Chi-Square = 39.471 (P = 0.239)  
Estimated Non-centrality Parameter (NCP) = 5.471  
90 Percent Confidence Interval for NCP = (0.0 ; 25.285)

Minimum Fit Function Value = 0.0608  
Population Discrepancy Function Value (F0) = 0.00872  
90 Percent Confidence Interval for F0 = (0.0 ; 0.0403)  
Root Mean Square Error of Approximation (RMSEA) = 0.0160  
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0344)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 1.00

Expected Cross-Validation Index (ECVI) = 0.130  
90 Percent Confidence Interval for ECVI = (0.121 ; 0.162)  
ECVI for Saturated Model = 0.175  
ECVI for Independence Model = 11.071

Chi-Square for Independence Model with 45 Degrees of Freedom = 6921.205  
Independence AIC = 6941.205  
Model AIC = 81.471  
Saturated AIC = 110.000  
Independence CAIC = 6995.630  
Model CAIC = 195.764  
Saturated CAIC = 409.340

Normed Fit Index (NFI) = 0.994  
Non-Normed Fit Index (NNFI) = 0.999  
Parsimony Normed Fit Index (PNFI) = 0.751  
Comparative Fit Index (CFI) = 0.999  
Incremental Fit Index (IFI) = 0.999  
Relative Fit Index (RFI) = 0.993

Critical N (CN) = 922.605

Root Mean Square Residual (RMR) = 0.0199  
Standardized RMR = 0.0266  
Goodness of Fit Index (GFI) = 0.988  
Adjusted Goodness of Fit Index (AGFI) = 0.980  
Parsimony Goodness of Fit Index (PGFI) = 0.611



Measurement Model Of Self-regulation

**Fitted Covariance Matrix**

	<b>ATREG01</b>	<b>ATREG02</b>	<b>ATREG03</b>	<b>ATREG04</b>	<b>ATREG05</b>	<b>EMREG01</b>
<b>ATREG01</b>	0.736					
<b>ATREG02</b>	0.380	0.842				
<b>ATREG03</b>	0.446	0.381	0.645			
<b>ATREG04</b>	0.469	0.402	0.471	0.774		
<b>ATREG05</b>	0.443	0.379	0.445	0.469	0.691	
<b>EMREG01</b>	0.291	0.249	0.292	0.307	0.290	0.783
<b>EMREG02</b>	0.272	0.233	0.273	0.288	0.272	0.511
<b>EMREG03</b>	0.286	0.245	0.287	0.303	0.286	0.538
<b>EMREG04</b>	0.289	0.247	0.290	0.306	0.289	0.543
<b>EMREG05</b>	0.260	0.223	0.261	0.275	0.260	0.490

**Fitted Covariance Matrix** (continued)

	<b>EMREG02</b>	<b>EMREG03</b>	<b>EMREG04</b>	<b>EMREG05</b>
<b>EMREG02</b>	0.758			
<b>EMREG03</b>	0.503	0.824		
<b>EMREG04</b>	0.508	0.535	0.833	
<b>EMREG05</b>	0.458	0.482	0.487	0.741

**Fitted Residuals**

	<b>ATREG01</b>	<b>ATREG02</b>	<b>ATREG03</b>	<b>ATREG04</b>	<b>ATREG05</b>	<b>EMREG01</b>
<b>ATREG01</b>	0.029					
<b>ATREG02</b>	0.032	0.021				
<b>ATREG03</b>	0.027	0.020	0.029			
<b>ATREG04</b>	0.025	0.050	0.030	0.033		
<b>ATREG05</b>	0.034	-0.007	0.039	0.028	0.029	
<b>EMREG01</b>	0.004	0.051	-0.014	0.018	-0.009	0.000
<b>EMREG02</b>	-0.009	0.010	0.007	-0.001	0.021	0.004
<b>EMREG03</b>	-0.001	0.033	-0.023	-0.017	-0.002	-0.006
<b>EMREG04</b>	0.004	0.015	-0.017	-0.014	-0.015	-0.002
<b>EMREG05</b>	0.028	0.015	-0.002	0.000	0.010	0.003

**Fitted Residuals** (continued)

	<b>EMREG02</b>	<b>EMREG03</b>	<b>EMREG04</b>	<b>EMREG05</b>
<b>EMREG02</b>	0.000			
<b>EMREG03</b>	0.001	0.000		
<b>EMREG04</b>	-0.005	0.012	0.000	
<b>EMREG05</b>	-0.004	-0.003	-0.001	0.000

## Summary Statistics for Fitted Residuals

Smallest Fitted Residual = -0.023  
 Median Fitted Residual = 0.004  
 Largest Fitted Residual = 0.051

## Stemleaf Plot

```

- 2|3
- 1|77544
- 0|9976543222111000000
  0|134447
  1|002558
  2|0115788999
  3|023349
  4|
  5|01
  
```

## Standardized Residuals

	ATREG01	ATREG02	ATREG03	ATREG04	ATREG05	EMREG01
ATREG01	- -					
ATREG02	2.468	- -				
ATREG03	4.182	1.981	- -			
ATREG04	3.073	4.040	5.112	- -		
ATREG05	4.384	-0.562	6.951	3.931	- -	
EMREG01	0.217	2.275	-0.992	1.056	-0.590	- -
EMREG02	-0.497	0.453	0.424	-0.034	1.249	0.563
EMREG03	-0.033	1.397	-1.415	-0.926	-0.104	-0.815
EMREG04	0.188	0.634	-1.072	-0.779	-0.880	-0.272
EMREG05	1.508	0.657	-0.141	0.024	0.590	0.377

## Standardized Residuals (continued)

	EMREG02	EMREG03	EMREG04	EMREG05
EMREG02	- -			
EMREG03	0.086	- -		
EMREG04	-0.584	1.418	- -	
EMREG05	-0.404	-0.298	-0.097	- -

## Summary Statistics for Standardized Residuals

Smallest Standardized Residual = -1.415  
 Median Standardized Residual = 0.000  
 Largest Standardized Residual = 6.951

Measurement Model Of Self-regulation

**Standardized Solution**

**LAMBDA-Y**

	<b>ATREG</b>	<b>EMREG</b>
<b>ATREG01</b>	0.666	- -
<b>ATREG02</b>	0.570	- -
<b>ATREG03</b>	0.669	- -
<b>ATREG04</b>	0.705	- -
<b>ATREG05</b>	0.665	- -
<b>EMREG01</b>	- -	0.739
<b>EMREG02</b>	- -	0.692
<b>EMREG03</b>	- -	0.728
<b>EMREG04</b>	- -	0.735
<b>EMREG05</b>	- -	0.662

**GAMMA**

	<b>SR</b>
<b>ATREG</b>	0.760
<b>EMREG</b>	0.777

**Correlation Matrix of ETA and KSI**

	<b>ATREG</b>	<b>EMREG</b>	<b>SR</b>
<b>ATREG</b>	1.000		
<b>EMREG</b>	0.590	1.000	
<b>SR</b>	0.760	0.777	1.000

**PSI**

Note: This matrix is diagonal.

<b>ATREG</b>	<b>EMREG</b>
0.423	0.397

Measurement Model Of Self-regulation

**Completely Standardized Solution**

**LAMBDA-Y**

	<b>ATREG</b>	<b>EMREG</b>
<b>ATREG01</b>	0.777	- -
<b>ATREG02</b>	0.621	- -
<b>ATREG03</b>	0.833	- -
<b>ATREG04</b>	0.801	- -
<b>ATREG05</b>	0.801	- -
<b>EMREG01</b>	- -	0.835
<b>EMREG02</b>	- -	0.795
<b>EMREG03</b>	- -	0.802
<b>EMREG04</b>	- -	0.806
<b>EMREG05</b>	- -	0.769

**GAMMA**

	<b>SR</b>
<b>ATREG</b>	0.760
<b>EMREG</b>	0.777

**Correlation Matrix of ETA and KSI**

	<b>ATREG</b>	<b>EMREG</b>	<b>SR</b>
<b>ATREG</b>	1.000		
<b>EMREG</b>	0.590	1.000	
<b>SR</b>	0.760	0.777	1.000

**PSI**

Note: This matrix is diagonal.

