BAŞKENT UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF PSYCHOLOGY
MASTER'S IN CLINICAL PSYCHOLOGY WITH THESIS

EARLY MALADAPTIVE SCHEMAS AND MENTAL HEALTH: THE SEQUENTIAL MEDIATOR ROLE OF NEUROPSYCHOLOGICAL PERSONALITY TRAITS AND COGNITIVE EMOTION REGULATION

PREPARED BY

VASFİYE DERYA ŞEN

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ASSOC. PROF. DR. ELVİN DOĞUTEPE

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Yukarıda başlığı belirtilen Yüksek Lisans tez çalışmamın; Giriş, Ana Bölümler ve Sonuç Bölümünden oluşan, toplam 88 sayfalık kısmına ilişkin, 29/07/2021 tarihinde şahsım/tez danışmanım tarafından Turnitin adlı intihal tespit programından aşağıda belirtilen filtrelemeler uygulanarak alınmış olan orijinallik raporuna göre, tezimin benzerlik oranı %15'tir.

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ÖZET

ŞEN, Vasfiye Derya. Erken Dönem Uyum Bozucu Şema Alanları ile Psikolojik Sağlık Arasındaki İlişkide Nöropsikolojik Kişilik Özelliklerinin ve Bilişsel Duygu Düzenlemenin Sıralı Aracı Rolü. Başkent Üniversitesi, Sosyal Bilimler Enstitüsü, Klinik Psikoloji Yüksek Lisans Programı, 2021.

Bu çalışmanın amacı, erken dönem uyum bozucu şema alanları ile psikolojik sağlık arasındaki ilişkide nöropsikolojik kişilik özelliklerinin ve bilişsel duygu düzenlemenin rolünü incelemektir. Bu amaçla, Türkiye'de 18-65 yaş aralığındaki 497 katılımcı araştırmaya gönüllü olarak katılmıştır. Veriler, Young Şema Anketi-Kısa Form 3, Bilişsel Duygu Düzenleme Anketi, Davranışsal İnhibisyon Sistemi/Davranışsal Aktivasyon Sistemi Ölçekleri, Kısa Semptom Envanteri ve Yaşamdan Memnuniyet Ölçeği aracılığıyla toplanmıştır. Nöropsikolojik kişilik özelliklerinin ve bilişsel duygu düzenlemenin (bilişsel başa çıkma stratejileri olarak da adlandırılır) aracı rolünü araştırmak için Hayes'in seri aracılık analizi prosedürü uygulanmıştır.

Sonuçlar, nöropsikolojik kişilik özelliklerinin ve bilişsel duygu düzenlemenin, erken dönem uyum bozucu şema alanları ile psikolojik sağlık arasındaki ilişkiye sırayla aracılık ettiğini göstermektedir. Genel olarak, güçlü şemalar, davranışsal inhibisyon sisteminin yüksek düzeyde aktivasyonu ile ilişkilidir. Bu durum işlevsel olmayan bilişsel başa çıkma stratejilerinin (kendini suçlama, başkalarını suçlama, ruminasyon ve felaketleştirme) kullanımının artması veya işlevsel olan bilişsel başa çıkma stratejilerinin (planlamaya yeniden odaklanma, olumlu yeniden odaklanma, olumlu yeniden değerlendirme ve perspektife yerleştirme) kullanımının azalması ile ilişkilidir. Ayrıca, bu bulgu katılımcıların psikopatolojik semptomlarının fazlalığı ile ilişkilendirilmiştir. Son olarak, kabulün işlevsel olmayan başa çıkma stratejileri gibi davrandığı yani, güçlü şemaların davranışsal inhibisyon sisteminin yüksek aktivasyon seviyeleri ile, bu da kabulün daha fazla kullanımı ile ve bu da katılımcıların psikopatolojik semptomlarının fazlalığı ile ilişkili bulunmuştur.

Şema alanları ve yaşam doyumu arasındaki ilişki ile ilgili olarak ise, güçlü şemalar davranışsal inhibisyon sisteminin yüksek düzeyde aktivasyonu ile, bu da işlevsel bilişsel

başa çıkma stratejilerinin azalan kullanımı ile, bu da katılımcıların yaşam doyum düzeylerinin azalması ile ilişkili bulunmuştur. Bunun yanı sıra, kopukluk/reddedilme ve zedelenmiş otonomi/diğeri yönelimlilik şema alanlarındaki güçlü şemalar, davranışsal aktivasyon sisteminin düşük düzeyde aktivasyonu ile bu da işlevsel bilişsel başa çıkma stratejilerin daha az kullanımı ile, bu da yaşam doyum düzeyinin azalması ile ilişkili bulunmuştur. Fakat, zedelenmiş sınırlar/yüksek standartlar şema alanındaki güçlü şemalar, davranışsal aktivasyon sisteminin artan aktivasyonu ile, bu da işlevsel başa çıkma stratejilerinin artan kullanımı ile ve bu da artan yaşam doyum seviyeleri ile ilişkili bulunmuştur. Yine, zedelenmiş sınırlar/yüksek standartlar şema alanındaki güçlü şemalar, davranışsal aktivasyon sisteminin artan aktivasyonu ile, bu da kendini suçlama ya da felaketleştirmenin azalan kullanımı ile, bu da artan yaşam doyum seviyeleri ile ilişkili bulunmuştur. Ayrıca, kendini suçlamanın ve felaketleştirmenin, zedelenmiş sınırlar/yüksek standartlar ve zedelenmiş otonomi/diğeri yönelimlilik şema alanındaki şemalar ile yaşam doyumu arasındaki ilişkide davranışsal inhibisyon sistemi ile sıralı olarak aracılık ettiği bulunmuştur.

Son olarak ise, çalışmanın bulguları ilgili literatür bilgisi doğrultusunda tartışılmıştır. Çalışmanın sınırlılıkları ve gelecek çalışmalara yönelik öneriler de sunulmuştur.

Anahtar Kelimeler: Erken Dönem Uyum Bozucu Şemalar, Nöropsikolojik Kişilik Özellikleri, Bilişsel Duygu Düzenleme, Psikolojik Sağlık

ABSTRACT

ŞEN, Vasfiye Derya. Early maladaptive schemas and mental health: the sequential mediator role of neuropsychological personality traits and cognitive emotion regulation. Başkent University, Institute of Social Sciences, Master of Arts in Clinical Psychology, 2021.

The aim of the study was to examine the role of neuropsychological personality traits and cognitive emotion regulation (also called cognitive coping strategies) in the relationship between early maladaptive schemas (EMSs) and mental health. For this purpose, 497 participants with ages 18 to 65 years in Turkey voluntarily participated in the research. The data was gathered through Young Schema Questionnaire–Short Form 3, Cognitive Emotion Regulation Questionnaire, Behavioral Inhibition System/Behavioral Activation System Scales, Brief Symptom Inventory, and Satisfaction with Life Scale. In order to investigate their mediator role, Hayes's procedure for serial mediation analysis was conducted.

The results revealed that neuropsychological personality traits and cognitive emotion regulation sequentially mediated the relationship between EMSs and mental health. In general, stronger schemas predicted higher levels of activation in the Behavioral Inhibition System (BIS), which in turn predicted the increased use of the Less Adaptive Cognitive Coping Strategies (LACCS) or decreased used of the More Adaptive Cognitive Coping Strategies (MACCS) which in turn predicted more psychopathological symptoms. However, although Acceptance was categorized under MACCS, it was found to have a negative impact on this relationship; meaning that stronger schemas predicted higher levels of activation in BIS, which in turn predicted the increased use of Acceptance, which in turn was associated with more psychopathological symptoms.

Regarding the relationship between EMSs and life satisfaction, stronger EMSs predicted increased levels of activation in BIS, which in turn predicted the decreased use of MACCS, which in turn decreased levels of life satisfaction. Furthermore, stronger EMSs in Disconnection/Rejection schema domain (DR) and the Impaired Autonomy/Other Directedness schema domain (IAOD) predicted decreased levels of activation in the Behavioral Activation System (BAS), which in turn predicted the decreased use of MACCS,

which in turn decreased levels of life satisfaction. However, stronger schemas in the Impaired Limits/Exaggerated Standards schema domain (ILES) predicted the increased activation in BAS, which in turn the increased use in MACCS, which in turn increased levels of life satisfaction. Moreover, stronger schemas in ILES predicted the increased activation in BAS, which in turn the decreased use in only Self-Blame and Catastrophizing among LACCS, which in turn increased levels of life satisfaction. Furthermore, only Self-Blame and Catastrophizing serially mediated this relationship with BIS for only ILES and IAOD.

Finally, implications of these findings were discussed in line with the relevant literature. Limitations and suggestions for future studies were also presented.

Keywords: Early Maladaptive Schemas, Neuropsychological Personality Traits, Cognitive Emotion Regulation, Mental Health

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LIST OF ABBREVIATIONS

EMSs	Early Maladaptive Schemas
ILES	Impaired Limits/Exaggerated Standards
DR	Disconnection/Rejection
IAOD	Impaired Autonomy/Other Directedness
BIS	Behavioral Inhibition System
BAS	Behavioral Activation System
CER	Cognitive Emotion Regulation
LACCS	Less Adaptive Cognitive Coping Strategies
MACCS	More Adaptive Cognitive Coping Strategies
SlfBlm	Self-Blame
BlmOth	Blaming Others
Rmn	Rumination
Ctstrp	Catastrophizing
Accpt	Acceptance
RoP	Refocus on Planning
PRf	Positive Refocusing
PRa	Positive Reappraisal
PiP	Putting into Perspective
PS	Psychopathological Symptoms
SwL	Satisfaction with Life
YSQ-SF3	Young Schema Questionnaire – Short Form 3
CERQ	Cognitive Emotion Regulation Questionnaire
BIS/BAS Scale	Behavioral Inhibition System/Behavioral Activation System Scales
BSI	Brief Symptom Inventory
SWLS	Satisfaction with Life Scale

1. INTRODUCTION

Henry Sigerist in his book, Medicine and Human Welfare says that “Health is not simply the absence of disease; it is something positive…” (as cited in Keyes, 2005). Being healthy, by default, was defined as the absence of illness, but this understanding has lately changed. Indeed, this change occurred not only on the physical health but also on mental health. According to researchers including Keyes (2002), Deiner and Seligman (2002) and Ryff and Singer (1998), who are the prominent names in the field of mental health, the definition should cover not only the absence of psychopathology but also the present of life satisfaction.

Early maladaptive schemas (EMSs) can be claimed one of the most studied topics in the literature when the indicators of mental health are concerned. EMSs have been associated with various psychological disorders, such as depressive and anxiety disorders (Hawke & Provencher, 2011), eating disorders (Pugh, 2015), and personality disorders (Bamelis, Evers, Spinhoven, & Arntz, 2014; Giesen - Bloo et al., 2006). Moreover, there are studies that show a relationship between EMSs and reduced well-being (Sahraee, Yusefnejad, & Khosravi, 2011; Messman - Moore & Coates, 2007). Furthermore, there are studies examining the possible associated factors between the relationship EMSs and psychological disorders and well-being (Gök, 2012; Ünal, 2012). Considering the close link between EMSs with mental health, examining associated factors related to the relationship can be claimed to contribute not only to the literature but also to the treatment. Therefore, neuropsychological personality traits and cognitive emotion regulation can be suggested to be examined as related factors to this relationship based on the current literature.

The neuropsychological personality traits (i.e., the Behavioral Inhibition System and the Behavioral Activation System) with the relation of mental health have been already shown by various studies. For instance, the increased sensitivity in the Behavioral Inhibition System (BIS) is found to be linked to the increased psychological problems (Sauer et al., 2011). However, the association of neuropsychological personality traits with EMSs is not discovered yet although personality regarding the five-model perspective in a relationship with EMSs was studied by various studies (Thimm, 2010; Muris, 2006; Barbaranelli et al., 2003). Therefore, the neuropsychological personality traits can be reasoned to be associated with EMSs, and proposed to be studied to investigate whether or not it has an impact on the relationship between EMSs and mental health.

Furthermore, cognitive emotion regulation (CER) can be suggested as another factor that can be associated with the relationship between EMSs and mental health. The association of CER with mental health has been already shown. For instance, according to the study done by Garnefski et al. (2001), the participants who used maladaptive cognitive strategies report more depression and anxiety symptoms, but those who used adaptive strategies report less depression and anxiety symptoms. However, the association between CER and EMSs has yet been studied within the scope of our knowledge although the link between EMSs and emotion regulation was revealed by studies (Yakın et al., 2019; Çalıskan.2017). Therefore, CER can be suggested to be related to EMSs, and be studied as an associated factor with the relationship between EMSs and mental health.

Therefore, to investigate the neuropsychological personality traits and CER as the possible associated factors in the association among EMSs and mental health, the theoretical ground of EMSs, the neuropsychological personality traits, CER, and mental health is firstly introduced. Then, the study with its hypotheses, findings, and implications are presented.

1.1. Early Maladaptive Schemas

Early maladaptive schemas (EMSs) are described as "broad, pervasive theme or pattern, comprised of memories, emotions, cognitions, and bodily sensations, regarding oneself and one's relationships with others, developed during childhood or adolescence, elaborated throughout one's lifetime and dysfunctional to a significant degree" (Young, Klosko, & Weishaar, 2003, p.7). The theory is conceptualized five universal core emotional needs that need to be met by significant others during childhood (Young, 1999). These core needs are (1) being securely attached to caregivers; (2) freedom of expression of emotions / needs; (3) competence, autonomy, and a sense of identity; (4) play, and spontaneity; and (5) self-control, and realistic limits.

EMSs which are stated as a trigger of maladaptive or dysfunctional behaviors are likely to develop in the case of one or more needs are adequately not being met. Indeed, four processes are considered to play a role in developing EMSs. First process is called as "toxic frustration of needs". It occurs when the significant others are not sensitive to their child's need, and (unintentionally) show little attention to their child, thus the basic needs of the child, such as nurturance and safety are not met. Another is "traumatization or victimization" which occurs when the child's needs cannot be met due to a trauma that is witnessed or be a victim of by the child. The third process is the opposite of the first one which is called "too

much of a good thing". In this case, the significant others are too sensitive to their child's needs and give so much attention, thus not only the healthy boundaries cannot be settled, but also the main focus becomes the needs to be excessively met. The last one is "selective internalization or identification with significant other" that occurs when children selectively internalize with some behaviors of caregivers. These are the toxic experiences of childhood that are called "the primary origin of EMSs". Moreover, it should be noted that the child's temperament which is associated with genes is considered to have an effect in the acquisition of EMSs besides the toxic childhood experiences (Young, Klosko, & Weishaar, 2003).

1.1.1. Early maladaptive schema domains

Regarding the Schema Theory, 18 EMSs are categorized into 5 domains (Table 1); however, the theory proposes that it is still possible to discover new more schemas in the light of the empirical research (Young, Klosko, & Weishaar, 2003). The first schema domain is the Disconnection and Rejection. Individuals who have schemas under this domain experience difficulty to securely attach with others. Since their caregivers are mostly rejecting, cold, abusive, and unstable, their basic needs, such as acceptance, stability, security, nurturing, and safety cannot be met. Individuals with the Abandonment/Instability Schema feel intense stress that someone important to them will eventually abandon them. Others are perceived as unreliable to be trusted about emotional support, connection and safety. Those with the Mistrust/Abuse Schema believe that other people will intentionally hurt, lie, cheat, manipulate or take advantage of them. People with the Emotional Deprivation Schema intensely experiences a lack of being understood, of care and affection, or of guidance and protection by others. Those with the Defectiveness/Shame Schema perceive themselves as inferior compared to others and feel ashamed for their self-perceived defects, thus they are sensitive to criticism, rejection, and blame. Lastly, those with the Social Isolation/Alienation Schema feel different from others that damages their sense of belonging to a group or community (Young, Klosko, & Weishaar, 2003)

Table 1

Schema Domains and Early Maladaptive Schemas

Schema Domain	Disconnection & Rejection	Impaired Autonomy & Performance	Impaired Limits	Other Directedness	Overvigilance & Inhibition
Early Maladaptive Schemas	Abandonment / Instability	Dependence / Incompetence	Entitlement / Grandiosity	Subjugation	Negativity / Pessimism
	Mistrust / Abuse	Vulnerability to Harm or Illness	Insufficient Self-Control / Self-Discipline	Self-Sacrifice	Emotional Inhibition
	Emotional Deprivation	Enmeshment / Undeveloped Self		Approval Seeking / Recognition Seeking	Unrelenting Standards / Hyper-criticalness
	Defectiveness / Shame	Failure			Punitiveness
	Social Isolation / Alienation				

Adapted from Young, Weishaar, & Klosko, 2003.

The Impaired Autonomy and Performance schema domain is the second one. Since caregivers were overprotective and did everything that was needed to do by their children to accomplish, they are not able to function independently from significant others when these children become adults. Thus, the feeling of confidence and competence that they have is highly likely to get damaged. A schema of this domain is the Dependence/Incompetence Schema in which individuals with this schema feel as insufficient to do anything without support. They feel inferior to complete daily tasks without help from others. The second schema is the Vulnerability to Harm or Illness Schema. Individuals have a strong belief that the world is unpredictable, and a catastrophe can happen at any moment. They constantly feel that they are not able to cope with dangers because they tend to overexaggerate the situations, but underestimate their ability to cope with them. Another is the Enmeshed/Undeveloped Self Schema which refers to fusing one's own identity into the identity of significant other at the expense of his/her full individuation. The last schema in this domain is the Failure Schema. Individuals with this schema constantly perceive themselves as inferior when compared to their peers. They feel that they will eventually fail in the areas which require accomplishment (Young, Klosko, & Weishaar, 2003).

The next early maladaptive schema domain is called the Impaired Limits. Under this domain, people with early maladaptive schemas experience difficulties in respecting others' rights, cooperating with them, taking responsibilities, and setting goals due to the inadequacies in their internal limits. They are perceived as self-oriented, impulsive, irresponsible, and narcissistic by others. Due to the overindulgent character of their

caregivers, they have a lack of direction and discipline, but a sense of superiority. The Entitlement/Grandiosity Schema refers to one's belief of being superior and entitling to special rights. The other schema belonging to this domain is the Insufficient Self-Control/Self-Discipline. People experience difficulties in controlling of excessively express emotions and in tolerating frustrations when they are facing failure (Young, Klosko, & Weishaar, 2003).

The Other Directedness schema domain is another one. Individuals with EMSs in this domain sacrifice their own needs to get approval and love from others. They constantly feel that they have to meet others' needs to keep the emotional bond with others. The origin of this feeling is based on conditional acceptance in childhood. It is very likely that they had to restrain their own needs to be loved and approved when they were a child. The Subjugation Schema refers to one's excessive compliance with others to avoid anger and abandonment of them at the expense of their own needs. Another schema is the Self-Sacrifice. Individuals with this schema fulfill the needs of others as a voluntary act, otherwise they feel guilty because others are seen as needy to them. The desire of taking respect from others or emotionally being connected with them is the important reason that drives this voluntary action. The Approval- Seeking/Recognition-Seeking Schema refers to one's self-perception of status. Individuals with this scheme constantly need for an approval, attention, or recognition of others to feel successful or respectful (Young, Klosko, & Weishaar, 2003).

The last one is the Overvigilance and Inhibition schema domain which indicates to the suppression of spontaneity and emotion-expression. Since the caregivers were rigid about following rules and being perfectionist, their children internalized being perfection and following rules. As adults, they try to be perfect and follow strict rules at the price of spontaneity and self-expression. They tend to be pessimistic and worried about the future. The Negativism/Pessimism Schema is associated with focusing on negative events in life, but ignoring the positive ones. The Emotional Inhibition Schema refers that people restrict their own emotional expression to avoid being criticized and losing control. They tend to cope with the events using rationalization so that they try to decrease emotional intensity. People with the Unrelenting Standards/Hypercriticalness Schema constantly preoccupy with unrealistic standards that they should achieve to be perceived as perfect and get approval from others. The last schema which belongs to this domain is the Punitiveness Schema. People with this schema believe that their mistakes cannot be tolerated, meaning that they have to be harshly punished when they make mistakes (Young, Klosko, & Weishaar, 2003).

1.2. Personality Traits

Personality has always been aroused eagerness for the many researchers to study in the field of psychology. Moreover, personality has been a subject that is curious about the role in the relationship with mental health in many studies. For example, Watson and Hubbard (1996) argue that personality traits have a crucial role on how a person reacts to a stressful event. Another study also shows that life satisfaction and positive affectivity are predicted by personality traits (DeNeve & Cooper, 1998).

In the literature, one of the most commonly used personality models is the five-factor model of personality that grouped the traits into five factors, namely; extraversion, agreeableness, neuroticism, conscientiousness, and openness (John, Naumann, & Soto, 2008). Another influential theory belongs to Eysenck (Gray, 1981). His theory is built upon neuroscience of personality. Therefore, it is called Eysenck's biosocial model of personality. According to the model, a difference in the response thresholds of the ascending reticular activating system (ARAS) leads to a sensitivity of the cortical arousal system. Thus, compared to introverts, extraverts have higher response thresholds and consequently lower cortical arousal. This is what Extraversion (E) which is one of the personality dimensions of the theory suggests. Another dimension is Neuroticism (N). Emotional instability and limbic system's activation are related to this dimension (Gilliland, 1999).

As an alternative psychophysiological model to Eysenck's personality model, the Reinforcement Sensitivity Theory (RST) was proposed by Gray in 1970. According to Gray, punishment and reward sensitivities are more fundamental and E and N derivate from these sensitivities. E is for the balance in sensitivities of punishment and reward; N is for joint strengths of them (Corr, 2004). Therefore, Punishment Sensitivity and Reward Sensitivity replace as personality dimensions with E and N (Pickering et al., 1999). The model that suggests emotional systems as the foundations of personality claims that Anxiety (Anx) is related to the punishment mechanism, but Impulsivity (Imp) to the reward mechanism. Thus, "Imp + individuals are most sensitive to signals of reward, relative to Imp - individuals; and Anx + individuals are most sensitive to signals of punishment, relative to Anx – individuals" (Corr, 2004, p. 319).

Gray also suggest three major systems are responsible for emotional behavior based on his observation from animal learning studies (Gray, 1987). Fight/flight/freeze system (FFFS) is sensitively unconditioned to aversive stimuli; the behavioral inhibition system (BlS) is sensitively conditioned to aversive events; and the behavioral activation system (BAS) is sensitively conditioned to appetitive stimuli (Corr, 2004). Individuals who tend to

be more impulsive are more sensitive to reward signals, but those who tend to be more anxious are more sensitive to punishment signals (Gray, 1987; 1990). Therefore, personality dimensions are related to differences of individuals in the processes of these basic motivational systems in the brain. Indeed, these systems, which direct behaviors have been suggested to explain personality differences (Corr, 2013).

1.2.1. Neuropsychological personality traits

One of the neuropsychological systems is the Behavioral Activation System (BAS), which triggers approach behavior according to environmental stimuli (Corr, 2008; Gray & McNaughton, 2000). BAS is governed by the mesolimbic dopaminergic pathway and it acts to lead behaviors that are associated with reward and pleasant feelings. Therefore, it is thought to be related to impulsivity (Corr, 2008; Gray & McNaughton, 2000).

Other motivational system is the Behavioral Inhibition System (BIS), which triggers avoidance behavior (Corr, 2008; Gray & McNaughton, 2000). BIS is governed by septo-hippocampal pathway, which includes the brainstem and frontal cortex of the brain and it acts to prevent negative or painful consequences with a high probability of punishment. Therefore, it is considered to be related to anxiety (Corr, 2008; Gray & McNaughton, 2000).

The Fight/Flee/Freeze System (FFFS) has been later on integrated with the system of BIS (Corr, 2013). “The basolateral and centromedial nuclei of the amygdala, the ventromedial nucleus of the hypothalamus, the central gray region of the midbrain, and the somatic and motor effector nuclei of the lower brainstem” (Reuter et al., 2004, p. 463) are where FFFS is governed. FFFS is responsible for an operating behavior in the face of unconditioned punishment and nonreward stimuli. Aggression or defensiveness is triggered by the fight system; escape is by the flight/flee system; and immobility is by the freeze system. This system is considered to be related to psychoticism which is later added to the biosocial model of personality by Eysenck himself (Wilson et al., 1989; Reuter et. al., 2004).