<b>ATREG</b>	<b>EMREG</b>
0.423	0.397

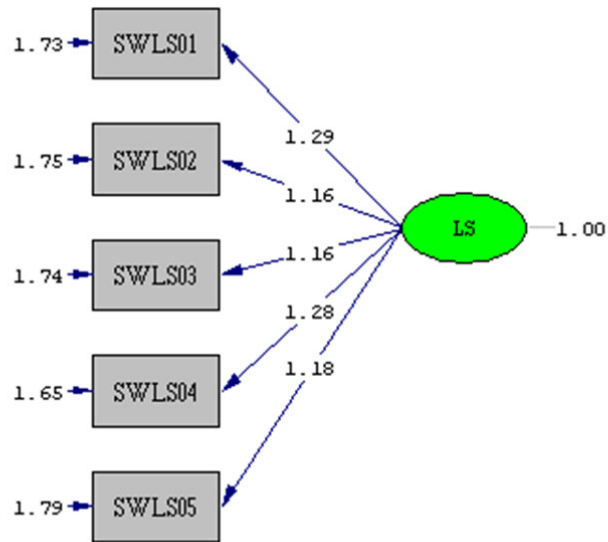
**THETA-EPS**

<b>ATREG01</b>	<b>ATREG02</b>	<b>ATREG03</b>	<b>ATREG04</b>	<b>ATREG05</b>	<b>EMREG01</b>
0.397	0.614	0.307	0.359	0.359	0.302

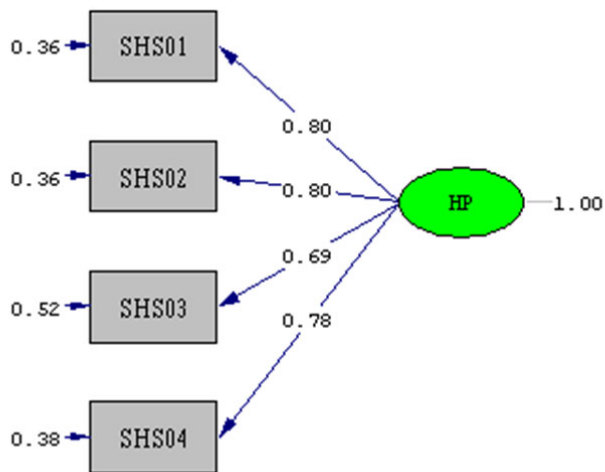
**THETA-EPS** (continued)

<b>EMREG02</b>	<b>EMREG03</b>	<b>EMREG04</b>	<b>EMREG05</b>
0.369	0.357	0.351	0.408

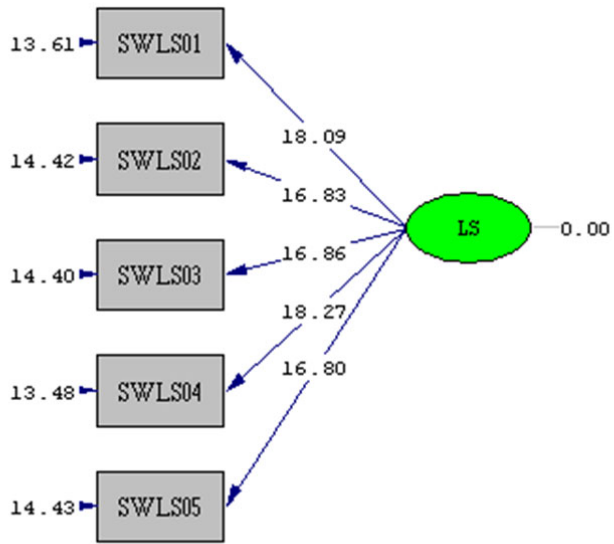
### Appendix C4: Measurement Model Of Satisfaction With Life Scale (SWLS)



Chi-Square=7.47, df=5, P-value=0.18796, RMSEA=0.028



Chi-Square=2.61, df=2, P-value=0.27060, RMSEA=0.022



Chi-Square=7.47, df=5, P-value=0.18796, RMSEA=0.028

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Raw score\LS.spl:**

First Order CFA Estimated by Maximum Likelihood  
Raw Data from file 'D:Study1 main study Raw score.psf'  
Latent Variables LS  
Relationships  
SWLS01 = LS  
SWLS02 = LS  
SWLS03 = LS  
SWLS04 = LS  
SWLS05 = LS  
Path Diagram  
End of Problem  
  
Sample Size = 628

**Measurement Model Of Life Satisfaction**

**Covariance Matrix**

	<b>SWLS01</b>	<b>SWLS02</b>	<b>SWLS03</b>	<b>SWLS04</b>	<b>SWLS05</b>
<b>SWLS01</b>	3.402				
<b>SWLS02</b>	1.529	3.098			
<b>SWLS03</b>	1.572	1.387	3.100		
<b>SWLS04</b>	1.625	1.431	1.463	3.295	
<b>SWLS05</b>	1.455	1.372	1.295	1.627	3.176

### Measurement Model Of Life Satisfaction

Number of Iterations = 3

### **LISREL Estimates (Maximum Likelihood)**

#### Measurement Equations

SWLS01 = 1.291\*LS, Errorvar.= 1.734 , R<sup>2</sup> = 0.490  
(0.0714) (0.127)  
18.094 13.610

SWLS02 = 1.163\*LS, Errorvar.= 1.746 , R<sup>2</sup> = 0.437  
(0.0691) (0.121)  
16.829 14.418

SWLS03 = 1.165\*LS, Errorvar.= 1.742 , R<sup>2</sup> = 0.438  
(0.0691) (0.121)  
16.860 14.400

SWLS04 = 1.281\*LS, Errorvar.= 1.654 , R<sup>2</sup> = 0.498  
(0.0701) (0.123)  
18.274 13.479

SWLS05 = 1.176\*LS, Errorvar.= 1.793 , R<sup>2</sup> = 0.435  
(0.0700) (0.124)  
16.801 14.434

#### **Correlation Matrix of Independent Variables**

LS  
1.000

### **Goodness of Fit Statistics**

Degrees of Freedom = 5  
Minimum Fit Function Chi-Square = 7.277 (P = 0.201)  
Normal Theory Weighted Least Squares Chi-Square = 7.470 (P = 0.188)  
Estimated Non-centrality Parameter (NCP) = 2.470  
90 Percent Confidence Interval for NCP = (0.0 ; 14.018)

Minimum Fit Function Value = 0.0116  
Population Discrepancy Function Value (F0) = 0.00394  
90 Percent Confidence Interval for F0 = (0.0 ; 0.0224)  
Root Mean Square Error of Approximation (RMSEA) = 0.0281  
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0669)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.789

Expected Cross-Validation Index (ECVI) = 0.0438  
90 Percent Confidence Interval for ECVI = (0.0399 ; 0.0622)  
ECVI for Saturated Model = 0.0478  
ECVI for Independence Model = 2.129

Chi-Square for Independence Model with 10 Degrees of Freedom =  
1324.991  
Independence AIC = 1334.991  
Model AIC = 27.470  
Saturated AIC = 30.000  
Independence CAIC = 1362.204



Model CAIC = 81.895  
Saturated CAIC = 111.638

Normed Fit Index (NFI) = 0.995  
Non-Normed Fit Index (NNFI) = 0.997  
Parsimony Normed Fit Index (PNFI) = 0.497  
Comparative Fit Index (CFI) = 0.998  
Incremental Fit Index (IFI) = 0.998  
Relative Fit Index (RFI) = 0.989

Critical N (CN) = 1301.061

Root Mean Square Residual (RMR) = 0.0488  
Standardized RMR = 0.0152  
Goodness of Fit Index (GFI) = 0.995  
Adjusted Goodness of Fit Index (AGFI) = 0.986  
Parsimony Goodness of Fit Index (PGFI) = 0.332

**Measurement Model Of Life Satisfaction**

**Fitted Covariance Matrix**

	<b>SWLS01</b>	<b>SWLS02</b>	<b>SWLS03</b>	<b>SWLS04</b>	<b>SWLS05</b>
<b>SWLS01</b>	3.402				
<b>SWLS02</b>	1.502	3.098			
<b>SWLS03</b>	1.504	1.355	3.100		
<b>SWLS04</b>	1.654	1.489	1.492	3.295	
<b>SWLS05</b>	1.518	1.367	1.370	1.506	3.176

**Fitted Residuals**

	<b>SWLS01</b>	<b>SWLS02</b>	<b>SWLS03</b>	<b>SWLS04</b>	<b>SWLS05</b>
<b>SWLS01</b>	0.000				
<b>SWLS02</b>	0.028	0.000			
<b>SWLS03</b>	0.067	0.032	0.000		
<b>SWLS04</b>	-0.029	-0.058	-0.029	0.000	
<b>SWLS05</b>	-0.063	0.004	-0.075	0.122	0.000

**Summary Statistics for Fitted Residuals**

Smallest Fitted Residual = -0.075  
Median Fitted Residual = 0.000  
Largest Fitted Residual = 0.122

**Summary Statistics for Standardized Residuals**

Smallest Standardized Residual = -1.424  
Median Standardized Residual = 0.000  
Largest Standardized Residual = 2.541

Measurement Model Of Life Satisfaction

**Standardized Solution**

LAMBDA-X

	<b>LS</b>
<b>SWLS01</b>	1.291
<b>SWLS02</b>	1.163
<b>SWLS03</b>	1.165
<b>SWLS04</b>	1.281
<b>SWLS05</b>	1.176

PHI

<b>LS</b>
1.000

Measurement Model Of Life Satisfaction

**Completely Standardized Solution**

LAMBDA-X

	<b>LS</b>
<b>SWLS01</b>	0.700
<b>SWLS02</b>	0.661
<b>SWLS03</b>	0.662
<b>SWLS04</b>	0.706
<b>SWLS05</b>	0.660

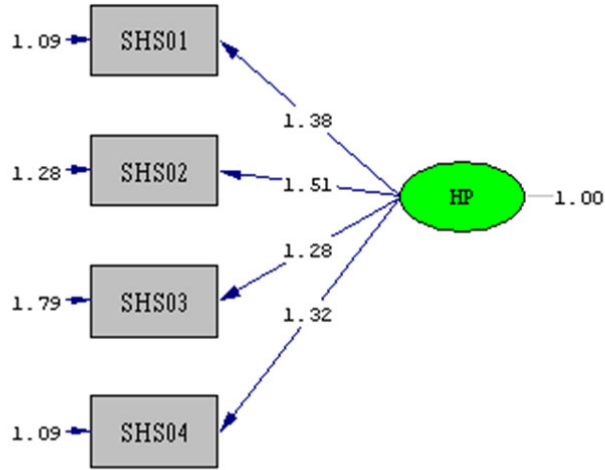
PHI

<b>LS</b>
1.000

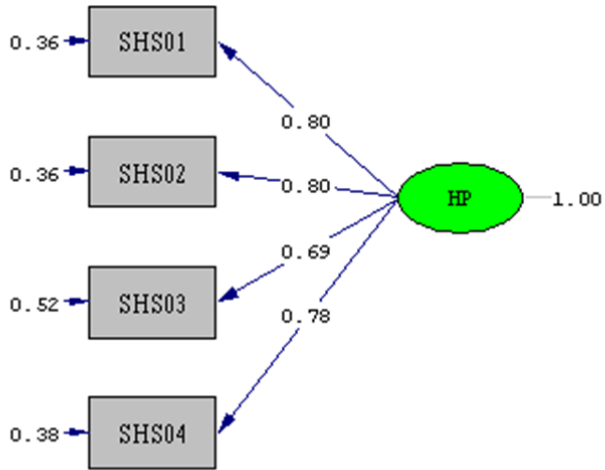
THETA-DELTA

<b>SWLS01</b>	<b>SWLS02</b>	<b>SWLS03</b>	<b>SWLS04</b>	<b>SWLS05</b>
0.510	0.563	0.562	0.502	0.565

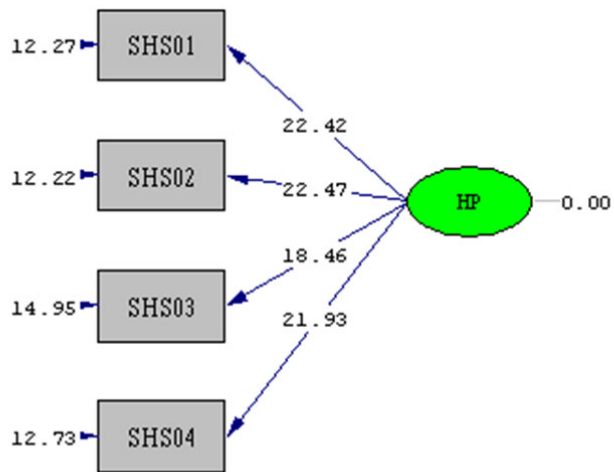
**Appendix C5: Measurement Model Of Subjective Happiness Scale (SHS)**



Chi-Square=2.61, df=2, P-value=0.27060, RMSEA=0.022



Chi-Square=2.61, df=2, P-value=0.27060, RMSEA=0.022



Chi-Square=2.61, df=2, P-value=0.27060, RMSEA=0.022

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The following lines were read from file **D:\Ma Study\01 main study  
Raw score\HP.spl:**

CFA by Maximum Likelihood  
Raw Data from file 'D:Study1 main study Raw score.psf'  
Latent Variables HP  
Relationships  
SHS01 = HP  
SHS02 = HP  
SHS03 = HP  
SHS04 = HP  
Path Diagram  
End of Problem

Sample Size = 628

#### Measurement Model Of Happiness

### Covariance Matrix

	SHS01	SHS02	SHS03	SHS04
SHS01	3.006			
SHS02	2.050	3.554		
SHS03	1.777	1.970	3.415	
SHS04	1.854	1.998	1.629	2.835

#### Measurement Model Of Happiness

Number of Iterations = 3

### LISREL Estimates (Maximum Likelihood)

Measurement Equations

SHS01 = 1.383\*HP, Errorvar.= 1.092 , R<sup>2</sup> = 0.637  
(0.0617) (0.0890)  
22.420 12.268

SHS02 = 1.506\*HP, Errorvar.= 1.284 , R<sup>2</sup> = 0.639  
(0.0670) (0.105)  
22.468 12.220

SHS03 = 1.276\*HP, Errorvar.= 1.787 , R<sup>2</sup> = 0.477  
(0.0691) (0.120)

18.458	14.947
SHS04 = 1.322*HP, Errorvar.= 1.088 , R <sup>2</sup> = 0.616	
(0.0603)	(0.0855)
21.927	12.733

### Correlation Matrix of Independent Variables

HP  
1.000

### Goodness of Fit Statistics

Degrees of Freedom = 2  
 Minimum Fit Function Chi-Square = 2.654 (P = 0.265)  
 Normal Theory Weighted Least Squares Chi-Square = 2.614 (P = 0.271)  
 Estimated Non-centrality Parameter (NCP) = 0.614  
 90 Percent Confidence Interval for NCP = (0.0 ; 9.183)

Minimum Fit Function Value = 0.00423  
 Population Discrepancy Function Value (F0) = 0.000980  
 90 Percent Confidence Interval for F0 = (0.0 ; 0.0146)  
 Root Mean Square Error of Approximation (RMSEA) = 0.0221  
 90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0856)  
 P-Value for Test of Close Fit (RMSEA < 0.05) = 0.682

Expected Cross-Validation Index (ECVI) = 0.0297  
 90 Percent Confidence Interval for ECVI = (0.0287 ; 0.0434)  
 ECVI for Saturated Model = 0.0319  
 ECVI for Independence Model = 2.107

Chi-Square for Independence Model with 6 Degrees of Freedom = 1313.130  
 Independence AIC = 1321.130  
 Model AIC = 18.614  
 Saturated AIC = 20.000  
 Independence CAIC = 1342.900  
 Model CAIC = 62.155  
 Saturated CAIC = 74.425

Normed Fit Index (NFI) = 0.998  
 Non-Normed Fit Index (NNFI) = 0.998  
 Parsimony Normed Fit Index (PNFI) = 0.333  
 Comparative Fit Index (CFI) = 0.999  
 Incremental Fit Index (IFI) = 1.00  
 Relative Fit Index (RFI) = 0.994

Critical N (CN) = 2176.831

Root Mean Square Residual (RMR) = 0.0275  
 Standardized RMR = 0.00856  
 Goodness of Fit Index (GFI) = 0.998  
 Adjusted Goodness of Fit Index (AGFI) = 0.990  
 Parsimony Goodness of Fit Index (PGFI) = 0.200

Measurement Model Of Happiness

**Fitted Covariance Matrix**

	<b>SHS01</b>	<b>SHS02</b>	<b>SHS03</b>	<b>SHS04</b>
<b>SHS01</b>	3.006			
<b>SHS02</b>	2.084	3.554		
<b>SHS03</b>	1.765	1.922	3.415	
<b>SHS04</b>	1.828	1.991	1.686	2.835

**Fitted Residuals**

	<b>SHS01</b>	<b>SHS02</b>	<b>SHS03</b>	<b>SHS04</b>
<b>SHS01</b>	0.000			
<b>SHS02</b>	-0.034	0.000		
<b>SHS03</b>	0.011	0.047	0.000	
<b>SHS04</b>	0.026	0.007	-0.058	0.000

**Summary Statistics for Fitted Residuals**

Smallest Fitted Residual = -0.058  
Median Fitted Residual = 0.000  
Largest Fitted Residual = 0.047

**Standardized Residuals**

	<b>SHS01</b>	<b>SHS02</b>	<b>SHS03</b>	<b>SHS04</b>
<b>SHS01</b>	- -			
<b>SHS02</b>	-1.533	- -		
<b>SHS03</b>	0.315	1.207	- -	
<b>SHS04</b>	1.207	0.315	-1.533	- -

**Summary Statistics for Standardized Residuals**

Smallest Standardized Residual = -1.533  
Median Standardized Residual = 0.000  
Largest Standardized Residual = 1.207

Measurement Model Of Happiness

**Standardized Solution**

**LAMBDA-X**

	<b>HP</b>
<b>SHS01</b>	1.383
<b>SHS02</b>	1.506
<b>SHS03</b>	1.276
<b>SHS04</b>	1.322

**PHI**

<b>HP</b>
1.000

Measurement Model Of Happiness

**Completely Standardized Solution**

**LAMBDA-X**

	<b>HP</b>
<b>SHS01</b>	0.798
<b>SHS02</b>	0.799
<b>SHS03</b>	0.690
<b>SHS04</b>	0.785