1.2.2. Early maladaptive schemas and neuropsychological personality traits

As stated earlier, according to the Schema Theory, an interaction of innate temperament traits with toxic childhood experiences is considered to be related to the acquisition of EMSs. Therefore, personality traits are seen as crucial to understand EMSs. In order to investigate this relationship, many studies have been conducted till now. For example, Timm (2010) finds that the five-factor model of personality (FFM) is strongly

associated with EMSs. In this study, most EMSs are found to be related to neuroticism, agreeableness, extraversion, and consciousness, but only weak relation is found with openness (Timm, 2010).

Although there are many studies focusing on this relationship, personality is generally conceptualized based on FFM. However, the link between EMSs and neuropsychological personality traits has not yet been studied within the scope of our knowledge. Since neuropsychological personality traits are based on motivation systems that govern responses regarding reward and punishment perception rooted in childhood experiences (Corr, Collin, & McNaughton, 2013), it can be proposed to be associated with EMSs.

1.3. Cognitive Emotion Regulation

Although emotions have been interesting for many researchers to study, there is no consensus on the definition of emotion. For instance, Smith and Lazarus (1990) defines it as a strong feeling, such as a state of excitement or perturbation with an accompany of bodily changes that drives a specific behavior, but according to Campos and colleagues (1989), emotions are more than just being feelings. They govern the relationship between a person and her/his internal or external environment through the process of establishing, maintaining, and disrupting. Another well-known researcher in emotion studies, Hoffman, defines emotion as "a multidimensional experience that is characterized by different levels of arousal and degrees of pleasure-displeasure associated with subjective experiences, somatic sensations and motivational tendencies colored by contextual and cultural factors, and that can be regulated to some degree through intra- and interpersonal processes" (2016, p. 23). Thus, it can be concluded that "Everyone knows what an emotion is, until asked to give a definition" as stated by as Fehr and Russell (1984, p. 464).

Emotion regulation is described by Thompson (1994) as a process of monitoring, evaluating, and changing emotional reactions that someone has to reach her/his goal. In other words, it plays an important role in initiating, motivating, and organizing adaptive behavior and reducing the level of stress caused by maladaptive behavior and negative emotions. Similarly, Gross (1998) suggests that this is a process of experiencing, recognizing, and expressing emotions. Another explanation for emotion regulation belongs to Garnefski and colleagues (2001). They propose that emotions can be regulated with four different processes, namely; physiological processes, such as a rapid pulse, an increased breathing rate or sweating; social processes, such as interpersonal relationships; behavioral

processes, such as crying or withdrawing; cognitive processes, such as denial, distortion, rumination or blaming others.

Although each process plays an important role in regulating emotions, cognitive emotion regulation (CER) can be claimed as inseparable from human life because it is considered that people can regulate and control their emotions through cognitive strategies during and after stressful or threatening situations (Garnefski et al., 2001).

CER also called cognitive coping strategies (Garnefski et al., 2001) can be described as the process of coping with emotionally arousing information using cognitive strategies (Garnefski et al., 2001; Thompson, 1991). Cognitive emotion coping strategies are associated with how people think, but not how they act after they experience a stressful or threatening event (Garnefski et al., 2001; 2002).

CER are categorized as Self-Blame, Blaming Others, Rumination and Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal and Putting into Perspective. It is proposed that CER can be categorized into two groups as the Less Adaptive Cognitive Coping Strategies (LACCS) and the More Adaptive Cognitive Coping Strategies (MACCS) (Garnefski et al. 2001).

LACCS are Self-Blame, Blaming Others, Rumination and Catastrophizing. People using Self-Blame as a strategy tend to think that they are responsible for what they have experienced. Blaming Others is another the Less Adaptive Cognitive Coping Strategy. It refers to one's attitude of blaming others for what he/she has experienced. The next one is Rumination. People using this as a strategy are highly likely to overthink the negative aspects of what they have been experienced. The last one is Catastrophizing. Individuals utilizing this as a strategy are more likely to think what they have been experienced is the worst thing that can happen in the world. Their focus is on the terror of the event (Garnefski et al., 2001).

MACCS are Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal and Putting into Perspective. People using Acceptance tend to accept what they have been experienced and commit themselves to the experience. Another is Refocus on Planning which indicates to thinking on taking actions to deal with the stressful situations. It is the cognitive component of action-focused coping meaning taking actions requires thinking. Positive Refocusing refers to one's thinking on positive things rather than on the actual event. This strategy can be seen as a form of "mental disengagement" meaning diverting the attention from negative thoughts to positive ones. It seems useful for the short term but in the long term, this might impede to development of adaptive coping strategies. Positive Reappraisal is another the More Adaptive Cognitive Coping Strategy. People using

this strategy tend to handle the situation by attaching a positive meaning to it. They are likely to see the situation as an opportunity for their own personal growth. The last one is Putting into Perspective which refers to approaching the situation with a new perspective. People using this tend to reevaluate the situation by comparing it to other more stressful situations so that this decreases the seriousness of the situation (Garnefski et al., 2001).

1.3.1. Neuropsychological personality traits and cognitive emotion regulation

Since neuropsychological personality traits (the Behavioral Inhibition System and the Behavioral Activation System) triggered by motivations regarding reward and punishment operate emotion-driven behaviors (Gray, 1990), these systems are can be claimed to be closely related to emotion regulation processes. Thus, there are many studies focusing on this relationship in the literature. For example, interpersonal emotion regulation is found to be associated with the neuropsychological personality traits in a study done by Altan-Atalay (2019). Specifically, enhancing positive effect as a subtype is found to be positively related to the Behavioral Activation System (Altan-Atalay, 2019). Moreover, another study conducted by Leen-Feldner and colleagues (2002) shows that the increased sensitivity in the Behavioral Inhibition System predicts a rumination response style.

Regarding CER, there are few studies that study on the association with neuropsychological personality traits. For example, the increased activity of the Behavioral Inhibition System is found to be strongly linked to maladaptive coping strategies, such as Rumination, Catastrophizing, and Self-Blame (Li et al., 2013). Furthermore, a study recently done by Katz and Yovel (2021) finds an association between Positive Reappraisal and the increased activity of the Behavioral Activation System, but the decreased activity of the Behavioral Inhibition System.

1.4. Mental Health

Mental health should be understood as the absence of psychopathology and the presence of high-level emotional, psychological, and social well-being as positive components. Therefore, mental health should be considered as a spectrum rather than two opposite poles as mentally ill and mentally healthy. People cannot be diagnosed as mentally healthy only because there is no psychopathology. Many people who do not have any diagnosable mental illness cannot feel as healthy or function well in some areas of their life

(Keyes, 2002; 2005). Almost half of the adults who benefit from psychological health services have no psychological diagnosis (Reiger et al., 1993).

Furthermore, positive and negative affect are interrelated (Tellegen, Watson, & Clark, 1999). For example, a person might not have the feeling of hopelessness, which is one of the diagnostic criteria for depression, but this does not ensure that s/he feels happy though. Mental health and mental illness are also separate but related to each other. As the life satisfaction of people with any psychological problems decreases, their functionality is also expected to decrease, but this relation is not always perfect. While people with any psychological problems might experience positive affect and function well, people without any psychological problems might experience negative affect and not be able to function adequately in some or all areas of life (Keyes, 2005). Therefore, Keyes (2005) argues that mental health which is defined as the absence of psychopathology and the presence of well-being (flourishing) is much more desirable and functional than where there is only a psychological disorder or a lack of well-being (languishing). Therefore, the absence of psychopathology and the presence of well-being should be considered together in the mental health area (Diener et al., 2016).

1.4.1. Satisfaction with life

Since the level of well-being can be assessed by subjective well-being, subjective well-being is an inseparable concept with well-being. Subjective well-being is described as people's general evaluation on their lives and emotional experiences. In other words, subjective well-being includes judgments on life satisfaction and certain emotions that reflect how people react to events in their lives (Deiner et al., 2009; 2016).

According to the well-known researchers in this area, subjective well-being is not a single input, but it contains some components. These components consist of life satisfaction, positive affect and negative affect areas (Diener, Oishi, & Lucas, 2016). Life satisfaction includes the cognitive evaluation of one's life (Deiner et al., 2000). It is mostly determined by someone's conscious cognitive judgments which are relied on the person's own self (Diener, et al., 1985). Positive affect refers to pleasant emotions such as desire, gratitude; negative effect refers to unpleasant emotions such as fear and anxiety (Deiner et al., 2016). The components have their assessment scale, namely; the Satisfaction with Life Scale (SWLS) and the Scale of Positive and Negative Experience (SPANE). It is advisable to use two scales to assess the level of subjective well-being. However, focusing on one facet of

the subjective well-being often gives reliable information about subjective well-being itself (Deiner et al., 2016).

1.4.2. Cognitive emotion regulation and mental health

The relationship between emotion regulation and mental health has been shown by many studies in the literature. For instance, a study done by Kring and colleagues (2004) finds that difficulties in emotion regulation are common between different types of psychopathologies, such as anxiety disorders, bipolar disorder, and frontotemporal lobar dementia. Another study conducted by Gross and Munoz (1995) shows a link between emotion regulation and major depression.

Regarding the Less Adaptive Cognitive Coping Strategies, there are studies that show each strategy is linked to the development of various psychological disorders, either individually or in relation to each other. For example, Self-Blame was found related to severe depression (McGee et al., 2001; Kubany, Haynes, Abueg, Manke, Brennan, & Stahura, 1996; Anderson, Miller, Riger, Dill, & Sedikides, 1994). Another study done by Tennen and Affleck (1990) shows that there is a relationship between Blaming Others and poorer emotional well-being. Moreover, researches indicate that there is a strong positive association between rumination and the intensity of depression (Nolen-Hoeksema, Parker & Larson, 1994). It is found a relationship between rumination and decreased well-being (Nolen- Hoeksema, 2000; Nolen-Hoeksema, McBride, & Larson, 1997; Nolen-Hoeksema, Parker, & Larson, 1994). Lastly, a study done by Sullivan, Bishop, and Pivik (1995) shows that catastrophizing was associated with maladaptation, emotional distress, and depression.

Regarding the More Adaptive Cognitive Coping Strategies, the relationship with mental is also shown by many studies. For instance, Acceptance is found to moderately positive associated with self-esteem and optimism, but negative with anxiety (Carver et al., 1989). Another study done by Carver and colleagues (1989) shows that Refocus on Planning is positively linked to optimism and self-esteem, but negatively to anxiety. Lastly, Positive Reappraisal was found to be positively linked to optimism and self-esteem, but negatively to anxiety (Carver et al., 1989).

1.5. The Aims of the Study

Contemporary psychology has defined mental health as a state of presence of well-being and absence of psychopathology for a while. Although there are studies in the literature

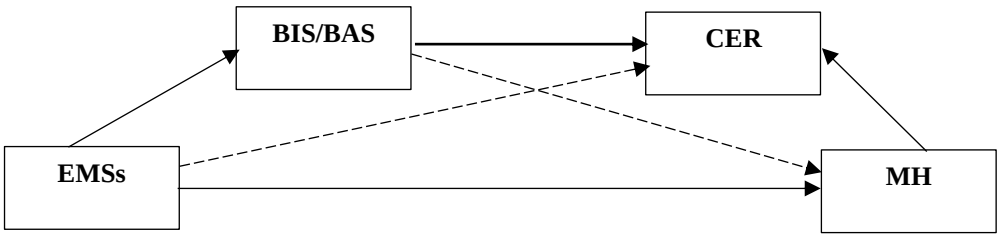
that investigate the associated factors with the link between early maladaptive schemas (EMSs) and psychopathology, to the best of our knowledge the indicators related to the link between EMSs and satisfaction with life has not been touched upon much. Thus, the aim is that not only the predictors regarding the association between EMSs and psychopathological symptoms but also the indicators regarding the relationship between EMSs and satisfaction with life are examined in this paper.

Regarding this aim, neuropsychological personality traits and CER can be suggested as possible associated factors with the association between EMSs and mental health based on the literature. In the present study, they are proposed as serially mediate this relationship. Therefore, the sequential mediator role of neuropsychological personality traits and CER on this relationship is investigated.

Accordingly, the hypotheses of this study are:

1. The stronger EMSs predict the increased activation in the Behavioral Inhibition System or decreased activation in the Behavioral Activation System which in turn predicts increased use of the Less Adaptive Cognitive Coping Strategies or decreased use of the More Adaptive Cognitive Coping Strategies which in turn predicts more psychopathological symptoms that people have.

2. The stronger EMSs predict the increased activation in the Behavioral Inhibition System or decreased activation in the Behavioral Activation System which in turn predicts increased use of the Less Adaptive Cognitive Coping Strategies or decreased use of the More Adaptive Cognitive Coping Strategies which in turn predicts decreased level of life satisfaction (Figure 1).



Note. EMSs: Early Maladaptive Schemas, BIS/BAS: The Behavioral Inhibition/Activation System, CER: Cognitive Emotion Regulation, MH: Mental Health

*Figure 1***.** The sequential mediator role of neuropsychological personality traits and cognitive emotion regulation in the association with Early Maladaptive Schemas and mental health

2. METHOD

2.1. Participants

In this study, data was gathered from 497 participants. No missing data was found. Among participants 376 (75.7%) were female and 121 (24.3%) were male. The sample was consisted of 263 participants with 18-29-age-old (52.9%), 152 with 30-40-age-old (30.6%) and 82 with 41-65-age-old (16.5%). The mean of the participants' age was calculated as 31.82 (SD = 9.90). Detailed information on the demographic characteristics of participants was presented in Table 2.

Table 2

Descriptive Table of Demographic Variables

Variables	N (497)	%
Gender		
Female	376	75.7
Male	121	24.3
Age		
18-29	263	52.9
30-40	152	30.6
41-65	82	16.5
Level of education		
Primary Level	2	0.4
Secondary Level	1	0.2
High Level	28	5.6
College Degree	267	53.7
Master's Degree	164	33.0
Doctorate Degree	35	7.0
Residence Status		
Family	311	62.6
Relatives	2	0.4
Roommates	26	5.2
Alone	90	18.1
Dorm	12	2.4
Other	56	11.3
Relationship		
Singe	179	36.0

Table 2 (continued)

In a Relationship	112	22.5
Engaged	14	2.8
Married	192	38.6
Monthly Income		
0-999 TL	2	0.4
1000-1999 TL	20	4.0
2000- 2999 TL	16	3.2
3000-3999 TL	40	8.0
4000-4999 TL	49	9.9
5000-5999 TL	57	11.5
6000 TL and more	313	63.0
History of Psychological Treatment		
Yes	214	43.1
No	283	56.9

2.2. Instruments

It was estimated that gender, age, level of education, residence status, status of relationship and familial monthly income might be associated with the measurements of this study. Therefore, a form of demographics including this participants' information was prepared by the study's researcher and given to the participants (Appendix B). The demographic information form was followed by Young Schema Questionnaire–Short Form 3, Cognitive Emotion Regulation Questionnaire, Brief Symptom Inventory, Behavioral Inhibition System/Behavioral Activation System Scales, and Satisfaction with Life Scale (Appendix C-G). All instruments were administered through Baskent University licensed Qualtrics which is a web-based survey software.

2.2.1. Young Schema Questionnaire - Short Form 3 (YSQ-SF3)

Young Schema Questionnaire was developed the to assess early maladaptive schemas by Young and Brown (1990, revised in 1994). The scale consists of 205 items that assess 18 maladaptive schemas. Later on, the questionnaire was shortened and revised by Young (2006). In this form, the scale consists of 90 items assessing 18 early maladaptive schemas into 5 schema domains. A 6-point Likert-type scale (1: Does not describe me at all, 6: Describes me perfectly) is used to rate the items. The ranges of the total score from 90 to

540. The higher scores the participants get reveal the strength of the early maladaptive schema in that specific domain (Schemidt et al., 1995).

The adaptation in Turkish of the questionnaire was done by Soygüt, Karaosmanoğlu, and Çakır (2009). Results of study indicated high reliability and internal consistency with coefficients from .53 to .81 for schema domains. The study showed 15 different maladaptive schemas on five schema domains. Nevertheless, another study done by Sarıtaş & Gençöz (2011) found three schema domains consisting of 18 maladaptive schemas. According to the study, these domains are Impaired Limits/Exaggerated Standards (ILES), Disconnection/Rejection (DR), and Impaired Autonomy/Other-Directedness (IAOD). It was concluded that this questionnaire is suitable for research and clinical use for both adolescents and adults.

2.2.2. Behavioral Inhibition System/Behavioral Activation System Scales (BIS/BAS Scales)

This scale was developed by Carver and White (1994) in order to evaluate the personality theory suggested by Gray (1970), and it is the most widely used scale for this purpose in the literature (Şişman, 2012). The scale consists of two subscales that evaluate behavioral inhibition and behavioral activation. The behavioral inhibition subscale consists of items that aim to assess the avoidance and anxiety level, whereas the behavioral activation scale consists of items that assess the level of sensitivity to entertainment seeking, impulse, and reward. The scale includes a total of 24 items and is rated on a 4-point Likert-type scale (1: Strongly agree, 4: Strongly disagree) (Carver & White, 1994). For the behavioral inhibition subscale, total score ranges from 7 to 28. For the behavioral activation scale, ranges of total ranges from 13 to 52. The higher scores in each scale reveal the increased sensitivity in that specific system.

The adaptation in Turkish was conducted by Şişman (2012). The validity coefficient of subscales ranged from -.26 to .22. It was showed that this is consistent with the results found in the original study. Internal reliability consistency coefficients for subscales vary between .57 and .69, and test-retest reliability coefficients also range between .58 and .80. Therefore, the results showed that the scale is suitable for clinical and research studies (Şişman, 2012).

2.2.3. Cognitive Emotion Regulation Questionnaire (CERQ)

This questionnaire was developed to assess the cognitive emotion regulation used by individuals after negative life incidents or situations they experienced (Garnefski et al., 2001). Although there are many emotion regulation questionnaires, this questionnaire is the first to measure the cognitive dimension of emotion regulation. It is a self-report scale that includes 9 cognitive emotion regulation strategies, namely; Self-Blame, Blaming Others, Rumination and Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal and Putting into Perspective. The questionnaire consists of 36 items in total, with each strategy consisting of 4 items. The questionnaire is rated with a 5-point Likert-type scale (1: Always never, 5: Always almost). For each subscale, total score ranges from 4 to 20. The total score in each subscale belongs to the strategy in that category. The higher the score in the subscale indicates the frequency of use of the strategy in that category.

The adaptation of the questionnaire in Turkish was done by Tuna and Bozo (2012). It was showed that the Turkish version fit nine-factor structure of original. In addition, the Turkish version is found a reliable measure of cognitive coping strategies with internal consistency coefficients ranging from .72 to .83 for subscales and retest reliability ranged from .50 to .70 for subscales (Tuna & Bozo, 2012).

2.2.4. Brief Symptom Inventory (BSI)

Brief Symptom Inventory is the short form of Symptom Checklist (SCL-90-R) and is developed by Derogatis (1975) to assess the psychological symptoms that individuals have. It consists of 53 items ranged with a 5-point Likert-type scale (0: Not at all, 4: Extremely). The total score ranges from 0 to 212. The inventory is categorized into 9 dimensions. These dimensions are Somatization (SOM), Obsessive-Compulsive (O-C), Interpersonal Sensitivity (I-S), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic Anxiety (PHOB), Paranoid Ideation (PAR), and Psychoticism (PSY). The inventory also consists three distress indices that are utilized to measure the stress level that individuals have in a single score. They are the General Severity Index (GSI), the Positive Symptom Distress Index (PSDI), and the Positive Symptom Total (PST) (Derogatis, 1975). The study done by Derogatis and Melisaratos (1983) showed that the internal consistency of the inventory for the symptom dimensions is between .71 (PSY) and .85 (DEP). In addition, the stability of the inventory was found to range from .68 (PSY) and .91 (PHOB). The higher scores in each scale indicate the increased symptoms related to that specific dimension.

Şahin and Durak (1994) adapted the scale to Turkish and they found five subscales. The internal consistency of the entire inventory is .95. Therefore, it has been shown that the scale is a valid and reliable tool for clinical and research purposes (Şahin & Durak, 1994).

2.2.5. Satisfaction with Life Scale (SWLS)

Life Satisfaction Scale is a 5-item self-report scale developed by Diener et al. (1985) to measure "global life satisfaction". It is ranged on a 7-point Likert-type scale (1: Strongly disagree, 7: Strongly agree). The total score ranges from 5 to 35. The higher scores indicate the increased life satisfaction. The scale was revealed to be reliable tool with good internal consistency (Diener, Emmons, Larsen, & Griffin, 1985).

The adaptation in Turkish was done with university students, correctional officers, and elderly adults by Şenol-Durak and Gençöz (2010). The adaptation with an internal consistency coefficient of .81 in the university sample was found to have satisfactory reliability and validity in all three samples. Therefore, SWLS in Turkish was found to be used for clinical and research purposes (Şenol-Durak & Gençöz, 2010).

2.3. Procedure

After obtaining the approval from the Ethics Committee of Baskent University, data collection started. The demographic information form and the scales mentioned above were prepared as a questionnaire form and distributed to participants to fill online through Baskent University licensed Qualtrics. The online informed consent was obtained from the participants before proceeding to the survey (Appendix A). The participants were informed on the consent form that the participation is entirely based on voluntary and completing the questionnaire takes an average of 15-20 minutes.

2.4. Statistical Analyses

In order to perform the statistical analyses, the Statistical Package for Social Sciences (SPSS) with version 22 was utilized in the present study. Firstly, descriptive statistics regarding demographic variables and measures were conducted. Then, the Multivariate Analysis of Variance (MANOVA) was conducted to find out the possible differences of demographics variables on the measures, which was followed by correlation was conducted in order to examine correlations between variables. After that, several hierarchical regression analyses were done to find out factors of neuropsychological personality traits, cognitive

emotion regulation, and mental health. Lastly, several sequential mediation analyses were conducted through SPSS PROCESS version 3 to investigate the serial mediator role of neuropsychological personality traits and cognitive emotion regulation in the linked between EMSs and mental health.

3. RESULTS

Prior to analyses, all measures were examined throughout using Statistical Package for the Social Sciences (SPSS) version 22 for Windows to ensure all assumptions that are met for the data set. No missing was found in the data. The data set was also screened for normality through examination of skewness and kurtosis as well as univariate and multivariate outliers. Therefore, 12 univariate outliers and 12 multivariate outliers were deleted, reducing the final sample to 473. After deleting the outliers, multivariate outliers were also checked through examination of Mahalanobis distance which found not to exceed the critical χ^2 for $df = 16$ (at $\alpha = .001$) of 39.25, revealing that multivariate outliers were not of concern (Tabachnick & Fidell, 2006). Furthermore, correlations between the measures were not excessive, indicating that multicollinearity was also not of concern. Finally, the assumption of homoscedasticity of residuals was met through examination of the scatterplot of standardized residuals against standardized predicted values.

3.1. Descriptive Statistics

3.1.1. Demographic variables

Each demographic variable was grouped that is given in the Table 3.

Table 3

Categorization of Demographics

Variables	N	%
Gender		
Female	360	76.1
Male	113	23.9
Age		
Emerging Adulthood (18-29)	248	52.4
Adulthood (30-65)	225	47.6
Level of education		
Primary education	31	6.6
Bachelor's Degree	250	52.9
Master's and Doctoral Degree	192	40.6
Familial Monthly Income		
Low/Middle (Less than 6000 TL)	180	38.1
High (6000 TL and more than 6000 TL)	293	61.9
Status of relationship		
Single	170	35.9
In a relationship	116	24.5
Married	187	39.5
Residence Status		
With a Family	354	74.8

Without a Family (Single, with Friends)	119	25.2
History of Psychological Treatment		
Yes	205	43.3
No	268	56.7

3.1.2. Major variables

Descriptive statistics for Young Schema Questionnaire – Short Form 3 (YSQ-SF3), of Cognitive Emotion Regulation Questionnaire (CERQ), of Behavioral Inhibition System/Behavioral Activation System Scales (BIS/BAS Scales), of Brief Symptom Inventory (BSI), and of Satisfaction with Life Scale (SWLS) were calculated (Table 4).