**PHI**

<b>HP</b>
1.000

**THETA-DELTA**

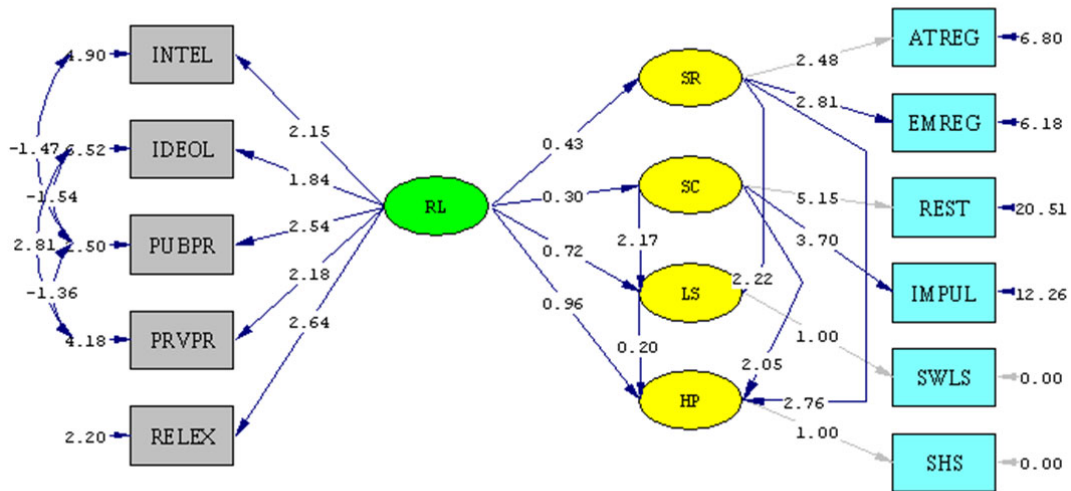
<b>SHS01</b>	<b>SHS02</b>	<b>SHS03</b>	<b>SHS04</b>
0.363	0.361	0.523	0.384

Time used: 0.031 Seconds



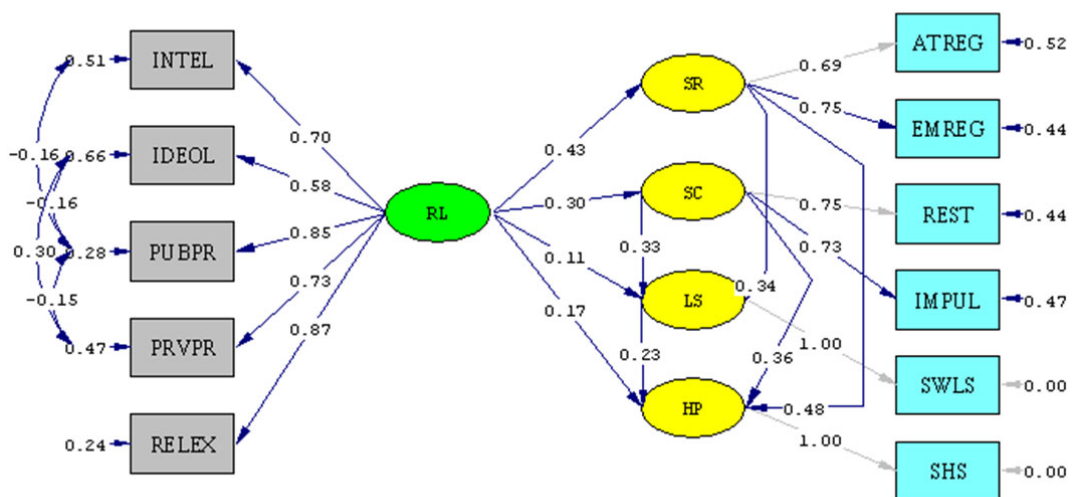
## Appendix C6: Structural Equation Of Proposed Model

Figure 4.12:  
Estimates Path Coefficient for the Proposed Structure Model



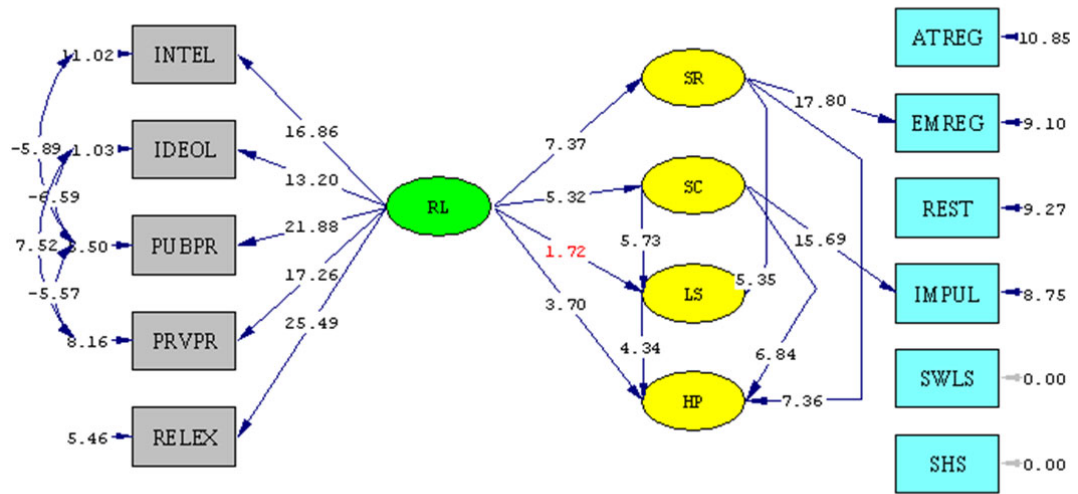
Chi-Square=98.28, df=33, P-value=0.00000, RMSEA=0.056

Figure 4.13:  
Completely Standardized Path Coefficient for the Proposed Structure Model



Chi-Square=98.28, df=33, P-value=0.00000, RMSEA=0.056

Figure 4.14:  
t-Value Path Coefficient for the Proposed Structure Model



Chi-Square=98.28, df=33, P-value=0.00000, RMSEA=0.056

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The following lines were read from file **D:\Ma Study\01 main study  
Raw score\FactorStructure.spl:**

```
Structural Equation Models Based on The Partial Aggregation Approach
Raw Data from file 'D:Study1 main study Raw score.psf'
Asymptotic Covariance Matrix From File FactorStructure.acm
Latent Variables  SR SC LS HP RL
Relationships
ATREG = SR
EMREG = SR
REST = SC
IMPUL = SC
SWLS = 1.000*LS
SHS = 1.000*HP
INTEL = RL
IDEOL = RL
PUBPR = RL
PRVPR = RL
RELEX = RL
LS = SR
LS = SC
HP = SR
HP = SC
HP = LS
SR = RL
SC = RL
LS = RL
HP = RL
Set the Error Variance of SWLS to 0
Set the Error Variance of SHS to 0
Set the Error Covariance of PUBPR and INTEL correlate
Set the Error Covariance of PUBPR and IDEOL correlate
Set the Error Covariance of PRVPR and IDEOL correlate
Set the Error Covariance of PRVPR and PUBPR correlate
Path Diagram
End of Problem

Sample Size = 628
```

RL on HP and LS mediated by SR and SC

**Covariance Matrix**

	<b>ATREG</b>	<b>EMREG</b>	<b>REST</b>	<b>IMPUL</b>	<b>SWLS</b>	<b>SHS</b>
<b>ATREG</b>	12.954					
<b>EMREG</b>	6.964	14.052				
<b>REST</b>	7.089	8.265	47.067			
<b>IMPUL</b>	4.837	5.446	19.088	25.977		
<b>SWLS</b>	8.259	9.843	17.451	11.589	45.581	
<b>SHS</b>	11.626	13.222	21.180	14.964	26.508	35.364
<b>INTEL</b>	2.270	2.669	4.427	2.714	5.966	7.532
<b>IDEOL</b>	2.488	2.523	4.337	2.465	4.950	6.761
<b>PUBPR</b>	2.691	2.560	3.126	2.403	4.818	7.506
<b>PRVPR</b>	2.366	2.984	3.378	1.969	5.641	7.052
<b>RELEX</b>	2.977	2.839	4.127	2.647	6.348	8.434

**Covariance Matrix** (continued)

	<b>INTEL</b>	<b>IDEOL</b>	<b>PUBPR</b>	<b>PRVPR</b>	<b>RELEX</b>
<b>INTEL</b>	9.520				
<b>IDEOL</b>	3.804	9.900			
<b>PUBPR</b>	3.978	3.167	8.959		
<b>PRVPR</b>	4.844	6.819	4.144	8.947	
<b>RELEX</b>	5.553	4.798	6.800	5.702	9.170

RL on HP and LS mediated by SR and SC

Number of Iterations = 15

**LISREL Estimates (Robust Maximum Likelihood)**

Measurement Equations

ATREG = 2.482\*SR, Errorvar.= 6.795 , R<sup>2</sup> = 0.475  
(0.627)  
10.845

EMREG = 2.806\*SR, Errorvar.= 6.176 , R<sup>2</sup> = 0.560  
(0.158) (0.678)  
17.804 9.105

REST = 5.153\*SC, Errorvar.= 20.512, R<sup>2</sup> = 0.564  
(2.213)  
9.270

IMPUL = 3.704\*SC, Errorvar.= 12.258, R<sup>2</sup> = 0.528  
(0.236) (1.400)  
15.687 8.753

SWLS = 1.000\*LS,, R<sup>2</sup> = 1.000

SHS = 1.000\*HP,, R<sup>2</sup> = 1.000

INTEL = 2.150\*RL, Errorvar.= 4.898 , R<sup>2</sup> = 0.485  
(0.127) (0.445)  
16.863 11.016

IDEOL = 1.837\*RL, Errorvar.= 6.524 , R<sup>2</sup> = 0.341  
           (0.139)                          (0.592)  
           13.205                          11.029

PUBPR = 2.540\*RL, Errorvar.= 2.496 , R<sup>2</sup> = 0.721  
           (0.116)                          (0.454)  
           21.885                          5.502

PRVPR = 2.184\*RL, Errorvar.= 4.177 , R<sup>2</sup> = 0.533  
           (0.127)                          (0.512)  
           17.258                          8.164