Table 4

Descriptive Statistics of Major Variables (N = 473)

Measures	Mean	SD	Range (Min-Max)	Cronbach's Alpha
YSQ-SF3				
ILES	90.73	19.23	34-143	.88
DR	67.12	23.70	29-144	.94
IAOD	58.12	18.41	24-122	.89
CERQ				
Self-Blame	11.96	3.11	4-20	.79
Blaming Others	10.38	2.97	4-20	.82
Rumination	14.96	3.24	4-20	.83
Catastrophizing	10.29	3.70	4-20	.84
Acceptance	12.92	2.77	5-20	.67
Refocus on Planning	15.18	2.89	4-20	.79
Positive Refocusing	11.11	3.48	4-20	.83
Positive Reappraisal	13.93	3.52	4-20	.86
Putting into Perspective	12.77	3.29	4-20	.80
BIS/BAS Scales				
BIS	22.25	3.67	12-28	.76
BAS	41.79	5.04	25-52	.78
BSI	54.38	38.94	0-187	.96
SWLS	21.00	7.24	5-35	.88

Note. YSQ: Young Schema Questionnaire, ILES: Impaired Limits/Exaggerated Standards, DR: Disconnection/Rejection, IAOD: Impaired Autonomy/Other Directedness, CERQ: Cognitive Emotion Regulation Questionnaire, BIS/BAS Scale: Behavioral Inhibition System/Behavioral Activation System Scales, BIS: Behavioral Inhibition System, BAS: Behavioral Activation System, BSI: Brief Symptom Inventory, SWLS: Satisfaction with Life Scale.

3.2. Multivariate Analyses of Variance

In order to find out possible differences of demographic variables on schema domains (Appendix H.1.), neuropsychological personality traits (Appendix H.2.), and cognitive coping strategies (Appendix H.3.), and mental health (Appendix H.4.) Separate Multivariate Analyses of Variance was conducted.

3.3. Inter-Correlations between Major Variables

To examine the relationship among major variables, Pearson Correlation analysis was conducted. The major measures which were analyzed via Pearson Correlation analysis were ILES, DR, IAOD, MACCS, LACCS, BAS, BIS, PS, and SwL.

The results were presented in the Table 5. Correlations only with ±.30 and stronger coefficients were reported. In terms of schema domains, ILES was correlated with DR (r = .69, p < .001), and IAOD (r = .72, p < .001). Thus, participants who scored higher in ILES highly likely scored higher in DR and IAOD.

Moreover, ILES was positively correlated with Self-Blame (r = .41, p < .001), Rumination (r = .31, p < .001), Catastrophizing (r = .53, p < .001), and Acceptance (r = .32, p < .001); revealing that participants with higher scores in ILES had higher scores in Self-Blame, Rumination, Catastrophizing, and Acceptance.

Regarding neuropsychological personality, ILES was correlated with BIS (r = .36, p < .001); indicating that BIS of the participants with higher scores in ILES was more likely to get activated.

Furthermore, ILES was correlated with psychopathological symptoms (r = .66, p < .001); referring that participants who scored higher in this domain also scored higher in PS.

Another schema domain which is called DR was found to be correlated with IAOD (r = .77, p < .001); referring that participants who scored higher in DR also scored higher in IAOD.

DR was positively correlated with Self-Blame (r = .46, p < .001), Catastrophizing (r = .49, p < .001), and Acceptance (r = .35, p < .001), but negatively correlated with Positive Reappraisal (r = -.36, p < .001); that refers to higher scores in DR was related to higher scores in Self-Blame, Catastrophizing, and Acceptance, but lower scores in Positive Reappraisal.

Regarding mental health, DR had a strong positive correlation with PS (r = .69, p < .001); whereas, it was negatively correlated with SwL (r = -.46, p < .001). Thus, higher

scores in DR were related to higher scores in PS. Furthermore, participants who had high scores in DR were are highly likely to be less satisfied with their lives.

IAOD was found to be positively correlated with Self-Blame (r = .46, p < .001), Catastrophizing (r = .52, p < .001), and Acceptance (r = .35, p < .001); meaning participants with higher scores in IAOD tended to use more Self-Blame, Catastrophizing, and Acceptance.

Moreover, IAOD was positively correlated with BIS (r = .38, p < .001); referring that BIS of participants with higher scores in IAOD was more likely to get activated.

Regarding mental health, IAOD had a strong positive correlation with PS (r = .65, p < .001); while, it was negatively correlated with SwL (r = -.32, p < .001). It reveals that participants who scored higher in IAOD also scored higher in PS, but scored lower in SwL.

In terms of cognitive coping strategies, Self-Blame had a moderately positive correlation with Rumination (r = .38, p < .001), Catastrophizing (r = .47, p < .001), and Acceptance (r = .45, p < .001), but negatively correlated with Positive Refocusing (r = -.30, p < .001). Participants with higher scores in Self-Blame were more likely to have higher scores in Rumination, Catastrophizing, and Acceptance, but lower scores in Positive Refocusing.

Self-Blame was also correlated with BIS and PS (respectively, r = .42, p < .001; r = .42, p < .001). This result shows that participants with higher scores in Self-Blame were more likely to have increased activation in BIS and have more psychopathological symptoms.

Regarding Rumination, it was moderately correlated with Acceptance (r = .37, p < .001). It reveals that participants reporting to use Rumination were more likely to report to use Acceptance. Rumination was also positively correlated with PS (r = .33, p < .001). Participants with higher scores in Rumination were more likely to have more psychopathological symptoms.

In terms of Catastrophizing, it was positively correlated with Acceptance (r = .31, p < .001), but negatively correlated with Positive Refocusing (r = -.32, p < .001), Positive Reappraisal (r = -.47, p < .001), and Putting into Perspective (r = -.31, p < .001). Participants with higher scores in Catastrophizing tend to have higher scores in Acceptance, but lower scores in Positive Refocusing, Positive Reappraisal, and Putting into Perspective. It was also moderately correlated with BIS (r = .43, p < .001); meaning that the BIS of participants with higher scores in Catastrophizing were more likely to get more activated. Lastly, it was strongly correlated with PS (r = .51, p < .001); however, moderately negative corelated with

SwL (r = -.30, p < .001); referring that participants with higher scores in Catastrophizing were likely to display more psychopathological symptoms, and be less satisfied with their lives.

Another cognitive coping strategy, Acceptance was positively correlated with BIS (r = .32, p < .001). Participants with higher scores in Acceptance were more likely to have higher scores in BIS. Acceptance was also correlated with PS (r = .37, p < .001). It showed that participants reporting to use Acceptance more tended to display more psychopathological symptoms.

Regarding Refocus on Planning, it was correlated with Positive Reappraisal (r = .66, p < .001), with Putting into Perspective (r = .40, p < .001). Thus, participants with higher scores in Refocus on Planning were more likely to have higher scores in Positive Reappraisal and Putting into Perspective.

In terms of Positive Refocusing, it was positively correlated with Positive Reappraisal (r = .46, p < .001) and Putting into Perspective (r = .46, p < .001). Participants with higher scores in Positive Refocusing tended to score higher in Positive Reappraisal and Putting into Perspective. Furthermore, it was negatively correlated with PS (r = -.32, p < .001). Thus, participants reporting to use Positive Refocusing more were highly like to display less psychopathological symptoms.

Regarding Positive Reappraisal, it was strongly correlated with Putting into Perspective (r = .61, p < .001); meaning that participants with higher scores in Positive Reappraisal tended to have higher scores in Putting into Perspective. Moreover, it was negatively correlated with BIS (r = -.36, p < .001). Thus, participants with higher scores in Positive Reappraisal tended to score lower in BIS. Lastly, it was negatively correlated with PS (r = -.32, p < .001), but positively correlated with SwL (r = .34, p < .001). Participants with higher scores in Positive Reappraisal were more likely to have less psychopathological symptoms and be satisfied more with their lives.

Regarding neuropsychological personality traits, BIS had a moderately positive correlation with PS (r = .38, p < .001), which refers to participants with high activation in BIS were more likely to have more psychopathological symptoms.

In terms of mental health, SwL was negatively correlated with PS (r = -.41, p < .001). Participants satisfied more with their lives were highly likely to have fewer psychopathological symptoms.

Table 5

Pearson's Correlations Coefficients between Major Variables

	ILES	DR	IAOD	SlfBlm	BlmOth	Rmn	Ctsrp	Accpt	RoP	PRf	PRa	PiP	BIS	BAS	BSI	SWLS
ILES		**.70*****	**.71*****	**.41*****	.24***	**.31*****	**.53*****	**.32*****	-.11*	-.21***	-.25***	-.14**	**.36*****	**.13*****	**.66*****	-.28***
DR			**.79*****	**.46*****	.18***	.22***	**.49*****	**.35*****	-.24***	-.29***	**-.36*****	-.24***	.27***	-.16***	**.69*****	**-.46*****
IAOD				**.46*****	.21***	.22***	**.52*****	**.35*****	-.20***	-.20***	-.27***	-.09*	**.37*****	-.11*	**.64*****	**-.34*****
SlfBlm					-.002	**.38*****	**.47*****	**.45*****	-.07	**-.30*****	-.23***	-.17***	**.42*****	-.15**	**.42*****	-.26***
BlmOth						.14**	.24***	15**	-.01	.004	-.11*	.04	.12*	.07	.18***	-.03
Rmn							.25***	**.37*****	.28***	-.09*	.09*	.07	.28***	.11*	**.33*****	-.05
Ctstrp								**.31*****	-.25***	**-.32*****	**-.47*****	**-.31*****	**.43*****	-.05	**.51*****	**-.30*****
Accpt									.002	-.21***	-.13**	-.03	**.32*****	-.17***	**.37*****	-.17***
RoP										.26***	**.66*****	**.40*****	-.15**	.21***	-19***	.28***
PRf											**.46*****	**.46*****	-.27***	.23***	**-.32*****	.25***
PRa												**.61****	**-.36****	.27**	**-.32****	**.34****
PiP													-.16**	15**	-.22***	.29***
BIS														-.09	**.38*****	-.18***
BAS															-.01	.16**
BSI																**-.42*****

Note 1. ILES: Impaired Limits/Exaggerated Standards, DR: Disconnection/Rejection, IAOD: Impaired Autonomy/Other Directedness, SlfBlm: Self-Blame, BlmOth: Blaming Others, Rmn: Rumination, Ctstrp: Catastrophizing, Accpt: Acceptance, RoP: Refocus on Planning, PRf: Positive Refocusing, PRa: Positive Reappraisal, PiP: Putting into Perspective, BIS: Behavioral Inhibition System, BAS: Behavioral Activation System, BSI: Brief Symptom Inventory, SWLS: Satisfaction with Life Scale
$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

3.4. Sequential Mediation Analyses

In order to find out possible factors which mediates the relationship between schema domains and mental health, serial multiple mediation analysis was conducted via SPSS PROCESS version 3 Sequential Mediation Model 6 (Hayes, 2018a). Schema domains (i.e., ILES, DR, and IAOD) entered into the equation as predicted variable, and mental health (i.e., PS, and SwL) as outcome variable. The neuropsychological personality traits (i.e., BIS, and BAS) and CER (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) were hypothesized as serial mediating factors between the relationship of schema domains and mental health. In order to analyze direct paths, 5000 bootstrap samples were used. This is produced 95% bias-corrected bootstrapped confidence intervals. Furthermore, as Baron and Kenny (1986) suggest mediators were considered for the analyses if they had to be significantly correlated with both predictors and outcomes to reduce possible type-1 error.

Mediation analyses enables to investigate three effects. First one of them is direct effect which shows the variance accounted for in the dependent variable by the independent variable. Secondly, indirect effect indicates the variance accounted for in the dependent variable by the independent variable throughout the mediators. Thirdly, total effect is the sum of the indirect and the direct effect.

3.4.1. Schema domains and psychopathological symptoms

Three models were suggested to examine the serial mediators in the association between schema domains and psychopathological symptoms. At the first model, the Behavioral Inhibition System (BIS) and the Less Adaptive Cognitive Coping Strategies (Self-Blame, Blaming Others, Rumination, and Catastrophizing) were hypothesized as the sequential mediators between each schema domain and psychopathological symptoms. At the second model, the Behavioral Inhibition System and the More Adaptive Cognitive Coping Strategies (Refocusing on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) were hypothesized as the sequential mediators between each schema domain and psychopathological symptoms. Since Acceptance was observed to act like the Less Adaptive Cognitive Coping Strategies, according to the correlation analysis, it with the Behavioral Inhibition System were hypothesized as the sequential mediators between each schema domain and psychopathological symptoms at the third model.

Furthermore, since the correlation between the Behavioral Activation System (BAS) and psychopathological symptoms was found to be insignificant, BAS was not included as a mediator in the equation to minimize the Type-I error, as Baron and Kenny (1986) suggest.

Based on the current literature and the prior Multivariate Analyses of Variance analyses, participants' age, monthly familial income, residence status, and history of psychological treatment were initially included in each mediation analysis. Then, as Hayes (2013) suggests, demographic variables which were found to be a partial direct effect on psychopathological symptoms were included in the final mediation analysis as covariances.

3.4.1.1. Association between ILES and PS

Model 1: ILES ⟶ BIS ⟶ LACCS ⟶ PS

According to the results, participants' age (B = -7.91, SE = 1.70, p < .001), residence status (B = -1.84, SE = .68, p < .01), and income (B = -2.22, SE = .89, p < .05) were found to have partial effects on psychopathological symptoms. Thus, younger participants who do not live with their families and have low or middle income tended to display more psychological symptoms.

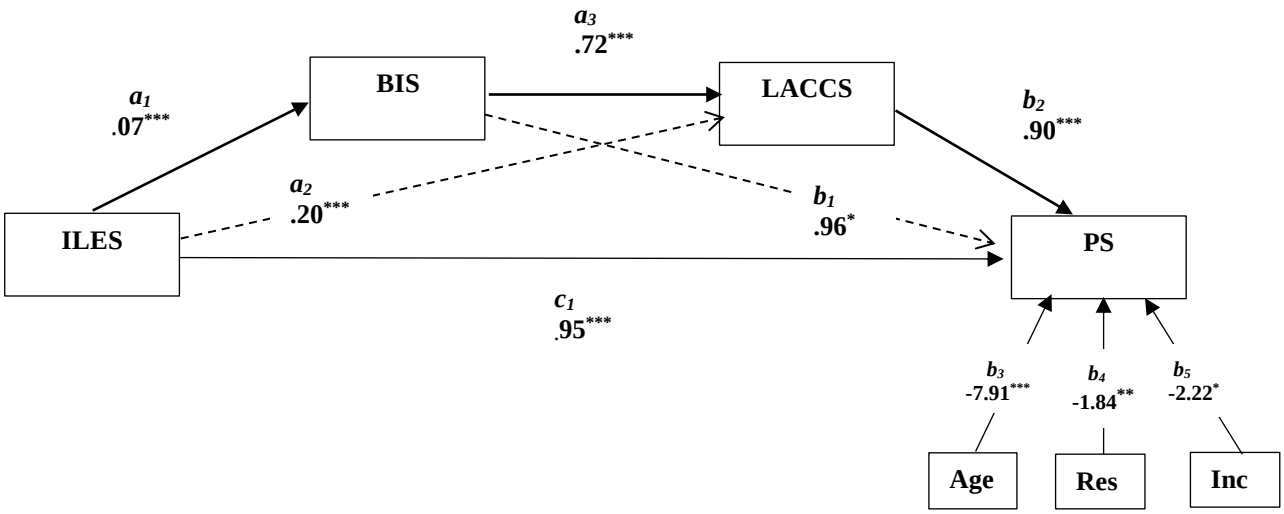
As can be seen in Table 6, ILES was found to have a positive direct effect on BIS (a_1 = .07, SE = .008, p <.001), and on LACCS (a_2 = .20, SE = .02, p <.001). Thus, participants who had higher scores in ILES had higher activation in their BIS and they tended to utilize more LACCS.

Furthermore, BIS had a positive direct effect on PS (b_1 = .96, SE = .39, p <.05), and LACCS also had a positive direct effect on PS (b_2 = .90, SE = .19, p <.001). Hence, participants with higher activation in BIS and utilized more LACCS were more likely to display psychological symptoms.

Moreover, BIS was found to be highly associated with LACCS (a_3 = .72, SE = .09, p <.001). Accordingly, participants with higher activation in BIS were more likely to utilize more LACCS.

The total effect of ILES on PS was found to be significant (c = 1.24, SE = .07, p <.001). The direct effect of ILES on PS was also found to be significant (c_1 = .95, SE = .08, p <.001). Both simple indirect effect of ILES on PS through BIS (B = .06, SE = .03, 95%*CIs* [0.01, 0.12]); and LACCS (B = .18, SE = .04, 95%*CIs* [0.10, 0.26]) were significant. Lastly, ILES's indirect effect on PS through both BIS and LACCS (sequentially) was found to be significant (B = .04, SE = .01 95%*CIs* [0.02, 0.07]). It indicates that not only BIS, and LACCS

separately mediate the relationship between ILES and PS, but their serial effect also mediates the relationship. For the second part, stronger schemas in ILES were associated with higher level of activation in BIS, which in turn predicted increased used LACCS, which in turn was associated with more psychopathological symptoms that participants have.



Note. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, LACCS: Less Adaptive Cognitive Coping Strategies, PS: Psychopathological Symptoms, Res: Residence Status, Inc: Monthly Income
$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 2. The mediator role of BIS and LACCS at the serial multiple mediation model of the relationship between ILES and PS

Table 6

The Mediator Role of BIS and LACCS between ILES and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.14, *F* (4, 468) = 19.79, *p* < .001				
ILES	a_1	.07	.008	7.79	< .001	0.05	0.08
			Y: LACCS				
			R^2 =.42, *F* (5, 467) = 67.37, *p* < .001				
ILES	a_2	.20	.02	11.39	< .001	0.16	0.23
BIS	a_3	.72	.09	8.04	< .001	0,55	0.90
			Y: Psychopathological Symptoms				
			R^2 =.52, *F* (6, 466) = 84.36, *p* < .001				
ILES	c_1	.95	.08	11.89	< .001	0.80	1.11
BIS	b_1	.96	.39	2.45	.01	0.19	1.74
LACCS	b_2	.90	.19	4.77	< .001	0.53	1.27
			Total Effect of X on Y				
			R^2 =.48, *F* (4, 468) = 106.91, *p* <.001				
ILES	c	1.24	.07	17.78	< .001	1.10	1.37

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, LACCS: The Less Adaptive Cognitive Coping Strategies

Model 2: ILES ⟶ BIS ⟶ MACC ⟶ PS

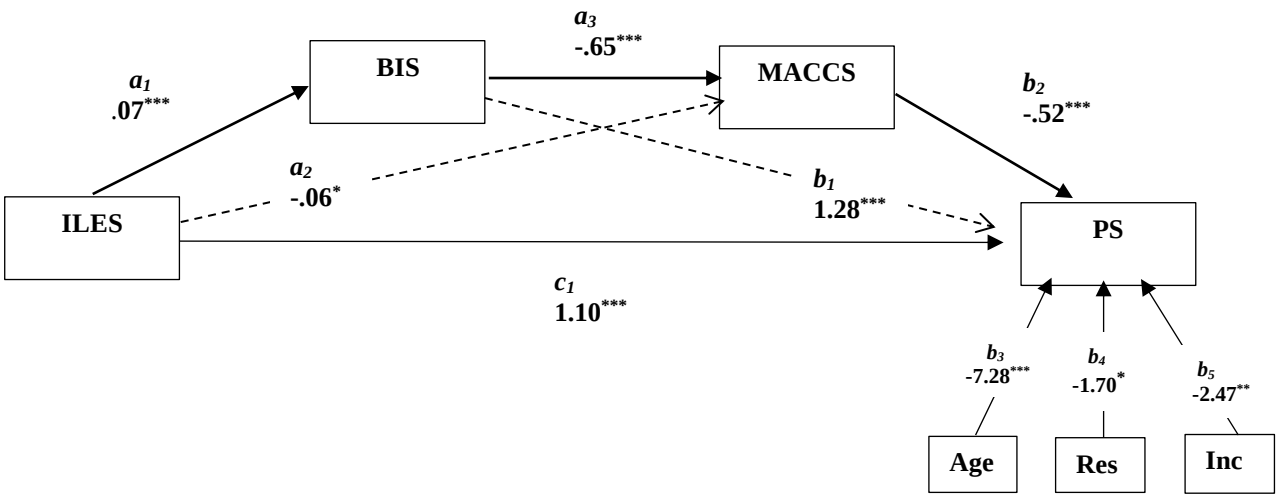
According to the results, participants' age (*B* = -7.28, *SE* = .68, *p* < .001), residence status (*B* = -1.70, *SE* = .68, *p* < .05), and income (*B* = -2.47, *SE* = .89, *p* < .01) were found to have partial effects on psychopathological symptoms. Thus, younger participants who do not live with their families and have low or middle income tended to display more psychological symptoms.

As can be seen in Table 7, ILES was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .008, *p* <.001), and on MACCS (a_2 = -.06, *SE* = .13, *p* <.001). Thus, participants who had higher scores in ILES had higher activation in their BIS and they tended to utilize less MACCS.

Furthermore, BIS had a positive direct effect on PS (b_1 = 1.28, *SE* = .38, *p* <.001), and MACCS also showed a direct effect on PS (b_2 = -.52, *SE* = .13, *p* <.001). Hence, participants with higher activation in BIS and utilized less MACCS were more likely to display psychopathological symptoms.

Moreover, BIS was found to be highly associated with MACCS (a_3 = -.65, *SE* = .13, p <.001). Accordingly, participants with higher activation in BIS were more likely to utilize less MACCS.

The total effect of ILES on PS was found to be significant (c = 1.24, *SE* = .07, p <.001). The direct effect of ILES on PS was also found to be significant (c_1 = 1.10, *SE* = .07, p <.001). Both simple indirect effect of ILES on PS through BIS (*B* = .08, *SE* = .03, 95%*CIs* [0.03, 0.14]); and MACCS (*B* = .03, *SE* = .02, 95%*CIs* [0.006, 0.07]) were significant. Lastly, ILES's direct effect on PS through both BIS and MACCS (sequentially) was found to be significant (*B* = .02, *SE* = .008 95%*CIs* [0.009, 0.04]). This indicates that not only BIS, and MACCS separately mediate the relationship between ILES and PS, but their serial effect also mediates the relationship. For the second part, stronger schemas in ILES were associated with higher level of activation in BIS, which in turn predicted decreased used MACCS, which in turn was associated with more psychopathological symptoms that participants have.



Note 1. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, MACCS: More Adaptive Cognitive Coping Strategies, PS: Psychopathological Symptoms, Res = Residence Status, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 3. The mediator role of BIS and MACCS at the serial multiple mediation model of the relationship between ILES and PS

Table 7

The Mediator Role of BIS and MACCS between ILES and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.14, *F* (4, 468) = 19.79, *p* < .001				
ILES	a_1	.07	.008	7.79	< .001	0.05	0.08
			Y: MACCS				
			R^2 =.15, *F* (5, 467) = 16.08, *p* < .001				
ILES	a_2	-.06	.03	-2.53	< .05	-0.11	-0.01
BIS	a_3	-.65	.13	-4.98	< .001	-0.90	-0.39
			Y: Psychopathological Symptoms				
			R^2 =.51, *F* (6, 466) = 82.00, *p* < .001				
ILES	c_1	1.10	.07	15.26	< .001	0.97	1.24
BIS	b_1	1.28	.38	3.36	< .001	0.53	2.03
MACCS	b_2	-.52	.13	-3.95	< .001	-0.78	-0.26
			Total Effect of X on Y				
			R^2 =.48, *F* (4, 468) = 106.91, *p* <.001				
ILES	c	1.24	.07	17.78	< .001	1.10	1.37

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, MACCS: The More Adaptive Cognitive Coping Strategies

Model 3: ILES ⟶ BIS ⟶ Acceptance ⟶ PS

According to the results, participants' age (*B* = -7.83, *SE* = 1.73, *p* < .001), residence status (*B* = -1.70, *SE* = .68, *p* < .05), and income (*B* = -2.53, *SE* = .90, *p* < .01) were found to have partial effects on psychopathological symptoms. Thus, younger participants who do not live with their families and have low or middle income tended to display more psychological symptoms.

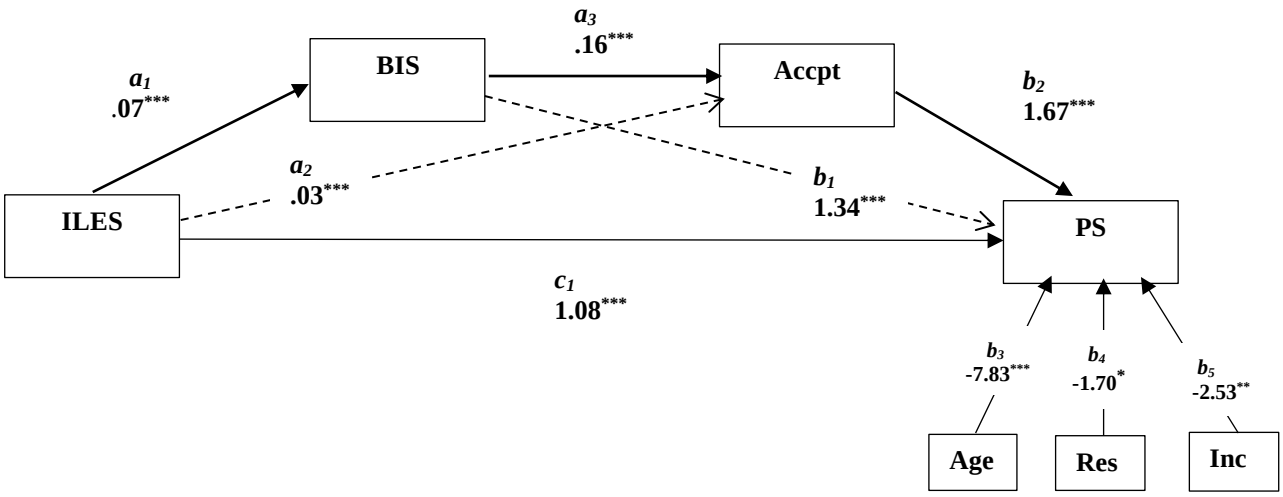
As can be seen in Table 8, ILES was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .008, *p* <.001), and on Acceptance (a_2 = .03, *SE* = .007, *p* <.001). Thus, participants who had higher scores in ILES had higher activation in their BIS and they reported to utilize Acceptance.

Furthermore, BIS showed a positive direct effect on PS (b_1 = 1.34, *SE* = .38, *p* <.001), and Acceptance also showed a positive direct effect on PS (b_2 = 1.67, *SE* = .50, *p* <.001).

Hence, participants with higher activation in BIS and utilized Acceptance were more likely to display psychopathological symptoms.

Moreover, BIS was found to be highly associated with Acceptance (a_3 = .16, *SE* = .03, p <.001). Accordingly, participants with higher activation in BIS were more likely to utilize Acceptance.

The total effect of ILES on PS was found to be significant (c = 1.24, *SE* = .07, p <.001). The direct effect of ILES on psychopathological symptoms was also found to be significant (c_1 = 1.08, *SE* = .07, p <.001). Both simple indirect effect of ILES on PS through BIS (*B* = .09, *SE* = .03, 95%*CIs* [0.04, 0.14]); and Acceptance (*B* = .05, *SE* = .02, 95%*CIs* [0.02, 0.10]) were significant. Lastly, ILES's indirect effect on PS through both BIS and Acceptance (sequentially) was found to be significant (*B* = .02, *SE* = .007 95%*CIs* [0.007, 0.03]). It indicates that not only BIS, and Acceptance separately mediate the relationship between ILES and PS, but their serial effect also mediates the relationship. For the second part, stronger schemas in ILES were associated with higher level of activation in BIS, which in turn predicted increased used Acceptance, which in turn was associated with more psychopathological symptoms that participants have.



Note. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, Accpt: Acceptance, PS: Psychopathological Symptoms, Res: Residence Status, Inc: Familial Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 4. The mediator role of BIS and Acceptance at the serial multiple mediation model of the relationship between ILES and PS

Table 8

The Mediator Role of BIS and Acceptance between ILES and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.14, *F* (4, 468) = 19.79, *p* < .001				
ILES	a_1	.07	.008	7.79	< .001	0.05	0.08
			Y: Accpt				
			R^2 =.17, *F* (5, 467) = 18.82, *p* < .001				
ILES	a_2	.03	.007	4.80	< .001	0.02	0.04
BIS	a_3	.16	.03	4.77	< .001	0.10	0.23
			Y: Psychopathological Symptoms				
			R^2 =.51, *F* (6, 466) = 80.50, *p* < .001				
ILES	c_1	1.08	.07	14.66	< .001	0.93	1.22
BIS	b_1	1.34	.38	3.52	< .001	0.60	2.09
Accpt	b_2	1.67	.50	3.33	< .001	0.68	2.65
			Total Effect of X on Y				
			R^2 =.48, *F* (4, 468) = 106.91, *p* <.001				
ILES	c	1.24	.07	17.78	< .001	1.10	1.37

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, Accpt: Acceptance

3.4.1.2. Association between DR and PS

Model 1: DR⟶BIS⟶LACC⟶PS

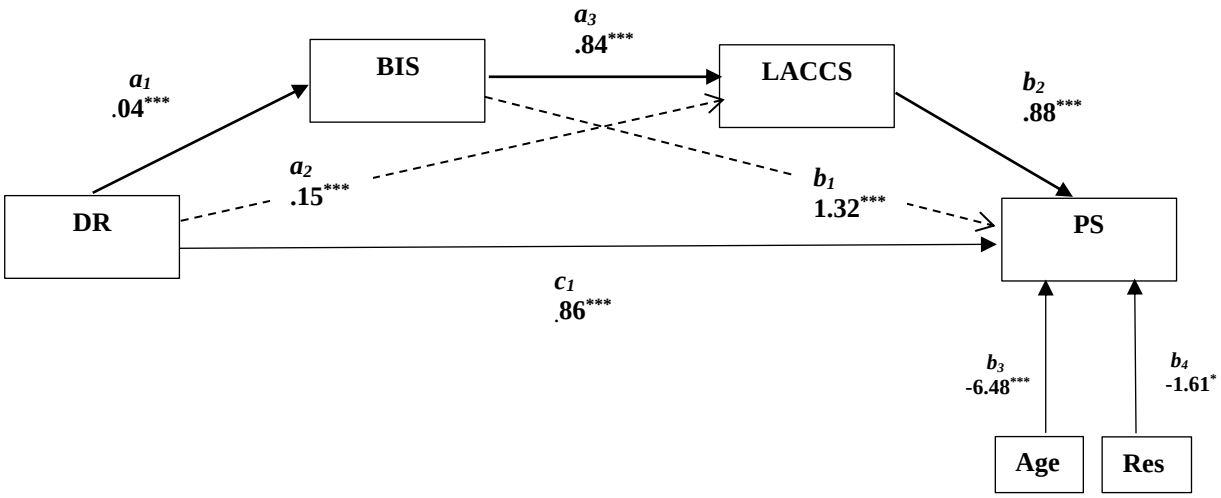
BIS and LACCS were hypothesized as the serial mediators between DR and PS. Firstly, participants' age, monthly familial income, residence status, and history of psychological treatment were used in the analysis. Therefore, participants' age (*B* = -6.48, *SE* = 1.64, *p* < .001), and residence status (*B* = -1.61, *SE* = .65, *p* < .05) were found to have partial effects on PS. Thus, younger participants who do not live with their families tended to display more psychological symptoms. Therefore, as Hayes (2013) suggests these variables were included to the serial mediation analysis as covariances.

According to the results (Table 9), DR was found to have a positive direct effect on BIS (a_1 = .04, *SE* = .007, *p* <.001), and on LACCS (a_2 = .15, *SE* = .01, *p* <.001). Thus, participants who scored higher in DR had higher activation in their BIS and they tended to utilize more LACCS.

Furthermore, BIS was found to have a positive direct effect on PS (b_1 = .1.32, *SE* = .37, *p* <.001), and LACCS also had a positive direct effect on PS (b_2 = .88, *SE* = .18, *p* <.001). Hence, participants with higher activation in BIS and utilized more LACCS tended to display PS.

Moreover, BIS was found to have a positive direct effect on LACCS (a_3 = .84, *SE* = .09, *p* <.001). Accordingly, participants with higher activation in BIS were more likely to utilize more LACCS.

The total effect of DR on PS was found to be significant (*c* = 1.08, *SE* = .05, *p* <.001). The direct effect of DR on PS was also found to be significant (c_1 = .86, *SE* = .06, *p* <.001). Both simple indirect effect of DR on PS through BIS (*B* = .05, *SE* = .02, 95%*CIs* [0.02, 0.09]); and LACCS (*B* = .13, *SE* = .03, 95%*CIs* [0.08, 0.19]) were significant. Lastly, DR's indirect effect on PS through both BIS and LACCS (sequentially) was found to be significant (*B* = .03, *SE* = .009 95%*CIs* [0.01, 0.05]. It indicates that not only BIS, and LACCS separately mediate the relationship between DR and PS, but their serial effect also mediates the relationship. For the second part, stronger schemas in DR were associated with higher level of activation in BIS, which in turn predicted increased used LACCS, which in turn was associated with more psychopathological symptoms that participants have.



Note. DR: Disconnection/Rejection, BIS: Behavioral Inhibition System, LACCS: Less Adaptive Cognitive Coping Strategies, PS: Psychopathological Symptoms, Res: Residence Status.
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 5. The mediator role of BIS and LACCS at the serial multiple mediation model of the relationship between DR and PS

Table 9

The Mediator Role of BIS and LACCS between DR and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.09, *F* (3, 469) = 15.86, *p* < .001				
DR	a_1	.04	.007	5.35	< .001	0.23	0.51
			Y: LACCS				
			R^2 =.40, *F* (4, 468) = 76.57, *p* < .001				
DR	a_2	.15	.01	10.87	< .001	0.12	0.18
BIS	a_3	.84	.09	9.42	< .001	0.66	1.01
			Y: Psychopathological Symptoms				
			R^2 =.56, *F* (5, 467) = 117.99, *p* < .001				
DR	c_1	.86	.06	14.50	< .001	0.75	0.98
BIS	b_1	1.32	.37	3.54	< .001	0.59	2.06
LACCS	b_2	.88	.18	4.97	< .001	0.53	1.23
			Total Effect of X on Y				
			R^2 =.50, *F* (3, 469) = 156.62, *p* <.001				
ILES	c	1.08	.06	19.66	< .001	0.97	1.18

Note 1. Regression coefficients are unstandardized.

Note 2. DR: Disconnection/Rejection, BIS: Behavioral Inhibition System, LACCS: The Less Adaptive Cognitive Coping Strategies

Model 2: DR⟶BIS⟶Positive Refocusing ⟶PS

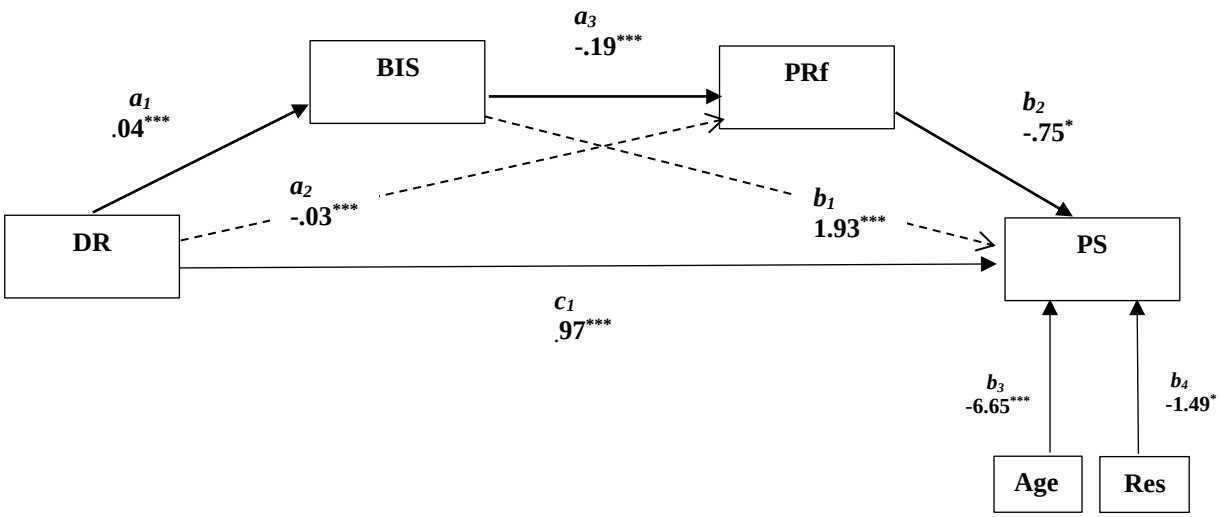
BIS and Positive Refocusing were hypothesized as the serial mediators between DR and PS. Firstly, participants' age, monthly familial income, residence status, and history of psychological treatment were used in the analysis. Therefore, participants' age (*B* = -6.65, *SE* = 1.68, *p* < .001), and residence status (*B* = -1.49, *SE* = .67, *p* < .05) were found to have partial effects on PS. Thus, younger participants who do not live with their families tended to display more psychological symptoms. Therefore, as Hayes (2013) suggests these variables were included to the serial mediation analysis as covariances.

According to the results (Table 10), DR was found to have a positive direct effect on BIS (a_1 = .04, *SE* = .007, *p* <.001), and on Positive Refocusing (a_2 = -03, *SE* = .007, *p* <.001). Thus, participants who scored higher in DR had higher activation in their BIS and they tended to less utilize Positive Refocusing.

Furthermore, BIS was found to have a positive direct effect on PS (b_1 = .1.93, *SE* = .36, *p* <.001), but Positive Refocusing had a negative direct effect on PS (b_2 = -.75, *SE* = .38, *p* <.05). Hence, participants with higher activation in BIS and less utilized Positive Refocusing tended to display psychopathological symptoms.

Moreover, BIS was found to have a positive direct effect on Positive Refocusing (a_3 = -.19, *SE* = .04, *p* <.001). Accordingly, participants with higher activation in BIS were less likely to utilize Positive Refocusing.

The total effect of DR on psychopathological symptoms was found to be significant (*c* = 1.08, *SE* = .06, *p* <.001). The direct effect of DR on PS was also found to be significant (c_1 = .97, *SE* = .06, *p* <.001). Both simple indirect effect of DR on PS through BIS (*B* = .07, *SE* = .02, 95%*CIs* [0.04, 0.12]); and Positive Refocusing (*B* = .02, *SE* = .01, 95%*CIs* [0.005, 0.05]) were significant. Lastly, DR's indirect effect on PS through both BIS and Positive Refocusing (sequentially) was found to be significant (*B* = .01, *SE* = .003 95%*CIs* [0.001, 0.01]). It indicates that not only BIS, and Positive Refocusing separately mediate the relationship between DR and PS, but their serial effect also mediates the relationship. For the second part, stronger schemas in DR were associated with higher level of activation in BIS, which in turn predicted decreased used Positive Refocusing, which in turn was associated with more psychopathological symptoms that participants have.



Note. DR: Disconnection/Rejection, BIS: Behavioral Inhibition System, PRf: Positive Refocusing, PS: Psychopathological Symptoms, Res: Residence Status.
$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 6. The mediator role of BIS and Positive Refocusing at the serial multiple mediation model of the relationship between DR and PS

Table 10

The Mediator Role of BIS and Positive Refocusing between DR and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.09, *F* (3, 469) = 15.86, *p* < .001				
DR	a_1	.04	.007	5.35	< .001	0.23	0.51
			Y: PRf				
			R^2 =.14, *F* (4, 468) = 19.04, *p* < .001				
DR	a_2	-.03	.007	-4.81	< .001	-0.04	-0.02
BIS	a_3	-.19	.04	-4.34	< .001	-0.27	-0.10
			Y: Psychopathological Symptoms				
			R^2 =.54, *F* (5, 467) = 109.04, *p* < .001				
DR	c_1	.97	.06	17.46	< .001	0.86	1.08
BIS	b_1	1.93	.36	5.39	< .001	1.22	2.63
PRf	b_2	-.75	.38	-1.97	< .05	-1.49	-0.002
			Total Effect of X on Y				
			R^2 =.50, *F* (3, 469) = 156.62, *p* <.001				
ILES	c	1.08	.06	19.66	< .001	0.97	1.18

Note 1. Regression coefficients are unstandardized.

Note 2. DR: Disconnection/Rejection, BIS: Behavioral Inhibition System, PRf : Positive Refocusing

Model 3: DR⟶BIS⟶Acceptance⟶PS

BIS and Acceptance were hypothesized as the serial mediators between DR and PS. Firstly, participants' age, monthly familial income, residence status, and history of psychological treatment were included in the analysis. Accordingly, participants' age (*B* = -6.59, *SE* = 1.68, *p* < .001), and residence status (*B* = -1.48, *SE* = .67, *p* < .05) were found to have partial effects on PS. Thus, younger participants who do not live with their families tended to display more psychological symptoms. Therefore, as Hayes (2013) suggests these variables were included to the serial mediation analysis as covariances.

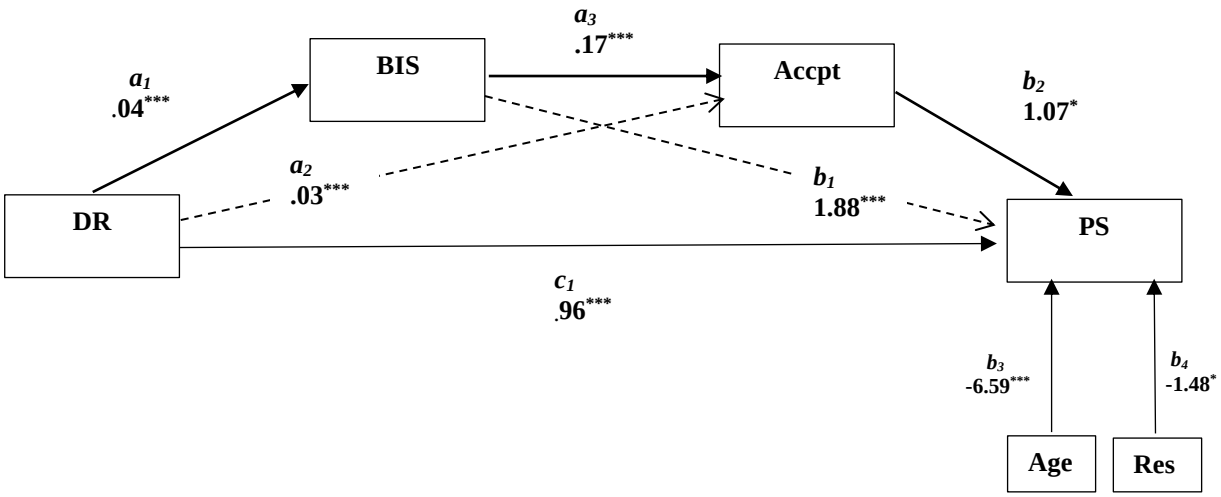
According to the results (Table 11), DR was found to have a positive direct effect on BIS (a_1 = .04, *SE* = .007, *p* <.001), and on Acceptance (a_2 = .03, *SE* = .005, *p* <.001). Thus, participants who scored higher in DR had higher activation in their BIS and they tended to utilize Acceptance.

Furthermore, BIS was found to have a positive direct effect on PS (b_1 = .1.88, *SE* = .36, *p* <.001), and Acceptance had a positive direct effect on PS (b_2 = 1.07, *SE* = .49, *p* <.05).

Hence, participants with higher activation in BIS and more utilized Acceptance tended to display psychopathological symptoms.

Moreover, BIS was found to have a positive direct effect on Positive Refocusing (a_3 = .17, *SE* = .03, p <.001). Accordingly, participants with higher activation in BIS were more likely to utilize Acceptance.

The total effect of DR on PS was found to be significant (c = 1.08, *SE* = .06, p <.001). The direct effect of DR on PS was also found to be significant (c_1 = .96, *SE* = .06, p <.001). Both simple indirect effect of DR on PS through BIS (*B* = .07, *SE* = .02, 95%*CIs* [0.04, 0.12]); and Acceptance (*B* = .03, *SE* = .02, 95%*CIs* [0.005, 0.07]) were significant. Lastly, DR's indirect effect on PS through both BIS and Acceptance (sequentially) was found to be significant (*B* = .007, *SE* = .004 95%*CIs* [0.001, 0.01]). It indicates that not only BIS, and Acceptance separately mediate the relationship between DR and PS, but their serial effect also mediates the relationship. For the second part, stronger schemas in DR were associated with higher level of activation in BIS, which in turn predicted increased used Acceptance, which in turn was associated with more psychopathological symptoms that participants have.



Note. DR: Disconnection/Rejection, BIS: Behavioral Inhibition System, Accpt: Acceptance, PS: Psychopathological Symptoms, Res: Residence Status.
$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 7. The mediator role of BIS and Acceptance at the serial multiple mediation model of the relationship between DR and PS

Table 11

The Mediator Role of BIS and Acceptance between DR and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.09, *F* (3, 469) = 15.86, *p* < .001				
DR	a_1	.04	.007	5.35	< .001	0.23	0.51
			Y: Accpt				
			R^2 =.54, *F* (4, 468) = 109.43, *p* < .001				
DR	a_2	.03	.005	6.07	< .001	0.02	0.04
BIS	a_3	.17	.03	5.20	< .001	0.11	0.24
			Y: Psychopathological Symptoms				
			R^2 =.54, *F* (5, 467) = 109.04, *p* < .001				
DR	c_1	.96	.06	17.07	< .001	0.85	1.07
BIS	b_1	1.88	.36	5.23	< .001	1.17	2.59
Accpt	b_2	1.07	.49	2.19	< .05	0.11	2.04
			Total Effect of X on Y				
			R^2 =.50, *F* (3, 469) = 156.62, *p* <.001				
ILES	c	1.08	.06	19.66	< .001	0.97	1.18

Note 1. Regression coefficients are unstandardized.

Note 2. DR: Disconnection/Rejection, BIS: Behavioral Inhibition System, Accpt: Acceptance

3.4.1.3. Association between IAOD and PS

Model 1: IAOD ⟶ BIS ⟶ LACCS ⟶ PS

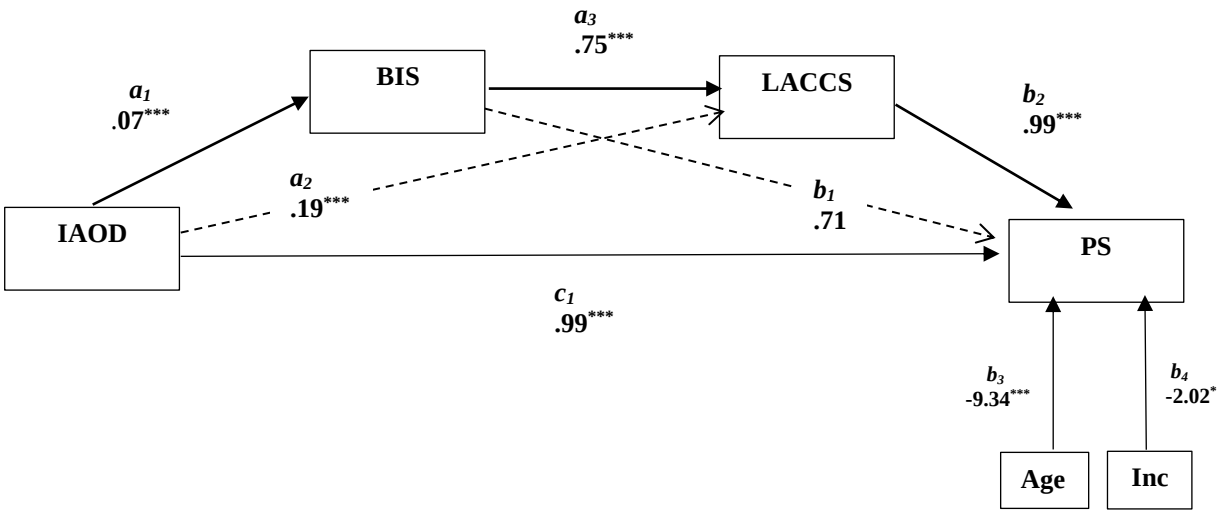
Serial mediation analysis was conducted to investigate whether or not BIS and LACCS mediate the relationship between IAOD and PS. Initially, participants' age, monthly familial income, residence status, and history of psychological treatment were included in the analysis. Therefore, participants' age (*B* = -9.34, *SE* = 1.71, *p* < .001), and monthly familial income (*B* = -2.02, *SE* = .90, *p* < .05) were found to have partial effects on PS. Thus, younger participants with low or middle income tended to display more psychological symptoms. Therefore, as Hayes (2013) suggests these variables were included to the serial mediation analysis as covariances.