RELEX = 2.640\*RL, Errorvar.= 2.201 , R<sup>2</sup> = 0.760  
           (0.104)                          (0.403)  
           25.494                          5.460

Error Covariance for PUBPR and INTEL = -1.468  
   (0.249)  
   -5.885

Error Covariance for PUBPR and IDEOL = -1.545  
   (0.234)  
   -6.593

Error Covariance for PRVPR and IDEOL = 2.806  
   (0.373)  
   7.520

Error Covariance for PRVPR and PUBPR = -1.360  
   (0.244)  
   -5.571

**Structural Equations**

SR = 0.425\*RL, Errorvar.= 0.819 , R<sup>2</sup> = 0.181  
           (0.0577)                          (0.112)  
           7.367                          7.299

SC = 0.298\*RL, Errorvar.= 0.911 , R<sup>2</sup> = 0.0888  
           (0.0560)                          (0.0979)  
           5.318                          9.308

LS = 2.224\*SR + 2.172\*SC + 0.723\*RL, Errorvar.= 30.083, R<sup>2</sup> = 0.313  
           (0.416)      (0.379)      (0.420)                          (2.591)  
           5.346      5.728      1.722                          11.612

HP = 2.755\*SR + 2.047\*SC + 0.201\*LS + 0.957\*RL, Errorvar.= 6.940 , R<sup>2</sup> = 0.786  
           (0.374)      (0.299)      (0.0462)      (0.259)                          (1.096)  
           7.360      6.839      4.343      3.702                          6.335

**Reduced Form Equations**

SR = 0.425\*RL, Errorvar.= 0.819, R<sup>2</sup> = 0.181  
           (0.0577)  
           7.367

SC = 0.298\*RL, Errorvar.= 0.911, R<sup>2</sup> = 0.0888  
(0.0560)  
5.318

LS = 2.316\*RL, Errorvar.= 38.433, R<sup>2</sup> = 0.122  
(0.314)  
7.376

HP = 3.203\*RL, Errorvar.= 22.166, R<sup>2</sup> = 0.316  
(0.263)  
12.185

### Correlation Matrix of Independent Variables

RL  
1.000

### Covariance Matrix of Latent Variables

	SR	SC	LS	HP	RL
SR	1.000				
SC	0.127	1.000			
LS	2.807	2.669	43.795		
HP	3.985	3.216	24.201	32.424	
RL	0.425	0.298	2.316	3.203	1.000

### Goodness of Fit Statistics

Degrees of Freedom = 33  
Minimum Fit Function Chi-Square = 104.527 (P = 0.00)  
Normal Theory Weighted Least Squares Chi-Square = 101.506 (P = 0.00)  
Satorra-Bentler Scaled Chi-Square = 98.276 (P = 0.000)  
Chi-Square Corrected for Non-Normality = 91.039 (P = 0.000)  
Estimated Non-centrality Parameter (NCP) = 65.276  
90 Percent Confidence Interval for NCP = (39.262 ; 98.922)

Minimum Fit Function Value = 0.167  
Population Discrepancy Function Value (F0) = 0.104  
90 Percent Confidence Interval for F0 = (0.0626 ; 0.158)  
Root Mean Square Error of Approximation (RMSEA) = 0.0562  
90 Percent Confidence Interval for RMSEA = (0.0436 ; 0.0691)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.201

Expected Cross-Validation Index (ECVI) = 0.262  
90 Percent Confidence Interval for ECVI = (0.221 ; 0.316)  
ECVI for Saturated Model = 0.211  
ECVI for Independence Model = 8.166

Chi-Square for Independence Model with 55 Degrees of Freedom = 5098.174  
Independence AIC = 5120.174  
Model AIC = 164.276  
Saturated AIC = 132.000  
Independence CAIC = 5180.042  
Model CAIC = 343.880  
Saturated CAIC = 491.208

Normed Fit Index (NFI) = 0.981  
 Non-Normed Fit Index (NNFI) = 0.978  
 Parsimony Normed Fit Index (PNFI) = 0.588  
 Comparative Fit Index (CFI) = 0.987  
 Incremental Fit Index (IFI) = 0.987  
 Relative Fit Index (RFI) = 0.968

Critical N (CN) = 350.470

Root Mean Square Residual (RMR) = 1.694  
 Standardized RMR = 0.0679  
 Goodness of Fit Index (GFI) = 0.971  
 Adjusted Goodness of Fit Index (AGFI) = 0.943  
 Parsimony Goodness of Fit Index (PGFI) = 0.486

**The Modification Indices Suggest to Add the**

Path to	from	Decrease in Chi-Square	New Estimate
SR	SC	64.8	0.46
SC	SR	73.1	0.57

**The Modification Indices Suggest to Add an Error Covariance**

Between	and	Decrease in Chi-Square	New Estimate
SC	SR	74.6	0.48
REST	EMREG	9.4	2.25

**RL on HP and LS mediated by SR and SC**

**Standardized Solution**

**LAMBDA-Y**

	SR	SC	LS	HP
ATREG	2.482	- -	- -	- -
EMREG	2.806	- -	- -	- -
REST	- -	5.153	- -	- -
IMPUL	- -	3.704	- -	- -
SWLS	- -	- -	6.618	- -
SHS	- -	- -	- -	5.694

**LAMBDA-X**

	RL
INTEL	2.150
IDEOLOG	1.837
PUBPR	2.540
PRVPR	2.184
RELEX	2.640

**BETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	0.336	0.328	--	--
<b>HP</b>	0.484	0.359	0.233	--

**GAMMA**

	<b>RL</b>
<b>SR</b>	0.425
<b>SC</b>	0.298
<b>LS</b>	0.109
<b>HP</b>	0.168

**Correlation Matrix of ETA and KSI**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>	<b>RL</b>
<b>SR</b>	1.000				
<b>SC</b>	0.127	1.000			
<b>LS</b>	0.424	0.403	1.000		
<b>HP</b>	0.700	0.565	0.642	1.000	
<b>RL</b>	0.425	0.298	0.350	0.562	1.000

**PSI**

Note: This matrix is diagonal.

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
	0.819	0.911	0.687	0.214

**Regression Matrix ETA on KSI (Standardized)**

	<b>RL</b>
<b>SR</b>	0.425
<b>SC</b>	0.298
<b>LS</b>	0.350
<b>HP</b>	0.562

**RL on HP and LS mediated by SR and SC****Completely Standardized Solution****LAMBDA-Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	0.690	--	--	--
<b>EMREG</b>	0.749	--	--	--
<b>REST</b>	--	0.751	--	--
<b>IMPUL</b>	--	0.727	--	--
<b>SWLS</b>	--	--	1.000	--
<b>SHS</b>	--	--	--	1.000



**LAMBDA-X**

	<b>RL</b>
<b>INTEL</b>	0.697
<b>IDEOL</b>	0.584
<b>PUBPR</b>	0.849
<b>PRVPR</b>	0.730
<b>RELEX</b>	0.872

**BETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	0.336	0.328	--	--
<b>HP</b>	0.484	0.359	0.233	--

**GAMMA**

	<b>RL</b>
<b>SR</b>	0.425
<b>SC</b>	0.298
<b>LS</b>	0.109
<b>HP</b>	0.168

**Correlation Matrix of ETA and KSI**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>	<b>RL</b>
<b>SR</b>	1.000				
<b>SC</b>	0.127	1.000			
<b>LS</b>	0.424	0.403	1.000		
<b>HP</b>	0.700	0.565	0.642	1.000	
<b>RL</b>	0.425	0.298	0.350	0.562	1.000

**PSI**

Note: This matrix is diagonal.

<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
0.819	0.911	0.687	0.214

**THETA-EPS**

<b>ATREG</b>	<b>EMREG</b>	<b>REST</b>	<b>IMPUL</b>	<b>SWLS</b>	<b>SHS</b>
0.525	0.440	0.436	0.472	--	--

### THETA-DELTA

	INTEL	IDEOL	PUBPR	PRVPR	RELEX
INTEL	0.515				
IDEOL	- -	0.659			
PUBPR	-0.159	-0.164	0.279		
PRVPR	- -	0.298	-0.152	0.467	
RELEX	- -	- -	- -	- -	0.240

### Regression Matrix ETA on KSI (Standardized)

	RL
SR	0.425
SC	0.298
LS	0.350
HP	0.562

### RL on HP and LS mediated by SR and SC

### Total and Indirect Effects

#### Total Effects of KSI on ETA

	RL
SR	0.425 (0.058) 7.367
SC	0.298 (0.056) 5.318
LS	2.316 (0.314) 7.376
HP	3.203 (0.263) 12.185

#### Indirect Effects of KSI on ETA

	RL
SR	- -
SC	- -
LS	1.592 (0.309) 5.149
HP	2.246 (0.257) 8.726

**Total Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	2.224 (0.416) 5.346	2.172 (0.379) 5.728	--	--
<b>HP</b>	3.202 (0.361) 8.873	2.483 (0.292) 8.506	0.201 (0.046) 4.343	--

Largest Eigenvalue of B\*B' (Stability Index) is 21.370

**Indirect Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	--	--	--	--
<b>HP</b>	0.446 (0.108) 4.143	0.436 (0.107) 4.057	--	--