The results (Table 12) revealed that IAOD was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .008, *p* <.001), and on LACCS (a_2 = .19, *SE* = .02, *p* <.001). Thus, participants who had higher scores in IAOD had higher activation in their BIS and they tended to utilize more LACCS.

Moreover, BIS was found to have not significant direct effect on PS (b_1 = .71, *SE* = .40, *p* >.05), but LACCS was found to have a positive direct effect on PS (b_2 = .99, *SE* = .18, *p* <.001). Hence, participants utilized more LACCS were more likely to display psychopathological symptoms.

Furthermore, BIS was found to have a positive direct effect on LACCS (a_3 = .75, *SE* = .09, *p* <.001). Accordingly, participants with higher activation in BIS tended to utilize more LACCS.

The total effect of IAOD on PS was found to be significant (*c* = 1.28, *SE* = .07, *p* <.001). The direct effect of IAOD on PS was also found to be significant (c_1 = .99, *SE* = .08, *p* <.001). The simple indirect effect of IAOD on PS through BIS was insignificant (*B* = .05, *SE* = .03, 95%*CIs* [-0.007, 0.11]); however, the indirect effect of LACCS was significant (*B* = .18, *SE* = .04, 95%*CIs* [0.11, 0.27]). Lastly, IAOD's indirect effect on PS through both BIS and LACCS (sequentially) was found to be significant (*B* = .05, *SE* = .01 95%*CIs* [0.03, 0.08]). It indicates that BIS does not mediate the relationship between IAOD and PS, but LACCS does. Moreover, their serial effect was found to mediate the relationship; meaning, stronger schemas in IAOD was associated with higher level of activation in BIS, which in turn predicted increased used LACCS, which in turn was associated with more psychopathological symptoms that participants have.



Note. IAOD: Disconnection/Rejection, BIS: Behavioral Inhibition System, LACCS: Less Adaptive Cognitive Coping Strategies, PS: Psychopathological Symptoms, Inc: Monthly Income
$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 8. The mediator role of BIS and LACCS at the serial multiple mediation model of the relationship between IAOD and PS

Table 12

The Mediator Role of BIS and LACCS between IAOD and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.16, *F* (3, 475) = 31.06, *p* < .001				
IAOD	a_1	.07	.008	8.59	< .001	0.06	0.09
			Y: LACCS				
			R^2 =.41, *F* (4, 474) = 80.68, *p* < .001				
IAOD	a_2	.19	.02	10.57	< .001	0.16	0.23
BIS	a_3	.75	.09	8.00	< .001	0.55	0.93
			Y: Psychopathological Symptoms				
			R^2 =.52, *F* (5, 473) = 101.72, *p* < .001				
IAOD	c_1	.99	.08	12.31	< .001	0.85	1.17
BIS	b_1	.71	.40	1.69	.08	-0.12	1.49
LACCS	b_2	.99	.18	5.11	< .001	0.58	1.32
			Total Effect of X on Y				
			R^2 =.48, *F* (3, 475) = 144.81, *p* <.001				
ILES	c	1.28	.07	18.12	< .001	1.15	1.43

Note 1. Regression coefficients are unstandardized.

Note 2. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Inhibition System, LACCS: The Less Adaptive Cognitive Coping Strategies

Model 2: IAOD ⟶ BIS ⟶ MACCS ⟶ PS

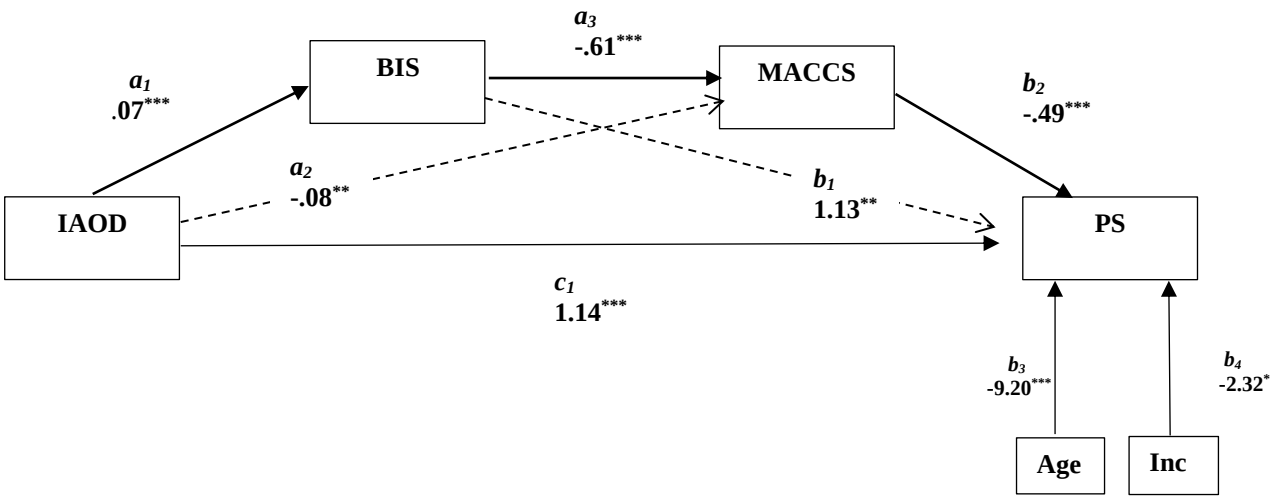
Serial mediation analysis was conducted to investigate whether or not BIS and MACCS mediate the relationship between IAOD and PS. Initially, participants' age, monthly familial income, residence status, and history of psychological treatment were included in the analysis. Therefore, participants' age (*B* = -9.20, *SE* = 1.74, *p* < .001), and monthly familial income (*B* = -2.32, *SE* = .93, *p* < .05) were found to have partial effects on PS. Thus, younger participants with low or middle income tended to display more psychological symptoms. Therefore, as Hayes (2013) suggests these variables were included to the serial mediation analysis as covariances.

The results (Table 13) revealed that IAOD was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .009, *p* <.001), and on MACCS (a_2 = -.08, *SE* = .02, *p* <.01). Thus, participants who had higher scores in IAOD had higher activation in their BIS and they tended to utilize less MACCS.

Moreover, BIS was found to have significant direct effect on PS (b_1 = 1.13, *SE* = .39, p <.01), and MACCS was found to have a negative direct effect on PS (b_2 = -.49, *SE* = .13, p <.001). Hence, participants with higher level of BIS and utilized less MACCS were more likely to display psychopathological symptoms.

Furthermore, BIS was found to have a negative direct effect on MACCS (a_3 = -.61, *SE* = .03, p <.001). Accordingly, participants with higher activation in BIS tended to utilize less MACCS.

The total effect of IAOD on PS was found to be significant (c = 1.28, *SE* = .07, p <.001). The direct effect of IAOD on PS was also found to be significant (c_1 = 1.14, *SE* = .08, p <.001). The simple indirect effect of IAOD on PS through BIS was significant (*B* = .08, *SE* = .03, 95%*CIs* [0.02, 0.15]); and, the indirect effect of MACCS was significant (*B* = .04, *SE* = .02, 95%*CIs* [0.09, 0.08]). Lastly, IAOD's indirect effect on PS through both BIS and MACCS (sequentially) was found to be significant (*B* = .02, *SE* = .008, 95%*CIs* [0.007, 0.04]). It indicates that BIS and MACCS mediate the relationship between IAOD and PS. Moreover, their serial effect was found to mediate the relationship; meaning, stronger schemas in IAOD were associated with higher level of activation in BIS, which in turn predicted decreased used MACCS, which in turn was associated with more psychopathological symptoms that participants have.



Note. IAOD: Disconnection/Rejection, BIS: Behavioral Inhibition System, MACCS: More Adaptive Cognitive Coping Strategies, PS: Psychopathological Symptoms, Inc: Monthly Familial Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 9. The mediator role of BIS and MACCS at the serial multiple mediation model of the relationship between IAOD and PS

Table 13

The Mediator Role of BIS and MACCS between IAOD and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.16, *F* (3, 469) = 29.89, *p* < .001				
IAOD	a_1	.07	.009	8.46	< .001	0.06	0.09
			Y: MACCS				
			R^2 =.15, *F* (4, 468) = 20.96, *p* < .001				
IAOD	a_2	-.08	.03	-3.09	< .01	-0.13	-0.03
BIS	a_3	-.61	.13	-4.66	< .001	-0.86	-0.35
			Y: Psychopathological Symptoms				
			R^2 =.50, *F* (5, 467) = 92.92, *p* < .001				
IAOD	c_1	1.14	.08	14.81	< .001	0.99	1.29
BIS	b_1	1.13	.39	2.92	< .01	0.37	1.90
MACCS	b_2	-.49	.13	-3.60	< .001	-0.75	-0.22
			Total Effect of X on Y				
			R^2 =.47, *F* (3, 469) = 138.41, *p* <.001				
ILES	c	1.28	.07	17.62	< .001	1.14	1.42

Note 1. Regression coefficients are unstandardized.

Note 2. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Inhibition System, MACCS: More Adaptive Cognitive Coping Strategies

Model 3: IAOD ⟶ BIS ⟶ Acceptance ⟶ PS

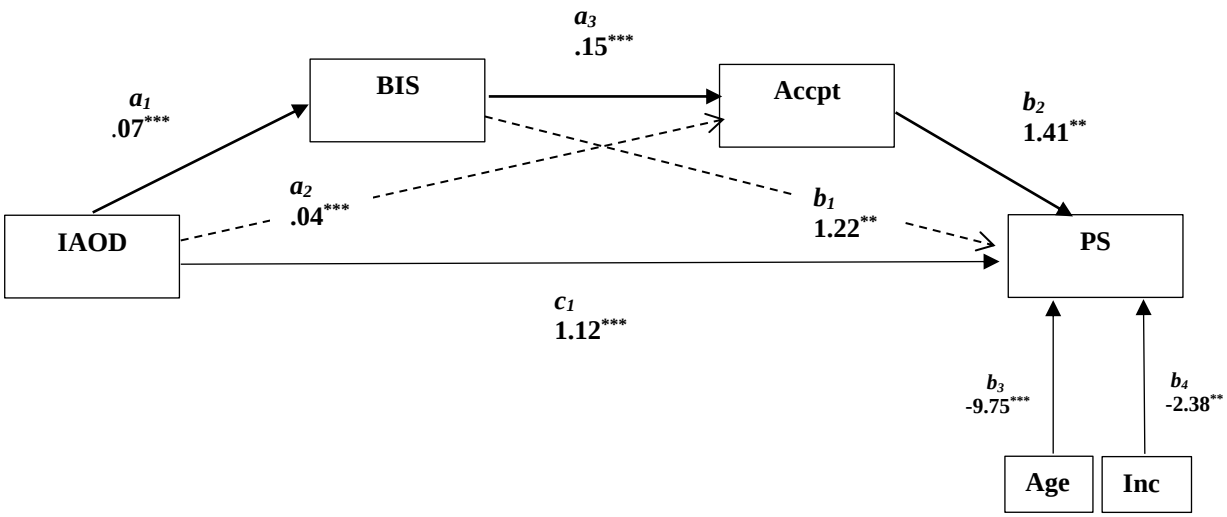
Serial mediation analysis was conducted to investigate whether or not BIS and Acceptance mediate the relationship between IAOD and PS. Initially, participants' age, monthly familial income, residence status, and history of psychological treatment were included in the analysis. Therefore, participants' age (*B* = -9.75, *SE* = 1.75, *p* < .001), and monthly familial income (*B* = -2.38, *SE* = .91, *p* < .01) were found to have partial effects on PS. Thus, younger participants with low or middle income tended to display more psychological symptoms. Therefore, as Hayes (2013) suggests these variables were included to the serial mediation analysis as covariances.

The results (Table 14) revealed that IAOD was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .008, *p* <.001), and on Acceptance (a_2 = .04, *SE* = .007, *p* <.001). Thus, participants who had higher scores in IAOD had higher activation in their BIS and they tended to utilize more Acceptance.

Moreover, BIS had a significant direct effect on PS (b_1 = 1.22, *SE* = .08, p < .001), Acceptance had also a positive direct effect on PS (b_2 = 1.41, *SE* = .51, p <.01). Hence, participants with higher levels of BIS utilized more Acceptance were more likely to display psychopathological symptoms.

Furthermore, BIS was found to have a positive direct effect on Acceptance (a_3 = .15, *SE* = .03, p <.001). Accordingly, participants with higher activation in BIS tended to utilize more Acceptance.

The total effect of IAOD on PS was found to be significant (c = 1.28, *SE* = .07, p <.001). The direct effect of IAOD on PS was also found to be significant (c_1 = 1.12, *SE* = .08, p <.001). The simple indirect effect of IAOD on PS through BIS significant (*B* = .09, *SE* = .04, 95%*CIs* [0.03, 0.15]); and, the indirect effect of Acceptance was also significant (*B* = .06, *SE* = .02, 95%*CIs* [0.01, 0.10]). Lastly, IAOD's indirect effect on PS through both BIS and Acceptance (sequentially) was found to be significant (*B* = .02, *SE* = .007 95%*CIs* [0.004, 0.03]). It indicates that BIS mediate the relationship between IAOD and PS, and Acceptance also mediate the relationship. Moreover, their serial effect was found to mediate the relationship. This refers those stronger schemas in IAOD were associated with higher level of activation in BIS, which in turn predicted increased used Acceptance, which in turn was associated with more psychopathological symptoms that participants have.



Note 1. IAOD: Disconnection/Rejection, BIS: Behavioral Inhibition System, Acppt: Acceptance, PS: Psychopathological Symptoms, Inc: Monthly Income
$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 10. The mediator role of BIS and Acceptance at the serial multiple mediation model of the relationship between IAOD and PS

Table 14

The Mediator Role of BIS and Acceptance between IAOD and PS

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.16, *F* (3, 469) = 29.89, *p* < .001				
IAOD	a_1	.07	.009	8.46	< .001	0.06	0.09
			Y: Acppt				
			R^2 =.18, *F* (4, 468) = 26.45, *p* < .001				
IAOD	a_2	.04	.007	5.80	< .001	0.03	0.05
BIS	a_3	.15	.03	4.27	< .001	0.08	0.21
			Y: Psychopathological Symptoms				
			R^2 =.49, *F* (5, 467) = 90.82, *p* < .001				
IAOD	c_1	1.12	.08	14.15	< .001	0.96	1.28
BIS	b_1	1.22	.39	3.13	< .01	0.46	1.99
Accpt	b_2	1.41	.51	2.75	< .01	0.41	2.42
			Total Effect of X on Y				
			R^2 =.47, *F* (3, 469) = 138.41, *p* <.001				
ILES	c	1.28	.07	17.62	< .001	1.14	1.42

Note 1. Regression coefficients are unstandardized.

Note 2. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Inhibition System, Accpt: Acceptance

3.4.2. Schema domains and Satisfaction with life

The neuropsychological personality traits (i.e., the Behavioral Inhibition System and the Behavioral Activation System) and cognitive emotion regulation (CER) were hypothesized as the mediators between each schema domain and satisfaction with life. CER were categorized into the Less Adaptive Coping Strategies (Self-Blame, Blaming Others, Rumination, and Catastrophizing) and the More Adaptive Coping Strategies (Refocusing on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective). Since Acceptance was observed to act like the Less Adaptive Cognitive Coping Strategies, according to the correlation analysis, it was separately examined. Therefore, the sequential multiple mediation analysis was conducted as three sets for six models. At the first model the mediation role of the Behavioral Activation System (BAS) and the More Adaptive Cognitive Coping Strategies (Refocusing on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) were hypothesized as the sequential mediators

between schema domains and satisfaction with life. At the second model, the Behavioral Inhibition System (BIS) and the More Adaptive Cognitive Coping Strategies (Refocusing on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) were hypothesized as the sequential mediators. At the third model, BAS and the Less Adaptive Cognitive Strategies were hypothesized as the sequential mediators in this relationship. At the fourth model, BIS and the Less Adaptive Cognitive Strategies were hypothesized as the sequential mediators in this relationship. At fifth model, BAS and Acceptance were hypothesized as the sequential mediators in this relationship. At the last model, BIS and Acceptance were hypothesized as the sequential mediators in this relationship.

Based on the current literature and the prior Multivariate Analyses of Variance, participants' age, level of education, monthly familial income, and history of psychological treatment were initially included in each mediation analysis. Then, as Hayes (2013) suggests, demographic variables which were found to be a partial direct effect on psychopathological symptoms were included in the final mediation analysis as covariances. The findings with results for only statistically significant sequential mediation models were reported.

3.4.2.1. Association between ILES and SwL

Model 1: ILES ⟶ BAS ⟶ MACC ⟶ SwL

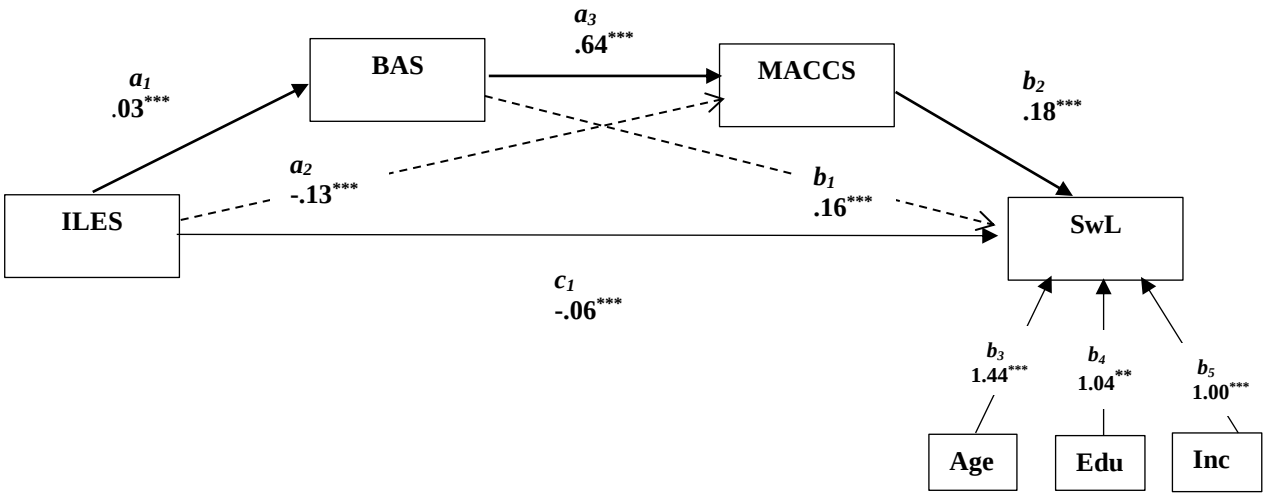
According to the results, participants' age (B = 1.44, SE = .40, p < .001), level of education (B = 1.04, SE = .38, p < .01), and monthly familial income (B = 1.00, SE = .20, p < .001) were found to have partial effects on satisfaction with life. Therefore, as the participants' age, level of education, and income increase, their life satisfaction also tended to increase.

As can be seen in Table 15, ILES was found to have a positive direct effect on BAS (a_1 = .03, SE = .012, p <.01), and on MACCS (a_2 = -.13, SE = .02, p <.001). Hence, participants who had higher scores in ILES had higher activation in their BAS and they tended to utilize less MACCS.

Moreover, BAS had a positive direct effect on SwL (b_1 = .16, SE = .06, p <.01), and MACCS also had a positive direct effect on SwL (b_2 = .18, SE = .03, p <.001). Accordingly, participants with higher activation in BAS and utilized more MACCS were more likely to have satisfaction in their life.

Furthermore, BAS was found to be associated with MACCS (a_3 = .64, *SE* = .09, *p* <.001). Thus, participants with higher activation in BAS were more likely to utilize more MACCS.

The total effect of ILES on SwL was found to be significant (*c* = -.08, *SE* = .02, *p* <.001). The direct effect of ILES on SwL was also found to be significant (c_1 = -.06, *SE* = .02, *p* <.001). Both simple indirect effect of ILES on SwL through BAS (*B* = .01, *SE* = .003, 95%*CIs* [0.001, 0.01]); and MACCS (*B* = -.02, *SE* = .006, 95%*CIs* [-0.04, -0.01]) were significant. Lastly, ILES's indirect effect on SwL through both BAS and MACCS (sequentially) was found to be significant (*B* = .004, *SE* = .002, 95%*CIs* [0.001, 0.008]). Accordingly, stronger schemas in ILES were associated with higher level of activation in BAS, which in turn predicted decreased level of life satisfaction. Secondly, stronger schemas in ILES predicted the less used SwL, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in ILES were associated with higher level of activation in BAS, which in turn predicted the more used MACCS, which in turn was related to increased level of life satisfaction.



Note. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies, SwL: Satisfaction with Life, Edu = Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 11. The mediator role of BAS and MACCS at the serial multiple mediation model of the relationship between ILES and SwL

Table 15

The Mediator Role of BAS and MACCS between ILES and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BAS				
			R^2 =.02, *F* (4, 468) = 2.02, *p* > .05				
ILES	a_1	.03	.01	2.78	< .01	0.01	0.06
			Y: MACCS				
			R^2 =.20, *F* (5, 467) = 23.25, *p* < .001				
ILES	a_2	-.13	.02	-5.59	< .001	-0.17	-0.08
BAS	a_3	.64	.09	7.50	< .001	0,47	0.81
			Y: Satisfaction with Life				
			R^2 =.27, *F* (6, 466) = 28.65, *p* < .001				
ILES	c_1	-.06	.02	-3.95	< .001	-0.09	-0.03
BAS	b_1	.16	.06	2.63	<. 01	0.04	0.28
MACCS	b_2	.18	.03	5.73	< .001	0.12	0.24
			Total Effect of X on Y				
			R^2 =.18, *F* (4, 478) = 26.11, *p* <.001				
ILES	c	-.08	.02	-4.73	< .001	-0.11	-0.04

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies

Model 2: ILES ⟶ BIS ⟶ MACC ⟶ SwL

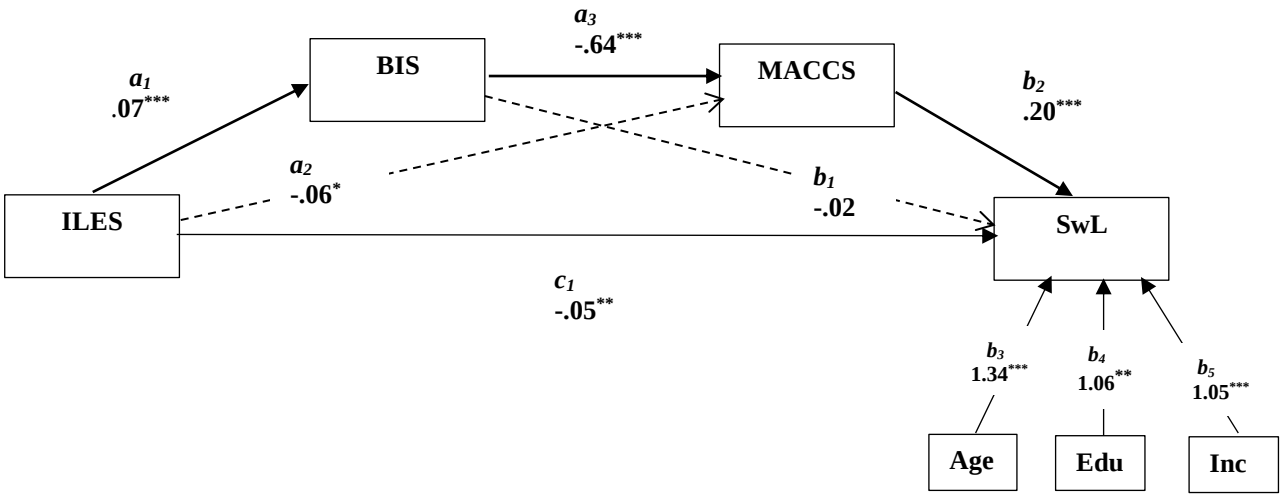
According to the results, participants' age (*B* = 1.44, *SE* = .40, *p* < .001), level of education (*B* = 1.04, *SE* = .40, *p* < .01), monthly familial income (*B* = 1.00, *SE* = .21, *p* < .001) were found to have partial effects on SwL. Therefore, as age, level of education, and income of participants increase, their life satisfaction also tended to increase.