**Total Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	2.482	--	--	--
<b>EMREG</b>	2.806 (0.158) 17.804	--	--	--
<b>REST</b>	--	5.153	--	--
<b>IMPUL</b>	--	3.704 (0.236) 15.687	--	--
<b>SWLS</b>	2.224 (0.416) 5.346	2.172 (0.379) 5.728	1.000	--
<b>SHS</b>	3.202 (0.361) 8.873	2.483 (0.292) 8.506	0.201 (0.046) 4.343	1.000

**Indirect Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	--	--	--	--
<b>EMREG</b>	--	--	--	--
<b>REST</b>	--	--	--	--
<b>IMPUL</b>	--	--	--	--
<b>SWLS</b>	2.224 (0.416) 5.346	2.172 (0.379) 5.728	--	--
<b>SHS</b>	3.202 (0.361) 8.873	2.483 (0.292) 8.506	0.201 (0.046) 4.343	--

**Total Effects of KSI on Y**

	<b>RL</b>
<b>ATREG</b>	1.055 (0.143) 7.367
<b>EMREG</b>	1.193 (0.153) 7.792
<b>REST</b>	1.535 (0.289) 5.318
<b>IMPUL</b>	1.104 (0.212) 5.205
<b>SWLS</b>	2.316 (0.314) 7.376
<b>SHS</b>	3.203 (0.263) 12.185

**RL on HP and LS mediated by SR and SC**

**Standardized Total and Indirect Effects**

**Standardized Total Effects of KSI on ETA**

	<b>RL</b>
<b>SR</b>	0.425
<b>SC</b>	0.298
<b>LS</b>	0.350
<b>HP</b>	0.562

**Standardized Indirect Effects of KSI on ETA**

	<b>RL</b>
<b>SR</b>	--
<b>SC</b>	--
<b>LS</b>	0.241
<b>HP</b>	0.394

**Standardized Total Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	0.336	0.328	--	--
<b>HP</b>	0.562	0.436	0.233	--

**Standardized Indirect Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	--	--	--	--
<b>HP</b>	0.078	0.077	--	--

**Standardized Total Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	2.482	--	--	--
<b>EMREG</b>	2.806	--	--	--
<b>REST</b>	--	5.153	--	--
<b>IMPUL</b>	--	3.704	--	--
<b>SWLS</b>	2.224	2.172	6.618	--
<b>SHS</b>	3.202	2.483	1.328	5.694

**Completely Standardized Total Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	0.690	--	--	--
<b>EMREG</b>	0.749	--	--	--
<b>REST</b>	--	0.751	--	--
<b>IMPUL</b>	--	0.727	--	--
<b>SWLS</b>	0.336	0.328	1.000	--
<b>SHS</b>	0.562	0.436	0.233	1.000

**Standardized Indirect Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	--	--	--	--
<b>EMREG</b>	--	--	--	--
<b>REST</b>	--	--	--	--
<b>IMPUL</b>	--	--	--	--
<b>SWLS</b>	2.224	2.172	--	--
<b>SHS</b>	3.202	2.483	1.328	--

**Completely Standardized Indirect Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	--	--	--	--
<b>EMREG</b>	--	--	--	--
<b>REST</b>	--	--	--	--
<b>IMPUL</b>	--	--	--	--
<b>SWLS</b>	0.336	0.328	--	--
<b>SHS</b>	0.562	0.436	0.233	--

**Standardized Total Effects of KSI on Y**

	<b>RL</b>
<b>ATREG</b>	1.055
<b>EMREG</b>	1.193
<b>REST</b>	1.535
<b>IMPUL</b>	1.104
<b>SWLS</b>	2.316
<b>SHS</b>	3.203

**Completely Standardized Total Effects of KSI on Y**

	<b>RL</b>
<b>ATREG</b>	0.293
<b>EMREG</b>	0.318
<b>REST</b>	0.224
<b>IMPUL</b>	0.217
<b>SWLS</b>	0.350
<b>SHS</b>	0.562

Time used: 0.172 Seconds

## Appendix C7: Structural Equation Of Modified Model

Figure 4.15:  
Estimates Path Coefficient for the Modified Structure Model

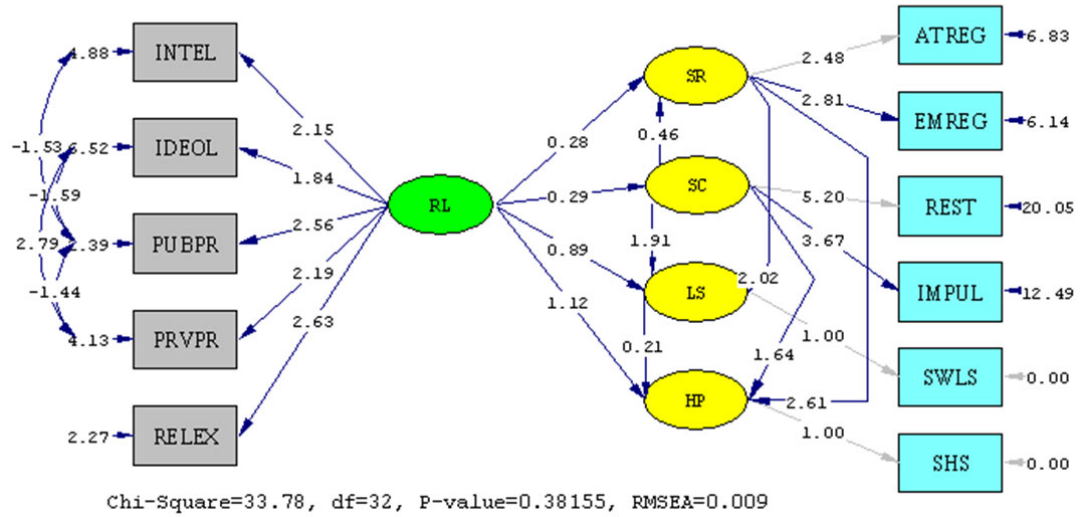


Figure 4.16:  
Completely Standardized Path Coefficient for the Modified Structure Model

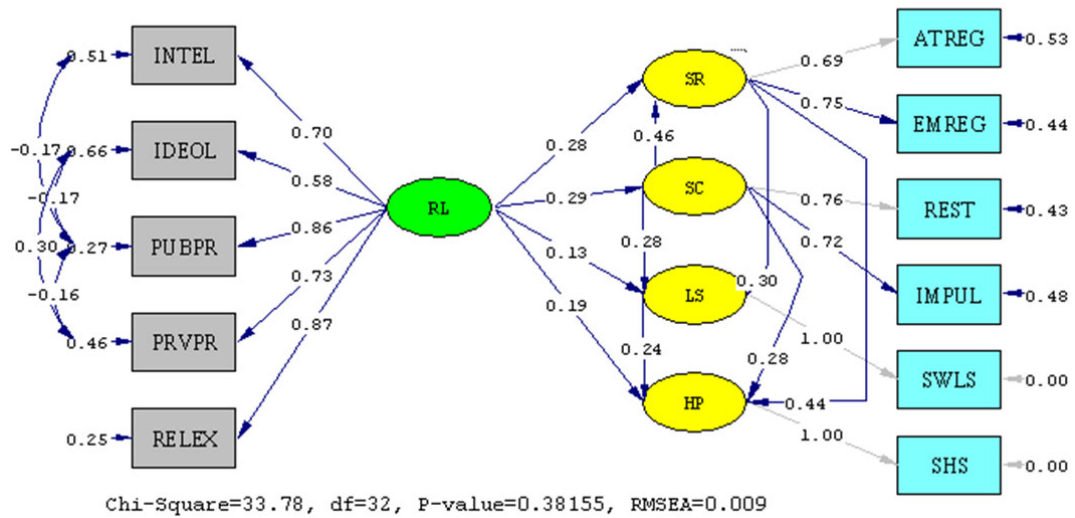
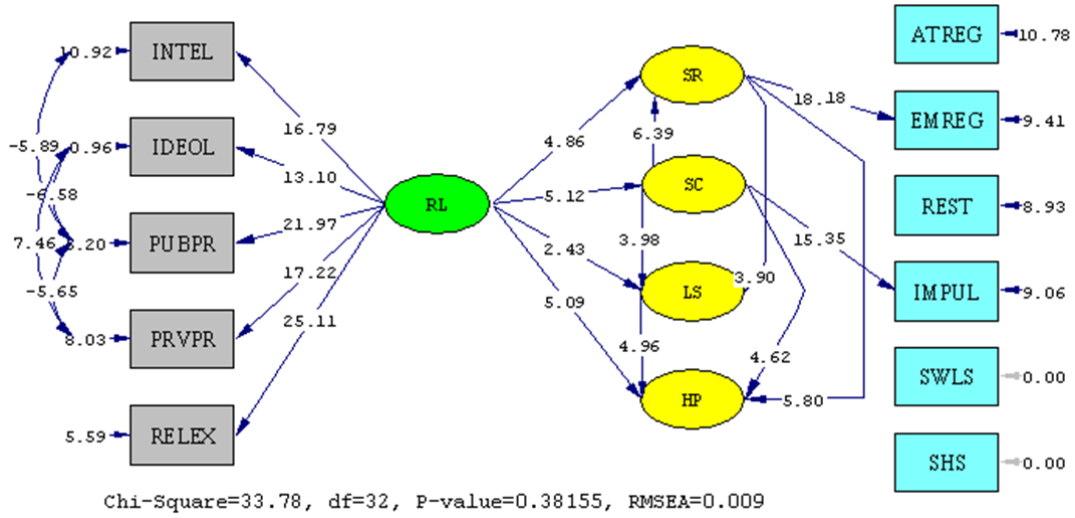