As can be seen in Table 16, ILES was found to have a direct effect on BIS (a_1 = .06, *SE* = .008, *p* <.001), and on MACCS (a_2 = -.05, *SE* = .03, *p* <.05). Hence, participants who had higher scores in ILES had higher activation in their BAS and they tended to utilize less MACCS.

Moreover, BIS was found to not have a direct effect on SwL (b_1 = -.008, *SE* = .09, *p* >.05), but MACCS was found to have a positive direct effect on SwL (b_2 = .20, *SE* = .03, *p* <.001). Accordingly, participants utilized more MACCS were more likely to have satisfaction in their life.

Furthermore, BIS was found to be associated with MACCS (a_3 = -.57, *SE* = .13, *p* <.001). Thus, participants with higher activation in BIS were more likely to utilize less MACCS.

The total effect of ILES on SwL was found to be significant (*c* = -.08, *SE* = .02, *p* <.001). The direct effect of ILES on SwL was also found to be significant (c_1 = -.05, *SE* = .02, *p* <.01). Simple indirect effect of ILES on SwL through BIS (*B* = -.0002, *SE* = .0008, 95%*CIs* [-0.002, 0.001]) was insignificant; however, through MACCS (*B* = -.002, *SE* = .0008, 95%*CIs* [-0.003, -0.004]) was significant. Lastly, ILES's indirect effect on SwL through both BIS and MACCS (sequentially) was found to be significant (*B* = -.001, *SE* = .0003, 95%*CIs* [-0.002, -0.006]). Accordingly, BIS was found to not mediate the relationship between ILES and life satisfaction. Secondly, stronger schemas in ILES predicted the less used MACCS, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in ILES were associated with higher level of activation in BIS, which in turn predicted the less used MACCS, which in turn was associated with decreased level of life satisfaction.



Note. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, MACCS: More Adaptive Cognitive Coping Strategies, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income

$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 12. The mediator role of BIS and MACCS at the serial multiple mediation model of the relationship between ILES and SwL

Table 16

The Mediator Role of BIS and MACCS between ILES and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.14, *F* (4, 468) = 19.65, *p* < .001				
ILES	a_1	.06	.008	7.80	< .001	0.05	0.08
			Y: MACCS				
			R^2 =.15, *F* (5, 467) = 16.16, *p* < .001				
ILES	a_2	-.05	.03	-2.58	< .05	-0.12	-0.01
BIS	a_3	-.57	.13	-4.94	< .001	-0.89	-0.40
			Y: Satisfaction with Life				
			R^2 =.26, *F* (6, 466) = 39.32, *p* < .001				
ILES	c_1	-.05	.02	-3.25	< .01	-0.09	-0.02
BIS	b_1	-.008	.09	-.21	>. 05	-0.19	0.15
MACCS	b_2	.20	.03	6.70	< .001	0.14	0.26
			Total Effect of X on Y				
			R^2 =.18, *F* (4, 468) = 26.11, *p* <.001				
ILES	c	-.08	.02	-4.73	< .001	-0.11	-0.04

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies

Model 3: ILES → BAS → Self-Blame → SwL

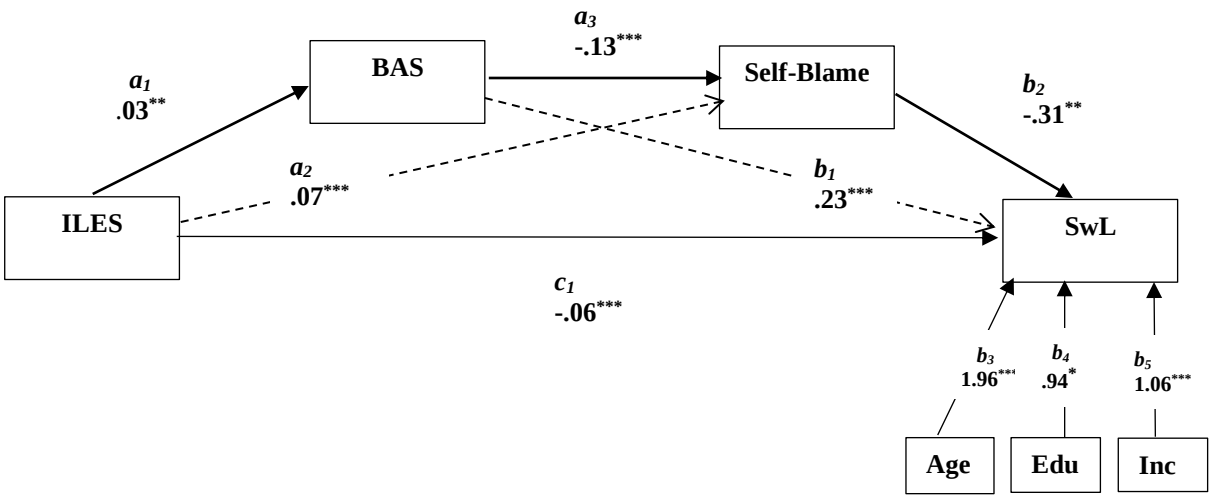
According to the results, participants' age (*B* = 1.96, *SE* = .40, *p* < .001), level of education (*B* = .94, *SE* = .40, *p* < .05), and income (*B* = 1.06, *SE* = .22, *p* < .001) were found to have partial effects on SwL. Therefore, as age, level of education, and income of participants increase, their life satisfaction also tended to increase.

As can be seen in Table 17, ILES was found to have a direct effect on BAS (a_1 = .03, *SE* = .01, *p* <.01), and on Self-Blame (a_2 = .07, *SE* = .007, *p* <.001). Hence, participants who had higher scores in ILES had higher activation in their BAS and they tended to utilize Self-Blame.

Moreover, BAS was found to have a direct effect on SwL (b_1 = .23, *SE* = .06, *p* < .001), and Self-Blame was found to have a significant negative direct effect on SwL (b_2 = -.31, *SE* = .11, *p* <.01). Accordingly, participants with higher levels in BAS and less utilized Self-Blame were more likely to have satisfaction in their life.

Furthermore, BAS was found to be associated with Self-Blame (a_3 = -.13, *SE* = .03, *p* <.01). Thus, participants with higher activation in BAS were less likely to utilize Self-Blame.

The total effect of ILES on SwL was found to be significant (*c* = -.08, *SE* = .02, *p* <.001). The direct effect of ILES on SwL was also found to be significant (c_1 = -.06, *SE* = .02, *p* <.001). Simple indirect effect of ILES on SwL through BAS (*B* = .008, *SE* = .004, 95%*CIs* [0.002, 0.02]), through Self-Blame (*B* = -.02, *SE* = .008, 95%*CIs* [-0.04, -0.006]) were significant. Lastly, ILES's indirect effect on SwL through both BAS and Self-Blame (sequentially) was found to be significant (*B* = .001, *SE* = .001, 95%*CIs* [0.002, 0.003]). Accordingly, BAS was found to mediate the relationship between ILES and life satisfaction; referring that stronger EMSs in ILES predicted higher levels in BAS which in turn predicted higher levels of life satisfaction. Secondly, stronger schemas in ILES predicted the more used Self-Blame, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in ILES were associated with higher level of activation in BAS, which in turn predicted the less used Self-Blame, which in turn was associated with increased levels of life satisfaction.



Note. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 13. The mediator role of BAS and Self-Blame at the serial multiple mediation model of the relationship between ILES and SwL

Table 17

The Mediator Role of BAS and Self-Blame between ILES and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BAS				
			R^2 =.02, *F* (4, 468) = 2.02, *p* > .05				
ILES	a_1	.03	.01	2.78	< .01	0.01	0.06
			Y: Self-Blame				
			R^2 =.23, *F* (5, 467) = 27.96, *p* < .001				
ILES	a_2	.07	.007	10.32	< .001	0.06	0.08
BAS	a_3	-.13	.03	-4.96	< .001	-0.18	-0.08
			Y: Satisfaction with Life				
			R^2 =.23, *F* (6, 466) = 23.46, *p* < .001				
ILES	c_1	-.06	.02	-3.65	< .001	-0.10	-0.03
BAS	b_1	.23	.06	3.88	<. 001	0.12	0.35
Self-Blame	b_2	-.31	.11	-2.90	< .01	-0.52	-0.10
			Total Effect of X on Y				
			R^2 =.18, *F* (4, 468) = 26.11, *p* <.001				
ILES	c	-.08	.02	-4.73	< .001	-0.11	-0.04

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System

Model 4: ILES⟶BAS ⟶Catastrophizing ⟶SwL

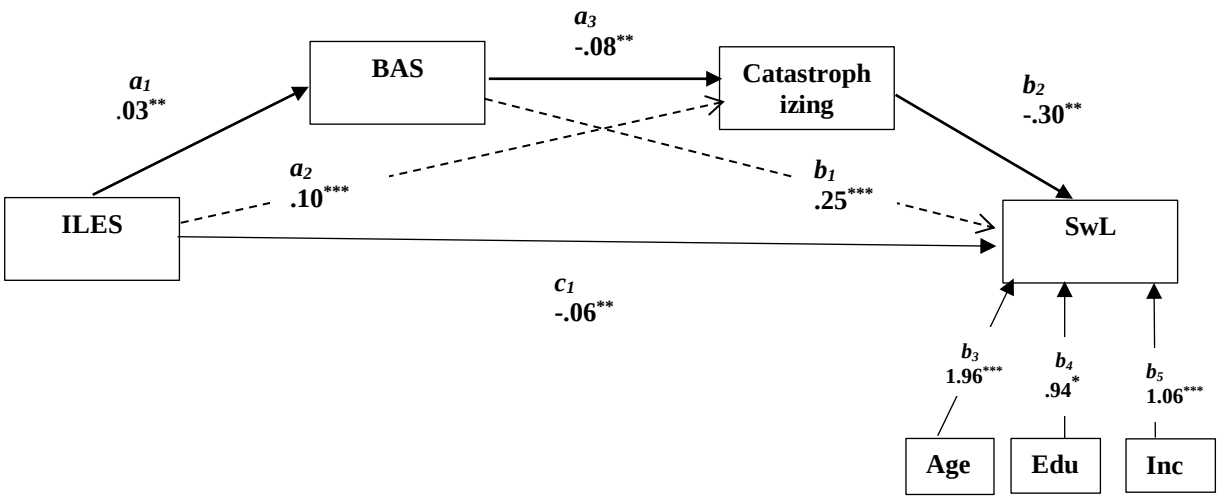
According to the results, participants' age (*B* = 1.96, *SE* = .40, *p* < .001), level of education (*B* = .94, *SE* = .40, *p* < .05), and income (*B* = 1.06, *SE* = .22, *p* < .001) were found to have partial effects on SwL. Therefore, as age, level of education, and income of participants increase, their life satisfaction also tended to increase.

As can be seen in Table 18, ILES was found to have a direct effect on BAS (a_1 = .03, *SE* = .01, *p* <.01), and on Catastrophizing (a_2 = .10, *SE* = .008, *p* <.001). Hence, participants who had higher scores in ILES had higher activation in their BAS and they tended to less utilize Catastrophizing.

Moreover, BAS was found to have a direct effect on SwL (b_1 = .25, *SE* = .06, *p* < .001), and Catastrophizing was found to have a significant negative direct effect on SwL (b_2 = -.30, *SE* = .09, *p* <.01). Accordingly, participants with higher levels in BAS and less utilized Catastrophizing were more likely to have satisfaction in their life.

Furthermore, BAS was found to be associated with Catastrophizing (a_3 = -.08, *SE* = .03, *p* <.01). Thus, participants with higher activation in BAS were less likely to utilize Catastrophizing.

The total effect of ILES on SwL was found to be significant (*c* = -.08, *SE* = .02, *p* <.001). The direct effect of ILES on SwL was also found to be significant (c_1 = -.06, *SE* = .02, *p* <.001). Simple indirect effect of ILES on SwL through BAS (*B* = .009, *SE* = .004, 95%*CIs* [0.002, 0.02]), through Catastrophizing (*B* = -.03, *SE* = .01, 95%*CIs* [-0.05, -0.01]) were significant. Lastly, ILES's indirect effect on SwL through both BAS and Catastrophizing (sequentially) was found to be significant (*B* = .001, *SE* = .001, 95%*CIs* [0.0001, 0.002]). Accordingly, BAS was found to mediate the relationship between ILES and life satisfaction. Secondly, stronger schemas in ILES predicted the more used Catastrophizing, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in ILES were associated with higher level of activation in BAS, which in turn predicted the less used Catastrophizing, which in turn was associated with increased levels of life satisfaction.



Note. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 14. The mediator role of BAS and Catastrophizing at the serial multiple mediation model of the relationship between ILES and SwL

Table 18.

The Mediator Role of BAS and Catastrophizing between ILES and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	**Upper**
			Y: BAS				
			R^2 =.02, *F* (4, 468) = 2.02, *p* > .05				
ILES	a_1	.03	.01	2.78	< .01	0.01	0.06
			Y: Catastrophizing				
			R^2 =.30, *F* (5, 467) = 40.24, *p* < .001				
ILES	a_2	.10	.008	12.99	< .001	0.09	0.12
BAS	a_3	-.08	.03	-2.96	< .01	-0.14	-0.03
			Y: Satisfaction with Life				
			R^2 =.23, *F* (6, 466) = 23.75, *p* < .001				
ILES	c_1	-.06	.02	-3.05	< .01	-0.09	-0.03
BAS	b_1	.25	.06	4.19	<. 001	0.13	0.37
Ctstrp	b_2	-.30	.09	-3.13	< .01	-0.48	-0.11
			Total Effect of X on Y				
			R^2 =.18, *F* (4, 468) = 26.11, *p* <.001				
ILES	c	-.08	.02	-4.73	< .001	-0.11	-0.04

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies, Ctstrp: Catastrophizng

Model 5: ILES ⟶ BIS ⟶ Self-Blame ⟶ SwL

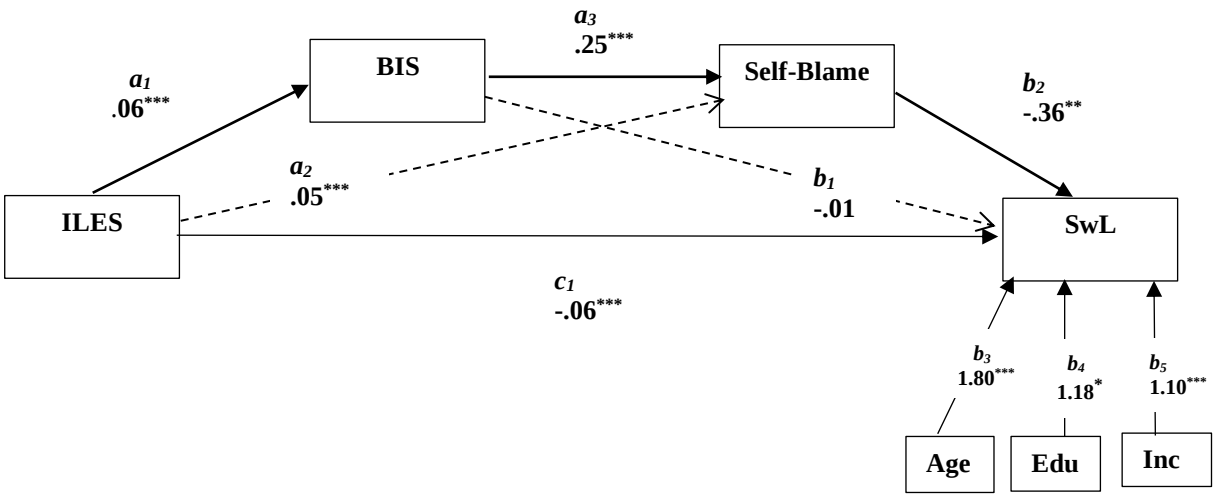
According to the results, participants' age (*B* = 1.80, *SE* = .40, *p* < .001), level of education (*B* = 1.18, *SE* = .40, *p* < .05), and income (*B* = 1.10, *SE* = .21, *p* < .001) were found to have partial effects on SwL. Therefore, as age, level of education, and income of participants increase, their life satisfaction also tended to increase.

As can be seen in Table 17, ILES was found to have a direct effect on BIS (a_1 = .06, *SE* = .009, *p* <.001), and on Self-Blame (a_2 = .05, *SE* = .007, *p* <.001). Hence, participants who had higher scores in ILES had higher activation in their BIS and they tended to utilize Self-Blame.

Moreover, BIS was found to not have a direct effect on SwL (b_1 = -.01, *SE* = .09, *p*.05), but Self-Blame was found to have a significant negative direct effect on SwL (b_2 = -.36, *SE* = .11, *p* <.01). Accordingly, participants utilized Self-Blame were less likely to have satisfaction in their life.

Furthermore, BIS was found to be associated with Self-Blame (a_3 = .25, *SE* = .04, *p* <.001). Thus, participants with higher activation in BIS were more likely to utilize Self-Blame.

The total effect of ILES on SwL was found to be significant (*c* = -.06, *SE* = .02, *p* <.001). The direct effect of ILES on SwL was also found to be significant (c_1 = -.04, *SE* = .02, *p* <.05). Simple indirect effect of ILES on SwL through BIS (*B* = .0008, *SE* = .005, 95%*CIs* [-0.11, 0.009]) was insignificant; however, through Self-Blame (*B* = -.02, *SE* = .006, 95%*CIs* [-0.03, -0.006]) was significant. Lastly, ILES's indirect effect on SwL through both BIS and Self-Blame (sequentially) was found to be significant (*B* = -.005, *SE* = .002, 95%*CIs* [-0.01, -0.002]). Accordingly, BIS was found to not mediate the relationship between ILES and life satisfaction. Secondly, stronger schemas in ILES predicted the more used Self-Blame, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in ILES were associated with higher level of activation in BIS, which in turn predicted the more used Self-Blame, which in turn was associated with decreased level of life satisfaction.



Note. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure15. The mediator role of BIS and Self-Blame at the serial multiple mediation model of the relationship between ILES and SwL

Table 19

The Mediator Role of BIS and Self-Blame between ILES and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.17, *F* (5, 467) = 16.61, *p* < .001				
ILES	a_1	.06	.009	6.55	< .001	0.04	0.07
			Y: Self-Blame				
			R^2 =.28, *F* (6, 466) = 29.58, *p* < .001				
ILES	a_2	.05	.007	6.50	< .001	0.03	0.06
BIS	a_3	.25	.04	6.68	< .001	0.17	0.32
			Y: Satisfaction with Life				
			R^2 =.22, *F* (7, 465) = 18.46, *p* < .001				
ILES	c_1	-.04	.02	-2.27	< .05	-0.08	-0.01
BIS	b_1	-.01	.09	-.15	>. 05	-0.20	0.17
Self-Blame	b_2	-.36	.11	-3.23	< .01	-0.58	-0.14
			Total Effect of X on Y				
			R^2 =.20, *F* (5, 467) = 23.01, *p* <.001				
ILES	c	-.06	.02	-3.80	< .001	-0.10	-0.03

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System

Model 6: ILES ⟶ BIS ⟶ Catastrophizing ⟶ SwL

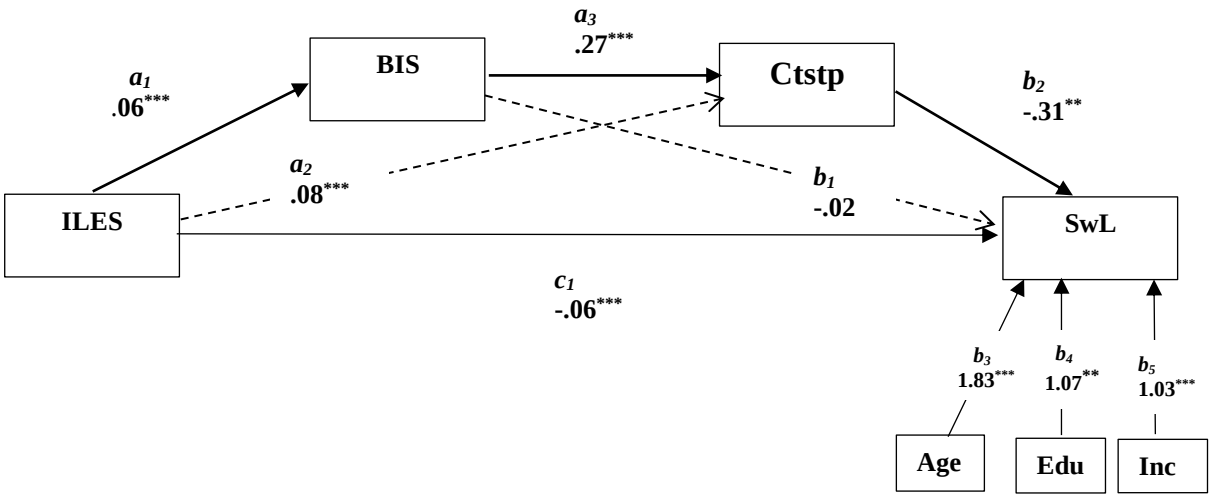
According to the results, participants' age (*B* = 1.83, *SE* = .40, *p* < .001), level of education (*B* = 1.07, *SE* = .40, *p* < .01), and income (*B* = 1.03, *SE* = .21, *p* < .001) were found to have partial effects on SwL. Therefore, as age, level of education, and income of participants increase, their life satisfaction also tended to increase.

As can be seen in Table 18, ILES was found to have a direct effect on BIS (a_1 = .06, *SE* = .009, *p* <.001), and on Catastrophizing (a_2 = .08, *SE* = .008, *p* <.001). Hence, participants who had higher scores in ILES had higher activation in their BIS and they tended to utilize Catastrophizing.

Moreover, BIS was found to not have a direct effect on SwL (b_1 = -.02, *SE* = .09, *p* >.05), but Catastrophizing was found to have a significant negative direct effect on SwL (b_2 = -.31, *SE* = .10, *p* <.01). Accordingly, participants utilized Catastrophizing were less likely to have satisfaction in their life.

Furthermore, BIS was found to be associated with Catastrophizing (a_3 = .27, *SE* = .04, p <.001). Thus, participants with higher activation in BIS were more likely to utilize Catastrophizing.

The total effect of ILES on SwL was found to be significant (c = -.06, *SE* = .02, p <.001). However, the direct effect of ILES on SwL was found to be insignificant (c_1 = -.03, *SE* = .02, p >.05). Simple indirect effect of ILES on SwL through BIS (B = .001, *SE* = .005, 95%*CIs* [-0.11, 0.009]) was insignificant; however, through Catastrophizing (B = -.02, *SE* = .008, 95%*CIs* [-0.04, -0.009]) was significant. Lastly, ILES' indirect effect on SwL through both BIS and Catastrophizing (sequentially) was found to be significant (B = -.005, *SE* = .002, 95%*CIs* [-0.009, -0.002]). Accordingly, BIS was found to not mediate the relationship between ILES and life satisfaction. Secondly, stronger schemas in ILES predicted the more used Catastrophizing, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in ILES were associated with higher level of activation in BIS, which in turn predicted the more used Catastrophizing, which in turn was associated with decreased level of life satisfaction.



Note. ILES: Impaired Limits/Exaggerated Standards, BIS: Behavioral Inhibition System, Ctstp: Catastrophizing, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 16. The mediator role of BIS and Catastrophizing at the serial multiple mediation model of the relationship between ILES domain and SwL

Table 20

The Mediator Role of BIS and Catastrophizing between ILES and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.17, *F* (5, 467) = 16.61, *p* < .001				
ILES	a_1	.06	.009	6.55	< .001	0.04	0.07
			Y: Ctstp				
			R^2 =.36, *F* (6, 466) = 43.04, *p* < .001				
ILES	a_2	.08	.008	9.62	< .001	0.06	0.09
BIS	a_3	.27	.04	6.49	< .001	0.19	0.35
			Y: Satisfaction with Life				
			R^2 =.22, *F* (7, 465) = 18.36, *p* < .001				
ILES	c_1	-.03	.02	-1.77	> .05	-0.07	0.004
BIS	b_1	-.02	.09	-.20	>. 05	-0.20	0.16
Ctstp	b_2	-.31	.10	-3.14	< .01	-0.51	-0.12
			Total Effect of X on Y				
			R^2 =.20, *F* (5, 467) = 23.01, *p* <.001				
ILES	c	-.06	.02	-3.80	< .001	-0.10	-0.03

Note 1. Regression coefficients are unstandardized.

Note 2. ILES: Impaired Limits/Exaggerated Standards, BAS: Behavioral Activation System, Ctstp: Catastrophizing

3.4.2.2. Association between DR and SwL

Model 1: DR⟶ BAS⟶ MACCS⟶SwL

According to the results, participants' age (*B* = 1.24, *SE* = .38, *p* < .01), level of education (*B* = 1.16, *SE* = .37, *p* < .01), and monthly familial income (*B* = .85, *SE* = .20, *p* < .001) were found to have partial effects on SwL. Therefore, as the participants' age, level of education, and income increase, their life satisfaction also tended to increase.

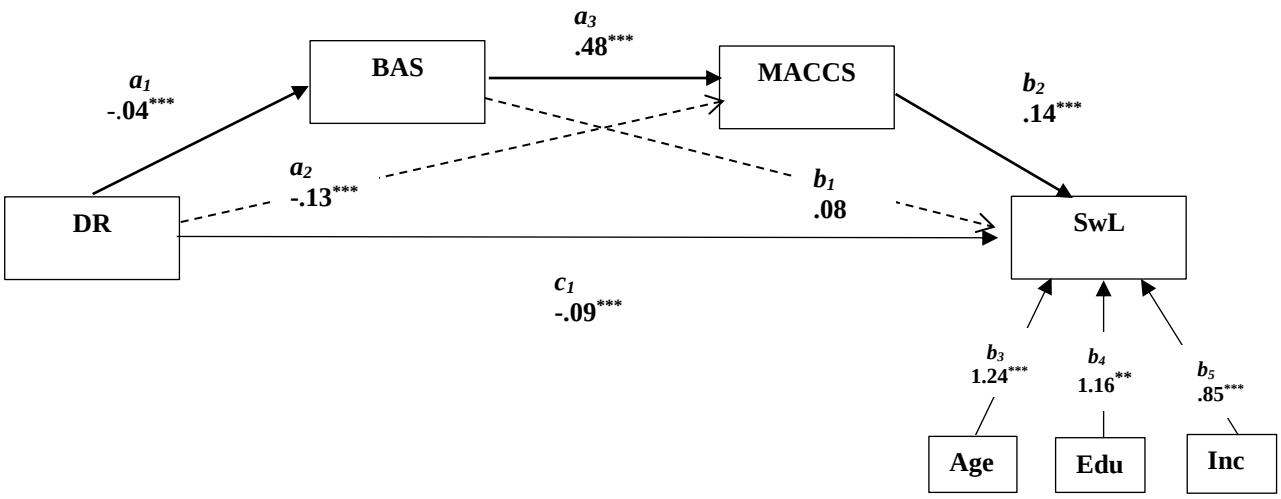
As can be seen in Table 19, DR was found to have a negative direct effect on BAS (a_1 = -.04, *SE* = .01, *p* <.001), and on MACCS (a_2 = -.13, *SE* = .02, *p* <.001). Hence, participants who had higher scores in DR had lower activation in their BAS and they tended to utilize less MACCS.

Moreover, BAS was found to have insignificant direct effect on SwL (b_1 = .08, *SE* = .06, *p* >.05), but MACCS also had a positive direct effect on SwL (b_2 = .14, *SE* = .03, *p*

<.001). Accordingly, participants utilized more MACCS were more likely to have satisfaction in their life.

Furthermore, BAS was found to be associated with MACCS (a_3 = .48, *SE* = .09, *p* <.001). Thus, participants with higher activation in BAS were more likely to utilize more MACCS.

The total effect of DR on SwL was found to be significant (*c* = -.12, *SE* = .01, *p* <.001). The direct effect of DR on SwL was also found to be significant (c_1 = -.09, *SE* = .01, *p* <.001). Simple indirect effect of DR on SwL through BAS (*B* = -.003, *SE* = .003, 95%*CIs* [-0.008, 0.001]) was insignificant; however, MACCS (*B* = -.02, *SE* = .005, 95%*CIs* [-0.03, -0.009]) was significant. Lastly, DR's indirect effect on SwL through both BAS and MACCS (sequentially) was found to be significant (*B* = -.003, *SE* = .001 95%*CIs* [-0.005, -0.001]). Accordingly, BAS was found to not mediate between the relationship DR and life satisfaction. Secondly, stronger schemas in DR predicted less used MACCS, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in DR were associated with lower level of activation in BAS, which in turn predicted less used MACCS, which in turn was associated with decreased level of life satisfaction.



Note. DR: Disconnection/Rejection, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 17. The mediator role of BAS and MACCS at the serial multiple mediation model of the relationship between DR and SwL

Table 21

The Mediator Role of BAS and MACCS between DR and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BAS				
			R^2 =.03, *F* (4, 468) = 3.63, *p* < .01				
DR	a_1	-.04	.01	-4.08	< .001	-0.06	-0.02
			Y: MACCS				
			R^2 =.22, *F* (5, 467) = 26.85, *p* < .001				
DR	a_2	-.13	.02	-6.83	< .001	-0.17	-0.09
BAS	a_3	.48	.09	5.67	< .001	0,31	0.65
			Y: Satisfaction with Life				
			R^2 =.32, *F* (6, 466) = 36.98, *p* < .001				
DR	c_1	-.09	.01	-7.30	< .001	-0.12	-0.07
BAS	b_1	.08	.06	1.35	> .05	-0.04	0.19
MACCS	b_2	.14	.03	4.67	< .001	0.08	0.20
			Total Effect of X on Y				
			R^2 =.28, *F* (4, 468) = 45.70, *p* <.001				
DR	c	-.12	.01	-9.46	< .001	-0.14	-0.09

Note 1. Regression coefficients are unstandardized.

Note 2. DR: Disconnection/Rejection, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies

Model 2: DR⟶ BIS ⟶MACCS ⟶ SwL

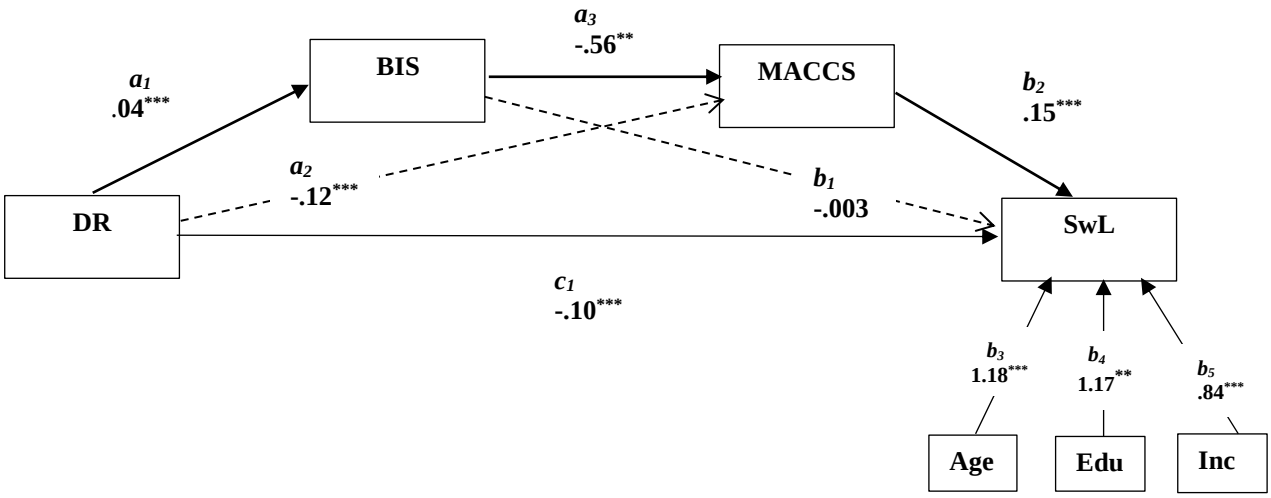
According to the results, participants' age (*B* = 1.27, *SE* = .38, *p* < .001), level of education (*B* = 1.18, *SE* = .37, *p* < .01), and monthly familial income (*B* = .84, *SE* = .20, *p* < .001) were found to have partial effects on SwL. Therefore, as the participants' age, level of education, and income increase, their life satisfaction also tended to increase.

As can be seen in Table 20, DR was found to have a negative direct effect on BIS (a_1 = .04, *SE* = .007, *p* <.001), and on MACCS (a_2 = -.12, *SE* = .02, *p* <.001). Hence, participants who had higher scores in DR had higher activation in their BIS and they tended to utilize less MACCS.

Moreover, BIS was found to have insignificant direct effect on SwL (b_1 = -.003, *SE* = .08, *p* >.05), but MACCS had a positive direct effect on SwL (b_2 = .14, *SE* = .03, *p* <.001). Accordingly, participants utilized more MACCS were more likely to have satisfaction in their life.

Furthermore, BIS was found to be associated with SwL (a_3 = -.56, *SE* = .09, *p* <.01). Thus, participants with higher activation in BIS were more likely to utilize more MACCS.

The total effect of DR on SwL was found to be significant (*c* = -.12, *SE* = .01, *p* <.001). The direct effect of DR on SwL was also found to be significant (c_1 = -.10, *SE* = .01, *p* <.001). Simple indirect effect of DR on SwL through BIS (*B* = -.001, *SE* = .003, 95%*CIs* [-0.008, 0.005]) was insignificant; however, MACCS (*B* = -.01, *SE* = .004, 95%*CIs* [-0.02, -0.006]) was significant. Lastly, the indirect effect of DR on SwL through both BIS and MACCS (sequentially) was found to be significant (*B* = -.002, *SE* = .0009 95%*CIs* [-0.004, -0.006]). Accordingly, BIS was found to not mediate between the relationship DR and life satisfaction. Secondly, stronger schemas in DR predicted less used MACCS, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in DR were associated with higher level of activation in BIS, which in turn predicted less used MACCS, which in turn was associated with decreased level of life satisfaction.



Note. DR: Disconnection/Rejection, BIS: Behavioral Inhibition System, MACCS: More Adaptive Cognitive Coping Strategies, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 18. The mediator role of BIS and MACCS at the serial multiple mediation model of the relationship between DR and SwL

Table 22

The Mediator Role of BIS and MACCS between DR and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BAS				
			R^2 =.09, *F* (4, 468) = 11.75, *p* < .001				
DR	a_1	.04	.007	-5.51	< .001	0.03	0.05
			Y: MACCS				
			R^2 =.11, *F* (5, 467) = 11.98, *p* < .001				
DR	a_2	-.12	.02	-4.53	< .001	-0.13	-0.05
BIS	a_3	-.56	.13	-3.03	< .01	-0.64	-0.14
			Y: Satisfaction with Life				
			R^2 =.32, *F* (6, 466) = 36.27, *p* < .001				
DR	c_1	-.10	.01	-7.92	< .001	-0.13	-0.08
BIS	b_1	-.003	.08	-.41	> .05	-0.19	0.12
MACCS	b_2	.15	.03	4.94	< .001	0.08	0.20
			Total Effect of X on Y				
			R^2 =.28, *F* (4, 468) = 45.70, *p* <.001				
DR	c	-.12	.01	-9.46	< .001	-0.14	-0.09

Note 1. Regression coefficients are unstandardized.

Note 2. DR: Disconnection/Rejection, BAS: Behavioral Inhibition System, MACCS: More Adaptive Cognitive Coping Strategies

3.4.2.3. Association between IAOD and SwL

Model 1: IAOD ⟶ BAS ⟶ MACC ⟶ SwL

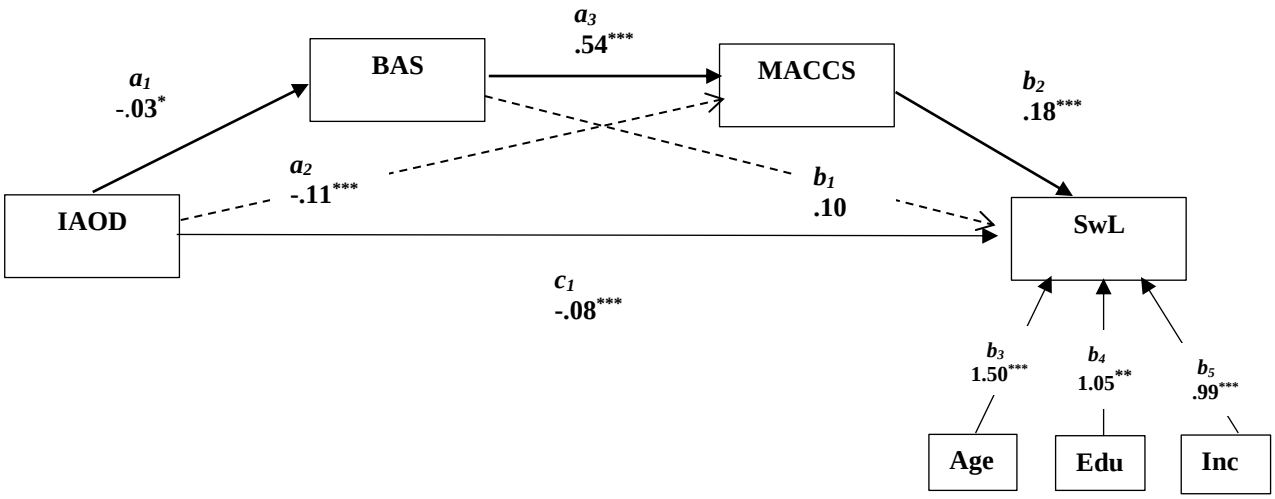
According to the results, participants' age (*B* = 1.50, *SE* = .39, *p* < .001), level of education (*B* = 1.05, *SE* = .38, *p* < .01), and monthly familial income (*B* = .99, *SE* = .20, *p* < .001) were found to have partial effects on SwL. Therefore, as the participants' age, level of education, and income increase, their life satisfaction also tended to increase.

As can be seen in Table 21, IAOD was found to have a negative direct effect on BAS (a_1 = -.03, *SE* = .01, *p* <.05), and on MACCS (a_2 = -.11, *SE* = .02, *p* <.001). Hence, participants who had higher scores in IAOD had lower activation in their BAS and they tended to utilize less MACCS.

Moreover, BAS had an insignificant direct effect on SwL (b_1 = .10, *SE* = .06, *p* >.05), but MACCS had a positive direct effect on SwL (b_2 = .18, *SE* = .03, *p* <.001). Accordingly, participants utilized more MACCS were more likely to have satisfaction in their life.

Furthermore, BAS was found to be associated with MACCS (a_3 = .54, *SE* = .09, *p* <.001). Thus, participants with higher activation in BAS were more likely to utilize more MACCS.

The total effect of IAOD on SwL was found to be significant (*c* = -.11, *SE* = .02, *p* <.001). The direct effect of IAOD on SwL was also found to be significant (c_1 = -.08, *SE* = .02, *p* <.001). Simple indirect effect of IAOD on SwL through BAS (*B* = -.003, *SE* = .002, 95%*CIs* [-0.009, 0.004]) was insignificant; but MACCS (*B* = -.02, *SE* = .006, 95%*CIs* [-0.03, -0.009]) was significant. Lastly, IAOD's indirect effect on SwL through both BAS and MACCS (sequentially) was found to be significant (*B* = .003, *SE* = .002, 95%*CIs* [0.006, 0.0004]). Accordingly, BAS did not mediate the relationship between IAOD and life satisfaction. Secondly, stronger schemas in IAOD predicted the less used MACCS, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in IAOD were associated with lower level of activation in BAS, which in turn predicted the less used MACCS, which in turn was associated with decreased level of life satisfaction.



Note. IAOD: Impaired Autonomy/Other Directedness, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies, SwL: Satisfaction with Life, Edu = Level of education, Inc: Monthly Income
$^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Figure 19. The mediator role of BAS and MACCS at the serial multiple mediation model of the relationship between IAOD and SwL

Table 23

The Mediator Role of BAS and MACCS between IAOD and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BAS				
			R^2 =.01, *F* (4, 468) = 1.52, *p* > .05				
IAOD	a_1	-.03	.01	-2.40	< .05	-0.06	-0.006
			Y: MACCS				
			R^2 =.18, *F* (5, 467) = 20.74, *p* < .001				
IAOD	a_2	-.11	.02	-4.53	< .001	-0.16	-0.06
BAS	a_3	.54	.09	6.23	< .001	0.37	0.70
			Y: Satisfaction with Life				
			R^2 =.29, *F* (6, 466) = 31.01, *p* < .001				
IAOD	c_1	-.08	.02	-5.13	< .001	-0.11	-0.05
BAS	b_1	.10	.06	1.66	> .05	-0.022	0.21
MACCS	b_2	.18	.03	5.81	< .001	0.12	0.24
			Total Effect of X on Y				
			R^2 =.22, *F* (4, 468) = 32.20, *p* <.001				
IAOD	c	-.11	.02	-6.58	< .001	-0.14	-0.08

Note 1. Regression coefficients are unstandardized.

Note 2. IAOD: Impaired Autonomy/Other Directedness, BAS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies

Model 2: IAOD ⟶ BIS ⟶ MACCS ⟶ SwL

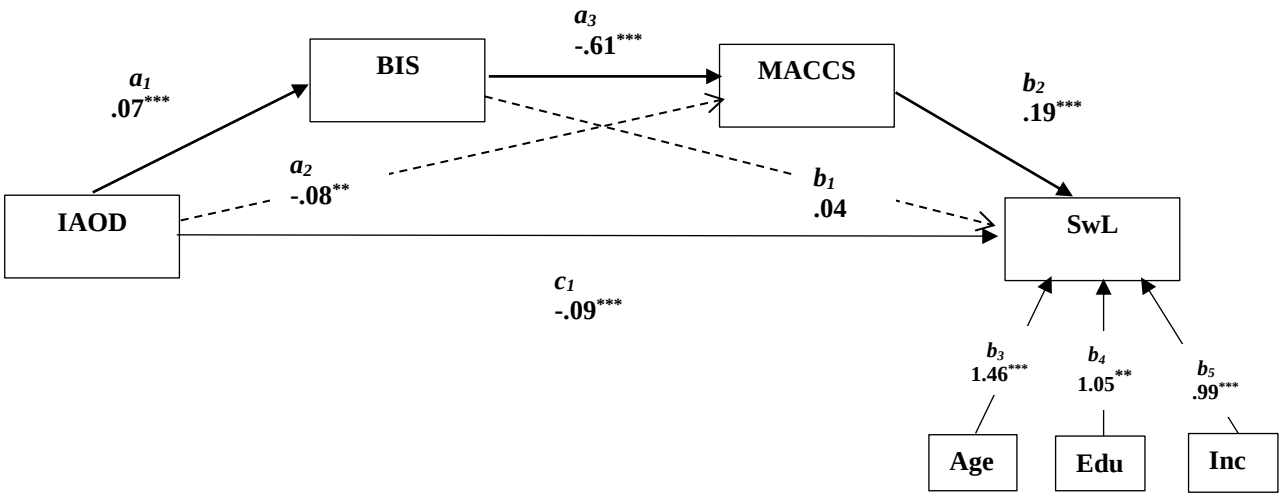
According to the results, participants' age (*B* = 1.46, *SE* = .39, *p* < .001), level of education (*B* = 1.05, *SE* = .38, *p* < .01), and monthly familial income (*B* = .99, *SE* = .20, *p* < .001) were found to have partial effects on SwL. Therefore, as the participants' age, level of education, and income increase, their life satisfaction also tended to increase.

As can be seen in Table 23., IAOD was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .01, *p* < .001), and on MACCS (a_2 = -.08, *SE* = .03, *p* < .01). Hence, participants who had higher scores in IAOD had higher activation in their BIS and they tended to utilize less MACCS.

Moreover, BIS had an insignificant direct effect on SwL (b_1 = .04, *SE* = .09, *p* > .05), but MACCS had a significant direct effect on SwL (b_2 = .19 *SE* = .03, *p* <.001). Accordingly, participants utilized more MACCS were more likely to have satisfaction in their life.

Furthermore, BIS was found to be associated with the More Adaptive Cognitive Coping Strategies (a_3 = -.60, *SE* = .13, p <.001). Thus, participants with higher activation in BIS were less likely to utilize MACCS.

The total effect of IAOD on SwL was found to be significant (c = -.11, *SE* = .02, p <.001). The direct effect of IAOD on SwL was also found to be significant (c_1 = -.09, *SE* = .02, p <.001). Simple indirect effect of IAOD on SwL through BIS (*B* = .003, *SE* = .006, 95%*CIs* [-0.01, -0.02]) was insignificant, but MACCS (*B* = -.02, *SE* = .006, 95%*CIs* [-0.03, -0.01]) was significant. Lastly, IAOD's indirect effect on SwL through both BIS and MACCS (sequentially) was found to be insignificant (*B* = -.09, *SE* = .002, 95%*CIs* [-0.01, 0.005]). Accordingly, stronger schemas in IAOD predicted the less used MACCS, which in turn was associated with less SwL that participants have. Furthermore, stronger schemas in IAOD predicted the increased activation in BIS which in turn predicted the less use of MACCS which in turn predicted the decreased levels of life satisfaction.



Note. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Inhibition System, MACCS: More Adaptive Cognitive Coping Strategies, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 20. The mediator role of BIS and MACCS at the serial multiple mediation model of the relationship between IAOD and SwL

Table 24

The Mediator Role of BIS and MACCS between IAOD and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.16, *F* (4, 468) = 22.42, *p* < .001				
IAOD	a_1	.07	.09	8.46	< .001	-0.14	-0.03
			Y: MACCS				
			R^2 =.15, *F* (5, 467) = 16.86, *p* < .001				
IAOD	a_2	-.08	.03	-3.11	< .01	-0.12	-0.05
BIS	a_3	-.61	.13	-4.64	< .001	-0.86	-0.35
			Y: Satisfaction with Life				
			R^2 =.28, *F* (6, 466) = 30.41, *p* < .001				
IAOD	c_1	-.09	.02	-5.06	< .001	-0.12	-0.05
BIS	b_1	.04	.09	.43	> .05	-0.13	0.21
MACCS	b_2	.19	.03	6.45	< .001	0.13	0.25
			Total Effect of X on Y				
			R^2 =.22, *F* (4, 468) = 32.20, *p* <.001				
ILES	c	-.11	.02	-6.58	< .001	-0.14	-0.08

Note 1. Regression coefficients are unstandardized.