Figure 4.17:  
t-Value Path Coefficient for the Modified Structure Model





L I S R E L 8.80  
BY  
Karl G. Jöreskog and Dag Sörbom

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The following lines were read from file **D:\Ma Study\01 main study  
Raw score\FactorStructure modified.spl:**

```
Structural Equation Models Based on The Partial Aggregation Approach
Raw Data from file 'D:Study1 main study Raw score.psf'
Asymptotic Covariance Matrix From File FactorStructure.acm
Latent Variables  SR SC LS HP RL
Relationships
ATREG = SR
EMREG = SR
REST = SC
IMPUL = SC
SWLS = 1.000*LS
SHS = 1.000*HP
INTEL = RL
IDEOL = RL
PUBPR = RL
PRVPR = RL
RELEX = RL
LS = SR
LS = SC
HP = SR
HP = SC
HP = LS
SR = SC
SR = RL
SC = RL
LS = RL
HP = RL
Set the Error Variance of SWLS to 0
Set the Error Variance of SHS to 0
Set the Error Covariance of PUBPR and INTEL correlate
Set the Error Covariance of PUBPR and IDEOL correlate
Set the Error Covariance of PRVPR and IDEOL correlate
Set the Error Covariance of PRVPR and PUBPR correlate
Path Diagram
End of Problem

Sample Size = 628
```

RL on HP and LS mediated by SR and SC

**Covariance Matrix**

	<b>ATREG</b>	<b>EMREG</b>	<b>REST</b>	<b>IMPUL</b>	<b>SWLS</b>	<b>SHS</b>
<b>ATREG</b>	12.954					
<b>EMREG</b>	6.964	14.052				
<b>REST</b>	7.089	8.265	47.067			
<b>IMPUL</b>	4.837	5.446	19.088	25.977		
<b>SWLS</b>	8.259	9.843	17.451	11.589	45.581	
<b>SHS</b>	11.626	13.222	21.180	14.964	26.508	35.364
<b>INTEL</b>	2.270	2.669	4.427	2.714	5.966	7.532
<b>IDEOL</b>	2.488	2.523	4.337	2.465	4.950	6.761
<b>PUBPR</b>	2.691	2.560	3.126	2.403	4.818	7.506
<b>PRVPR</b>	2.366	2.984	3.378	1.969	5.641	7.052
<b>RELEX</b>	2.977	2.839	4.127	2.647	6.348	8.434

**Covariance Matrix** (continued)

	<b>INTEL</b>	<b>IDEOL</b>	<b>PUBPR</b>	<b>PRVPR</b>	<b>RELEX</b>
<b>INTEL</b>	9.520				
<b>IDEOL</b>	3.804	9.900			
<b>PUBPR</b>	3.978	3.167	8.959		
<b>PRVPR</b>	4.844	6.819	4.144	8.947	
<b>RELEX</b>	5.553	4.798	6.800	5.702	9.170

RL on HP and LS mediated by SR and SC

Number of Iterations = 14

**LISREL Estimates (Robust Maximum Likelihood)**

Measurement Equations

ATREG = 2.475\*SR, Errorvar.= 6.826 , R<sup>2</sup> = 0.473  
(0.633)  
10.778

EMREG = 2.813\*SR, Errorvar.= 6.136 , R<sup>2</sup> = 0.563  
(0.155) (0.652)  
18.181 9.406

REST = 5.198\*SC, Errorvar.= 20.045, R<sup>2</sup> = 0.574  
(2.246)  
8.926

IMPUL = 3.672\*SC, Errorvar.= 12.495, R<sup>2</sup> = 0.519  
(0.239) (1.379)  
15.353 9.059

SWLS = 1.000\*LS,, R<sup>2</sup> = 1.000

SHS = 1.000\*HP,, R<sup>2</sup> = 1.000

INTEL = 2.154\*RL, Errorvar.= 4.879 , R<sup>2</sup> = 0.487  
 (0.128) (0.447)  
 16.794 10.918

IDEOL = 1.838\*RL, Errorvar.= 6.521 , R<sup>2</sup> = 0.341  
 (0.140) (0.595)  
 13.104 10.960

PUBPR = 2.561\*RL, Errorvar.= 2.394 , R<sup>2</sup> = 0.733  
 (0.117) (0.460)  
 21.972 5.200

PRVPR = 2.194\*RL, Errorvar.= 4.135 , R<sup>2</sup> = 0.538  
 (0.127) (0.515)  
 17.217 8.028

RELEX = 2.627\*RL, Errorvar.= 2.269 , R<sup>2</sup> = 0.753  
 (0.105) (0.406)  
 25.114 5.587

Error Covariance for PUBPR and INTEL = -1.530  
 (0.260)  
 -5.892

Error Covariance for PUBPR and IDEOL = -1.590  
 (0.242)  
 -6.579

Error Covariance for PRVPR and IDEOL = 2.787  
 (0.374)  
 7.456

Error Covariance for PRVPR and PUBPR = -1.437  
 (0.255)  
 -5.646

#### Structural Equations

SR = 0.464\*SC + 0.283\*RL, Errorvar.= 0.628 , R<sup>2</sup> = 0.372  
 (0.0726) (0.0583) (0.107)  
 6.394 4.862 5.892

SC = 0.287\*RL, Errorvar.= 0.917 , R<sup>2</sup> = 0.0825  
 (0.0561) (0.0988)  
 5.120 9.287

LS = 2.019\*SR + 1.911\*SC + 0.887\*RL, Errorvar.= 30.389, R<sup>2</sup> = 0.333  
 (0.517) (0.480) (0.365) (2.437)  
 3.902 3.979 2.431 12.470

HP = 2.613\*SR + 1.635\*SC + 0.212\*LS + 1.118\*RL, Errorvar.= 7.279, R<sup>2</sup> = 0.794  
 (0.451) (0.354) (0.0427) (0.220) (0.991)  
 5.798 4.625 4.960 5.093 7.349

### Reduced Form Equations

SR = 0.417\*RL, Errorvar.= 0.826, R<sup>2</sup> = 0.174  
(0.0575)  
7.255

SC = 0.287\*RL, Errorvar.= 0.917, R<sup>2</sup> = 0.0825  
(0.0561)  
5.120

LS = 2.277\*RL, Errorvar.= 40.395, R<sup>2</sup> = 0.114  
(0.314)  
7.249

HP = 3.159\*RL, Errorvar.= 25.381, R<sup>2</sup> = 0.282  
(0.265)  
11.938

### Correlation Matrix of Independent Variables

RL  
1.000

### Covariance Matrix of Latent Variables

	SR	SC	LS	HP	RL
SR	1.000				
SC	0.546	1.000			
LS	3.432	3.268	45.581		
HP	4.698	4.075	26.508	35.364	
RL	0.417	0.287	2.277	3.159	1.000

### Goodness of Fit Statistics

Degrees of Freedom = 32  
Minimum Fit Function Chi-Square = 34.816 (P = 0.335)  
Normal Theory Weighted Least Squares Chi-Square = 34.345 (P = 0.356)  
Satorra-Bentler Scaled Chi-Square = 33.779 (P = 0.382)  
Chi-Square Corrected for Non-Normality = 41.488 (P = 0.122)  
Estimated Non-centrality Parameter (NCP) = 1.779  
90 Percent Confidence Interval for NCP = (0.0 ; 19.943)

Minimum Fit Function Value = 0.0555  
Population Discrepancy Function Value (F0) = 0.00284  
90 Percent Confidence Interval for F0 = (0.0 ; 0.0318)  
Root Mean Square Error of Approximation (RMSEA) = 0.00942  
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0315)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 1.00

Expected Cross-Validation Index (ECVI) = 0.162  
90 Percent Confidence Interval for ECVI = (0.159 ; 0.191)  
ECVI for Saturated Model = 0.211  
ECVI for Independence Model = 8.166

Chi-Square for Independence Model with 55 Degrees of Freedom = 5098.174  
Independence AIC = 5120.174

Model AIC = 101.779  
 Saturated AIC = 132.000  
 Independence CAIC = 5180.042  
 Model CAIC = 286.825  
 Saturated CAIC = 491.208

Normed Fit Index (NFI) = 0.993  
 Non-Normed Fit Index (NNFI) = 0.999  
 Parsimony Normed Fit Index (PNFI) = 0.578  
 Comparative Fit Index (CFI) = 1.00  
 Incremental Fit Index (IFI) = 1.00  
 Relative Fit Index (RFI) = 0.989

Critical N (CN) = 993.881

Root Mean Square Residual (RMR) = 0.427  
 Standardized RMR = 0.0231  
 Goodness of Fit Index (GFI) = 0.990  
 Adjusted Goodness of Fit Index (AGFI) = 0.980  
 Parsimony Goodness of Fit Index (PGFI) = 0.480

**RL on HP and LS mediated by SR and SC**

**Standardized Solution**

**LAMBDA-Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	2.475	- -	- -	- -
<b>EMREG</b>	2.813	- -	- -	- -
<b>REST</b>	- -	5.198	- -	- -
<b>IMPUL</b>	- -	3.672	- -	- -
<b>SWLS</b>	- -	- -	6.751	- -
<b>SHS</b>	- -	- -	- -	5.947

**LAMBDA-X**

	<b>RL</b>
<b>INTEL</b>	2.154
<b>IDEOLOG</b>	1.838
<b>PUBPR</b>	2.561
<b>PRVPR</b>	2.194
<b>RELEX</b>	2.627

**BETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	- -	0.464	- -	- -
<b>SC</b>	- -	- -	- -	- -
<b>LS</b>	0.299	0.283	- -	- -
<b>HP</b>	0.439	0.275	0.240	- -

## GAMMA

	RL
SR	0.283
SC	0.287
LS	0.131
HP	0.188

## Correlation Matrix of ETA and KSI

	SR	SC	LS	HP	RL
SR	1.000				
SC	0.546	1.000			
LS	0.508	0.484	1.000		
HP	0.790	0.685	0.660	1.000	
RL	0.417	0.287	0.337	0.531	1.000

## PSI

Note: This matrix is diagonal.

	SR	SC	LS	HP
	0.628	0.917	0.667	0.206

## Regression Matrix ETA on KSI (Standardized)

	RL
SR	0.417
SC	0.287
LS	0.337
HP	0.531

## RL on HP and LS mediated by SR and SC

## Completely Standardized Solution

### LAMBDA-Y

	SR	SC	LS	HP
ATREG	0.688	--	--	--
EMREG	0.751	--	--	--
REST	--	0.758	--	--
IMPUL	--	0.720	--	--
SWLS	--	--	1.000	--
SHS	--	--	--	1.000

**LAMBDA-X**

	<b>RL</b>
<b>INTEL</b>	0.698
<b>IDEOL</b>	0.584
<b>PUBPR</b>	0.856
<b>PRVPR</b>	0.733
<b>RELEX</b>	0.867

**BETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	0.464	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	0.299	0.283	--	--
<b>HP</b>	0.439	0.275	0.240	--

**GAMMA**

	<b>RL</b>
<b>SR</b>	0.283
<b>SC</b>	0.287
<b>LS</b>	0.131
<b>HP</b>	0.188

**Correlation Matrix of ETA and KSI**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>	<b>RL</b>
<b>SR</b>	1.000				
<b>SC</b>	0.546	1.000			
<b>LS</b>	0.508	0.484	1.000		
<b>HP</b>	0.790	0.685	0.660	1.000	
<b>RL</b>	0.417	0.287	0.337	0.531	1.000

**PSI**

Note: This matrix is diagonal.

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
	0.628	0.917	0.667	0.206

**THETA-EPS**

	<b>ATREG</b>	<b>EMREG</b>	<b>REST</b>	<b>IMPUL</b>	<b>SWLS</b>	<b>SHS</b>
	0.527	0.437	0.426	0.481	--	--

**THETA-DELTA**

	<b>INTEL</b>	<b>IDEOL</b>	<b>PUBPR</b>	<b>PRVPR</b>	<b>RELEX</b>
<b>INTEL</b>	0.513				
<b>IDEOL</b>	--	0.659			
<b>PUBPR</b>	-0.166	-0.169	0.267		
<b>PRVPR</b>	--	0.296	-0.161	0.462	
<b>RELEX</b>	--	--	--	--	0.247

**Regression Matrix ETA on KSI (Standardized)**

	<b>RL</b>
<b>SR</b>	0.417
<b>SC</b>	0.287
<b>LS</b>	0.337
<b>HP</b>	0.531

**RL on HP and LS mediated by SR and SC**

**Total and Indirect Effects**

**Total Effects of KSI on ETA**

	<b>RL</b>
<b>SR</b>	0.417 (0.057) 7.255
<b>SC</b>	0.287 (0.056) 5.120
<b>LS</b>	2.277 (0.314) 7.249
<b>HP</b>	3.159 (0.265) 11.938

**Indirect Effects of KSI on ETA**

	<b>RL</b>
<b>SR</b>	0.133 (0.032) 4.147
<b>SC</b>	--
<b>LS</b>	1.391 (0.244) 5.694
<b>HP</b>	2.041 (0.230) 8.888

**Total Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	0.464 (0.073) 6.394	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	2.019 (0.517) 3.902	2.849 (0.409) 6.959	--	--
<b>HP</b>	3.040 (0.477) 6.368	3.452 (0.367) 9.415	0.212 (0.043) 4.960	--



Largest Eigenvalue of B\*B' (Stability Index) is 17.165

**Indirect Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	--	0.938 (0.277)	--	--
		3.389		
<b>HP</b>	0.428 (0.125)	1.817 (0.265)	--	--
	3.419	6.852		

**Total Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	2.475	1.150 (0.180)	--	--
		6.394		
<b>EMREG</b>	2.813 (0.155)	1.307 (0.198)	--	--
	18.181	6.602		
<b>REST</b>	--	5.198	--	--
<b>IMPUL</b>	--	3.672 (0.239)	--	--
		15.353		
<b>SWLS</b>	2.019 (0.517)	2.849 (0.409)	1.000	--
	3.902	6.959		
<b>SHS</b>	3.040 (0.477)	3.452 (0.367)	0.212 (0.043)	1.000
	6.368	9.415	4.960	

**Indirect Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	--	1.150 (0.180)	--	--
		6.394		
<b>EMREG</b>	--	1.307 (0.198)	--	--
		6.602		
<b>REST</b>	--	--	--	--
<b>IMPUL</b>	--	--	--	--
<b>SWLS</b>	2.019 (0.517)	2.849 (0.409)	--	--
	3.902	6.959		
<b>SHS</b>	3.040 (0.477)	3.452 (0.367)	0.212 (0.043)	--
	6.368	9.415	4.960	

**Total Effects of KSI on Y**

	<b>RL</b>
<b>ATREG</b>	1.032 (0.142)
	7.255
<b>EMREG</b>	1.173 (0.153)
	7.643
<b>REST</b>	1.493 (0.292)
	5.120
<b>IMPUL</b>	1.055 (0.210)
	5.027
<b>SWLS</b>	2.277 (0.314)
	7.249
<b>SHS</b>	3.159 (0.265)
	11.938

**RL on HP and LS mediated by SR and SC**

**Standardized Total and Indirect Effects**

**Standardized Total Effects of KSI on ETA**

	<b>RL</b>
<b>SR</b>	0.417
<b>SC</b>	0.287
<b>LS</b>	0.337
<b>HP</b>	0.531

**Standardized Indirect Effects of KSI on ETA**

	<b>RL</b>
<b>SR</b>	0.133
<b>SC</b>	- -
<b>LS</b>	0.206
<b>HP</b>	0.343

**Standardized Total Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	- -	0.464	- -	- -
<b>SC</b>	- -	- -	- -	- -
<b>LS</b>	0.299	0.422	- -	- -
<b>HP</b>	0.511	0.580	0.240	- -

**Standardized Indirect Effects of ETA on ETA**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>SR</b>	--	--	--	--
<b>SC</b>	--	--	--	--
<b>LS</b>	--	0.139	--	--
<b>HP</b>	0.072	0.305	--	--

**Standardized Total Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	2.475	1.150	--	--
<b>EMREG</b>	2.813	1.307	--	--
<b>REST</b>	--	5.198	--	--
<b>IMPUL</b>	--	3.672	--	--
<b>SWLS</b>	2.019	2.849	6.751	--
<b>SHS</b>	3.040	3.452	1.429	5.947

**Completely Standardized Total Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	0.688	0.319	--	--
<b>EMREG</b>	0.751	0.349	--	--
<b>REST</b>	--	0.758	--	--
<b>IMPUL</b>	--	0.720	--	--
<b>SWLS</b>	0.299	0.422	1.000	--
<b>SHS</b>	0.511	0.580	0.240	1.000

**Standardized Indirect Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	--	1.150	--	--
<b>EMREG</b>	--	1.307	--	--
<b>REST</b>	--	--	--	--
<b>IMPUL</b>	--	--	--	--
<b>SWLS</b>	2.019	2.849	--	--
<b>SHS</b>	3.040	3.452	1.429	--

**Completely Standardized Indirect Effects of ETA on Y**

	<b>SR</b>	<b>SC</b>	<b>LS</b>	<b>HP</b>
<b>ATREG</b>	--	0.319	--	--
<b>EMREG</b>	--	0.349	--	--
<b>REST</b>	--	--	--	--
<b>IMPUL</b>	--	--	--	--
<b>SWLS</b>	0.299	0.422	--	--
<b>SHS</b>	0.511	0.580	0.240	--

**Standardized Total Effects of KSI on Y**

	<b>RL</b>
<b>ATREG</b>	1.032
<b>EMREG</b>	1.173
<b>REST</b>	1.493
<b>IMPUL</b>	1.055
<b>SWLS</b>	2.277
<b>SHS</b>	3.159

**Completely Standardized Total Effects of KSI on Y**

	<b>RL</b>
<b>ATREG</b>	0.287
<b>EMREG</b>	0.313
<b>REST</b>	0.218
<b>IMPUL</b>	0.207
<b>SWLS</b>	0.337
<b>SHS</b>	0.531

Time used: 0.156 Seconds