Note 2. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Activation System, MACCS: More Adaptive Cognitive Coping Strategies

Model 3: IAOD ⟶ BIS ⟶ Self-Blame ⟶ SwL

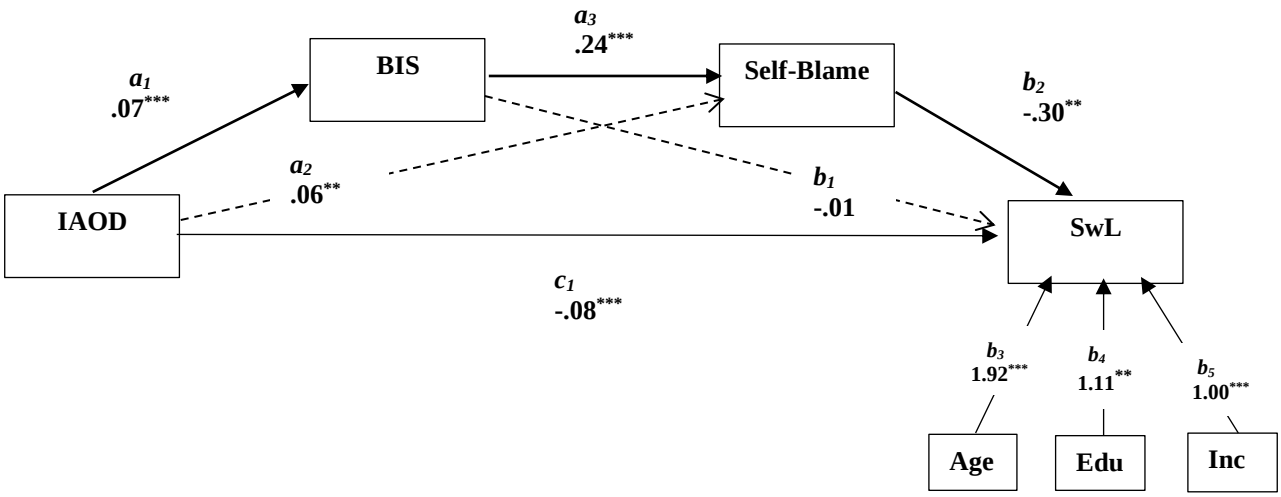
According to the results, participants' age (*B* = 1.92, *SE* = .40, *p* < .001), level of education (*B* = 1.11, *SE* = .40, *p* < .01), and monthly familial income (*B* = 1.00, *SE* = .21, *p* < .001) were found to have partial effects on SwL. Therefore, as the participants' age, level of education, and income increase, their life satisfaction also tended to increase.

As can be seen in Table 24, IAOD was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .01, *p* < .001), and on Self-Blame (a_2 = .06, *SE* = .007, *p* < .001). Hence, participants who had higher scores in the schema domain of Impaired Limits/Exaggerated Standards had higher activation in their BIS and they tended to utilize Self-Blame.

Moreover, BIS had an insignificant direct effect on SwL (b_1 =-.01, *SE* = .09, *p* > .05), but Self-Blame had a significant direct effect on SwL (b_2 = -.30 *SE* = .11, *p* <.01). Accordingly, participants less utilized Self-Blame were more likely to have satisfaction in their life.

Furthermore, BIS was found to be associated with Self-Blame (a_3 = .24, *SE* = .04, *p* <.001). Thus, participants with higher activation in BIS were more likely to utilize Self-Blame.

The total effect of IAOD on SwL was found to be significant (c = -.11, *SE* = .02, *p* <.001). The direct effect of IAOD on SwL was also found to be significant (c_1 = -.08, *SE* = .02, *p* <.001). Simple indirect effect of IAOD on SwL through BIS (*B* = -.001, *SE* = .007, 95%*CIs* [-0.01, 0.01]) was insignificant; however, Self-Blame (*B* = -.02, *SE* = .008, 95%*CIs* [-0.03, -0.04]) was significant. Lastly, IAOD's indirect effect on SwL through both BIS and Self-Blame sequentially was found to be significant (*B* = -.01, *SE* = .002, 95%*CIs* [-0.01, -0.001]). Accordingly, BIS did not mediate the relationship between IAOD and life satisfaction. Secondly, stronger schemas in IAOD predicted the more used Self-Blame, which in turn was associated with less SwL that participants have. Lastly, stronger schemas in stronger schemas in IAOD predicted the increased sensitivity in BIS which in turn predicted the increased use in Self-Blame which in turn the decreased levels of SwL.



Note. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Inhibition System, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 21. The mediator role of BIS and Self-Blame at the serial multiple mediation model of the relationship between IAOD and SwL

Table 25

The Mediator Role of BIS and Self-Blame between IAOD and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.16, *F* (4, 468) = 22.42, *p* < .001				
IAOD	a_1	.07	.09	8.46	< .001	0.06	0.09
			Y: Self-Blame				
			R^2 =.30, *F* (5, 467) = 40.03, *p* < .001				
IAOD	a_2	.06	.007	8.45	< .001	0.05	0.07
BIS	a_3	.24	.04	6.56	< .001	0.16	0.31
			Y: Satisfaction with Life				
			R^2 =.23, *F* (6, 466) = 23.00, *p* < .001				
IAOD	c_1	-.08	.02	-4.48	< .001	-0.12	-0.05
BIS	b_1	-.01	.09	-.11	> .05	-0.19	0.17
Self-Blame	b_2	-.30	.11	-2.61	< .01	-0.52	-0.07
			Total Effect of X on Y				
			R^2 =.22, *F* (4, 468) = 32.20, *p* <.001				
IAOD	c	-.11	.02	-6.58	< .001	-0.14	-0.08

Note 1. Regression coefficients are unstandardized.

Note 2. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Activation System

Model 4: IAOD ⟶ BIS ⟶ Catastrophizing ⟶ SwL

According to the results, participants' age (*B* = 1.93, *SE* = .40, *p* < .001), level of education (*B* = 1.01, *SE* = .40, *p* < .05), and monthly familial income (*B* = .93, *SE* = .21, *p* < .001) were found to have partial effects on SwL. Therefore, as the participants' age, level of education, and income increase, their life satisfaction also tended to increase.

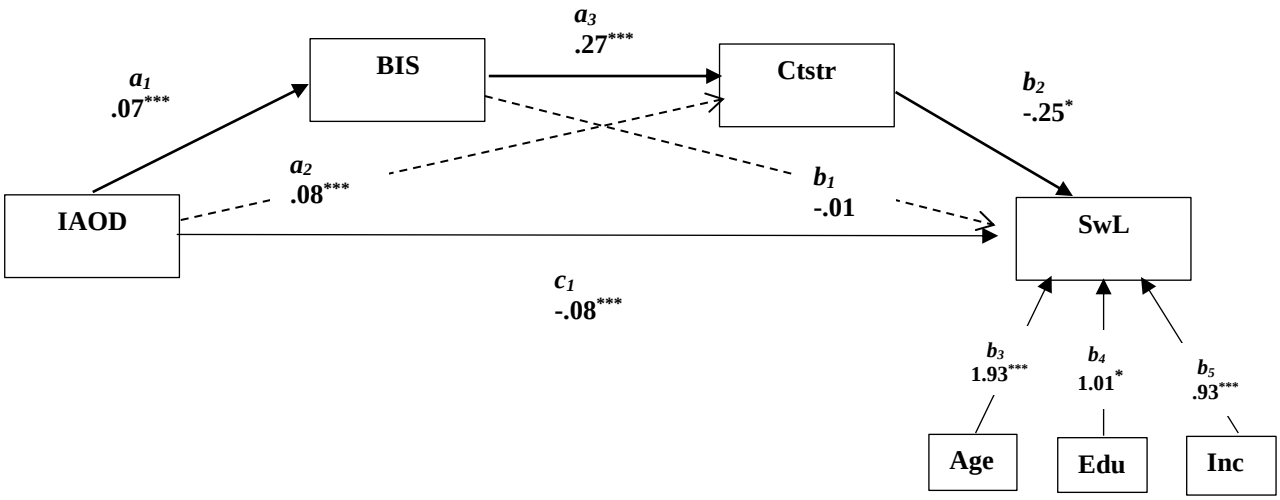
As can be seen in Table 25, IAOD was found to have a positive direct effect on BIS (a_1 = .07, *SE* = .01, *p* < .001), and on Catastrophizing (a_2 = .08, *SE* = .008, *p* < .001). Hence, participants who had higher scores in IAOD had higher activation in their BIS and they tended to utilize Catastrophizing.

Moreover, BIS had an insignificant direct effect on SwL (b_1 =-.01, *SE* = .09, *p* > .05), but Catastrophizing had a significant direct effect on SwL (b_2 = -.25 *SE* = .10, *p* <.05). Accordingly, participants less utilized Catastrophizing were more likely to have satisfaction in their life.

Furthermore, BIS was found to be associated with Catastrophizing (a_3 = .27, *SE* = .04, *p* <.001). Thus, participants with higher activation in BIS were more likely to utilize Catastrophizing.

The total effect of IAOD on SwL was found to be significant (*c* = -.11, *SE* = .02, *p* <.001). The direct effect of IAOD on SwL was also found to be significant (c_1 = -.08, *SE* = .02, *p* <.001). Simple indirect effect of IAOD on SwL through BIS (*B* = -.001, *SE* = .007, 95%*CIs* [-0.01, 0.01]) was insignificant; however, Catastrophizing (*B* = -.02, *SE* = .009, 95%*CIs* [-0.04, -0.05]) was significant. Lastly, IAOD's indirect effect on SwL through both BIS and Catastrophizing sequentially was found to be significant (*B* = -.01, *SE* = .002, 95%*CIs* [-0.01, -0.001]). Accordingly, BIS did not mediate the relationship between IAOD and life satisfaction. Secondly, stronger schemas in IAOD predicted the more used Catastrophizing, which in turn was associated with less satisfaction with life that participants have. Lastly, stronger schemas in stronger schemas in IAOD predicted the increased sensitivity in BIS which in turn predicted the increased use in Catastrophizing which in turn the decreased levels of satisfaction with life.

The summary of findings based on serial mediation analyses can be seen at Table 26.



Note. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Inhibition System, Ctstr: Catastrophizing, SwL: Satisfaction with Life, Edu: Level of education, Inc: Monthly Income
$^{*}p$ <.05 $^{**}p$ <.01 $^{***}p$ <.001

Figure 22. The mediator role of BIS and Catastrophizing at the serial multiple mediation model of the relationship between IAOD and SwL

Table 26

The Mediator Role of BIS and Catastrophizing between IAOD and SwL

Predictor	Path	*B*	*SE*	*t*	*p*	Bootstrap 95% CI	
						Lower	Upper
			Y: BIS				
			R^2 =.16, *F* (4, 468) = 22.42, *p* < .001				
IAOD	a_1	.07	.09	8.46	< .001	0.06	0.09
			Y: Ctstr				
			R^2 =.34, *F* (5, 467) = 48.53, *p* < .001				
IAOD	a_2	.08	.008	9.60	< .001	0.06	0.10
BIS	a_3	.27	.04	6.62	< .001	0.19	0.36
			Y: Satisfaction with Life				
			R^2 =.23, *F* (6, 466) = 23.00, *p* < .001				
IAOD	c_1	-.08	.02	-4.28	< .001	-0.12	-0.04
BIS	b_1	-.01	.09	-.12	> .05	-0.19	0.17
Ctstr	b_2	-.25	.10	-2.59	< .01	-0.46	-0.06
			Total Effect of X on Y				
			R^2 =.22, *F* (4, 468) = 32.20, *p* <.001				
IAOD	c	-.11	.02	-6.58	< .001	-0.14	-0.08

Note 1. Regression coefficients are unstandardized.

Note 2. IAOD: Impaired Autonomy/Other Directedness, BIS: Behavioral Activation System, Ctstr: Catastrophizing

Table 27

Summary of Sequential Mediation Analyses Findings

Schema Domains and Psychopathological Symptoms				
			Mediation	
Independent Variable	**Mediators**	**Dependent Variable**	**Total Effect**	**Indirect Effect**
ILES	BIS LACCS BIS+LACCS	PS	Significant	Significant Significant Significant
ILES	BIS MACCS BIS+MACCS	PS	Significant	Significant Significant Significant
ILES	BIS Acceptance BIS+Acceptance	PS	Significant	Significant Significant Significant
DR	BIS LACCS BIS+LACCS	PS	Significant	Significant Significant Significant
DR	BIS PRf BIS+PRf	PS	Significant	Significant Significant Significant
DR	BIS Acceptance BIS+Acceptance	PS	Significant	Significant Significant Significant
IAOD	BIS LACCS BIS+LACCS	PS	Significant	Insignificant Significant Significant
IAOD	BIS MACCS BIS+MACCS	PS	Significant	Significant Significant Significant
IAOD	BIS Acceptance BIS+Acceptance	PS	Significant	Significant Significant Significant
Schema Domains and Life Satisfaction				
			Mediation	
Independent Variable	**Mediators**	**Dependent Variable**	**Total Effect**	**Indirect Effect**
ILES	BAS MACCS BAS+MACCS	SwL	Significant	Significant Significant Significant
ILES	BIS MACCS BIS+MACCS	SwL	Significant	Insignificant Significant Significant
ILES	BAS SelfBlame BAS+Self-Blame	SwL	Significant	Significant Significant Significant

Table 26 (continued)

ILES	BAS Catastrophizig BAS+Catastrophizing	SwL	Significant	Significant Significant Significant
ILES	BIS Self-Blame BIS+Self-Blame	SwL	Significant	Insignificant Significant Significant
ILES	BIS Catastrophizing BIS+Catastrophizing	SwL	Significant	Insignificant Significant Significant
DR	BAS MACCS BAS+MACCS	SwL	Significant	Insignificant Significant Significant
DR	BIS MACCS BIS+MACCS	SwL	Significant	Insignificant Significant Significant
IAOD	BAS MACCS BAS+MACCS	SwL	Significant	Insignificant Significant Significant
IAOD	BIS MACCS BIS+MACCS	SwL	Significant	Insignificant Significant Significant
IAOD	BIS Self-Blame BIS+Self-Blame	SwL	Significant	Insignificant Significant Significant
IAOD	BIS Catastrophizing BIS+Catastrophizing	SwL	Significant	Insignificant Significant Significant

Note. ILES: Impaired Limits / Exaggerated Standards, DR: Disconnection / Rejection, IAOD: Impaired Autonomy / Other-Directedness, BIS: Behavioral Inhibition System, BAS: Behavioral Activation System, LACCS: Less Adaptive Cognitive Coping Strategies, MACCS: More Adaptive Cognitive Coping Strategies, PRf: Positive Refocusing, PS: Psychopathological Symptoms, SwL: Satisfaction with Life

4. DISCUSSION

Early maladaptive schemas (EMSs) which are conceptualized to develop with the consequence of unmet needs of a child by her/his caregiver(s) were displayed to be highly associated with mental health in the literature. Many factors that might mediate the relationship between EMSs and mental health were also investigated by many studies; however, the neuropsychological personality traits (i.e., the Behavioral Inhibition System and the Behavioral Activation System), and cognitive emotion regulation (i.e., the Less Adaptive Cognitive Coping Strategies and the More Adaptive Cognitive Coping Strategies) have not yet been examined as the mediation factors within the scope of our knowledge. Thus, the main aim of the present study was to examine whether or not the neuropsychological personality traits and cognitive emotion regulation (CER) mediate the relationship between EMSs and mental health.

Therefore, firstly the results of the analyses; respectively, the effects of demographics (i.e., gender, age, level of education, residence status, status of relationship, monthly income, and the history of psychological treatment) on the variables; correlations between major variables; the mediating role of the neuropsychological personality traits and CER were argued in the light of the literature. Then, the study's strengths and limitations were stated. At last, future directions and clinical implications were discussed.

4. 1. Finding Regarding Differences in the Demographics on the Variables

Differences of the demographic variables (i.e., gender, age, level of education, residence status, status of relationship, familial monthly income, and the history of psychological treatment) were examined on schema domains (i.e., ILES, DR, and IAOD), the neuropsychological personality traits (i.e., the Behavioral Inhibition System and the Behavioral Activation System), CER (i.e., the Less Adaptive Cognitive Coping Strategies and the More Adaptive Cognitive Coping Strategies), and mental health (psychopathological symptoms and satisfaction with life).

4.1.1. Finding regarding differences in the demographic variables on schema domains

Results show that gender, level of education, and residence status were found not to have an association with schema domains; however, age, monthly familial income, status of relationship, and a history of psychological treatment were found to have. Thus, it might be

argued that EMSs were not relationally affected by differences of gender, level of education, and residence status, but relationally affected by age, monthly familial income, status of relationship, and a history of psychological treatment.

Regarding the differences in age, emerging adults (18–29-year-old) scored significantly higher than adults (30-65-year-old) in ILES and DR, but a significant difference of age was not found in IAOD though emerging adults also scored higher than adults. This can be explained as Arnett and colleagues (2014) suggest that since emerging adulthood is a transitional time from adolescence to adulthood, it is a period full of extraordinary instability, in love, work, and social life. Indeed, anxiety and mood disorders, and substance use are found more common in this stage than in adulthood (Arnett et al., 2014). Therefore, EMSs might get more activated and strengthened because of the instability of life during this stage.

Regarding familial monthly income, the results revealed that as the income was getting lower, the activation and strength of EMSs were getting increasing in all three schema domains; namely, ILES, DR, and IAOD. This might be explained by the difficulties related to financial issues that the participants face. Pessimism, and Unrelenting standards in ILES; Social Isolation, Defectiveness/Shame, and Failure in DR; and Dependency/Incompetence, Subjugation, and Vulnerability to harm in IAOD can specifically be considered as major EMSs to play a role in this relationship.

In the sense of the differences in status of relationship, participants with single displayed more strong EMSs than those within a relationship or married in all three schema domains with an exception that their scores did not significantly differ from those within a relationship in IAOD. In the literature, many studies find that high scores in EMSs are related to the source of conflicts that couples have (Stiles, 2004; Clifton, 1995; Zolfaghari, 2008; Dumitrescu & Rusu, 2012). For example, a study shows that high levels of EMSs are related to low levels in satisfaction of romantic relationship and vice versa (Dumitrescu & Rusu, 2012). In the light of the knowledge, it can be stated that since people with high levels of EMSs are more likely to experience difficulties in their romantic relationship, they are more likely to have difficulties in maintaining the relationship, thus they are more likely to stay single.

Lastly, participants who have a history of psychological treatment (i.e., individual psychotherapy, group psychotherapy, and medication) displayed stronger EMSs than those who do not have in all three schema domains. This can be argued that since people with stronger EMSs are more likely to have difficulties coping with the stressors of life on their

own, they are more likely to experience psychological disorders, thus they take psychological help.

4.1.2. Finding regarding differences in the demographics on the neuropsychological personality traits

The results revealed that gender, age, status of relationship, and a history of psychological treatment have a significant relationship with the neuropsychological personality traits (i.e., the Behavioral Inhibition System and the Behavioral Activation System); however, level of education, monthly familial income, and residence status do not have an impact on these personality traits.

Firstly, gender was found to be associated with only the Behavioral Inhibition System (BIS). Female participants showed to have the more activated BIS than male participants. However, gender did not differ in the Behavioral Activation System (BAS). This can be stated that females have more threat sensitivity which is associated with a high level of BIS activation. This might be a result of the sex-specific environmental stressors. Indeed, the current literature findings suggest this assumption. For example, a study done by Gunnar and colleagues (2009) shows that females display more increased cortisol reactivity to stressors than males. Another study done by Li and colleagues (2014) also shows that the sensitivity of female participants more increases than males when negative cues are presented.

Secondly, age was found to differ only in BIS. Emerging adults scored significantly higher than adults. This can be explained by the instability that emerging adults experience. Since it is a translation period from adolescence to adulthood, more instability is experienced by younger adults than adults as stated by (Arnett et al., 2014). Therefore, this instability might lead to the increased threat perception that leads to the increased level of activation in BIS.

Thirdly, the result of the analysis regarding the differences in status of relationship revealed that status of relationship was found to be associated with only BIS. The only significant difference was found in the scores of participants within a relationship by the scores of those married. Participants within a relationship had significantly higher scores than those married. Although participants single scored higher than those married, this difference was found to be insignificant. Regarding the current literature finding of the relationship between BIS and romantic relations, higher levels of BIS are found to be

associated with decreased participation in romantic activities (Hundth et al., 2010) and lower levels of romantic relationship satisfaction (Shahzadi & Walker, 2019). Therefore, the higher scores in BIS belong to participants single or within a relationship, which can be argued to be consistent with the literature findings. People with high levels in BIS are less likely to engage in romantic activities and experience less satisfaction from their romantic relationship, thus they are less likely to marry.

Lastly, a history of psychological treatment was found to differ in only BIS. According the result, participants with a history of psychological treatment displayed to more activated BIS than those without with a history of psychological treatment. This is consistent with the current literature findings. Many studies show that a higher level of BIS is associated with various psychological disorders (Bijttebier et al., 2009; Johnson et al., 2003; Kimbrel, 2008). Thus, it can be suggested that people with high levels in BIS tend to more develop psychological disorders, and they need more a psychological treatment.

4.1.3. Finding regarding differences in the demographics on the cognitive coping strategies

The results of the analyses showed that age, gender, status of relationship, income, and a history of psychological treatment were associated with the cognitive coping strategies (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective), but level of education, and residence status were found to have an insignificant relationship.

Firstly, gender revealed a significant difference in only Rumination in which female participants scored higher than males. The results of the current literature finding are mixed. A study done by Öngen (2010) finds that females report utilizing more rumination, but males report utilizing more positive refocusing, refocus on planning and positive reappraisal. However, another study done by Zlomke and Hahn (2010) shows that females report using more rumination, and putting into perspective, but males report using more blaming others. The result of the present study supports the results of the previous studies, in which females report more utilizing Rumination than males.

Secondly, age differed in Acceptance, Refocus on Planning, Positive Refocusing, and Positive Reappraisal, in which adults scored higher in Refocus on Planning, Positive Refocusing, and Positive Reappraisal than emerging adults, but emerging adults scored higher in Acceptance than adults. Since the current literature studying age differences in

regulation of emotion has different age ranges and different scales, it might not be convenient to compare with the result of this study. Nevertheless, Blanchard-Fields and colleagues (2004) find that middle-aged adults (40-64-year-old) use more proactive coping strategies which are directly confronting emotions, directly reflecting on emotional experience, and seeking emotional support than young adults (18-35-year-old), but young adults use more passive strategies that is that deliberating withdrawal from conflicts.

Therefore, it can be claimed that the result of this study is consistent with the previous finding, that refers that adults (30-65-year-old) tend to actively engage in situations, such as thinking about taking actions, thinking on positive things, and attaching a positive meaning to what they have experienced, but emerging adults (18-29-year-old) tend to accept. Acceptance can be conceptualized as a passive strategy because it needs less energy compared to other coping strategies. According to the evolution perspective, our brains are programmed to prefer an action that requires less energy (Zipf, 2012). Acceptance is to acknowledge something to be unchangeable and not to take further action to control it. Thus, it can be seen as passive, but it is also the most adaptive strategy in this case because it saves energy. This can be explained by the translational nature of life that emerging adults have, they are more likely to more experience situations that cannot be changed, such as breaking ups or failures in exams, thus they tend to use Acceptance more. It should also be noted that age did not differ in the Less Adaptive Coping Strategies.

Thirdly, relationship differences were found to have a significant association with cognitive coping strategies. Married participants scored higher in Positive Reappraisal, but lower in Self-Blame, Rumination and Acceptance than participants in a relationship or single. This might be claimed to be consistent with the study done by Rusu and colleagues (2018) in which finds that dyadic coping (i.e., a partner's support to the other partner, the participation of partners in the coping process, and taking over the partner's responsibility to reduce the partner's stress) mediate the relationship between cognitive coping strategies and relationship satisfaction. Therefore, people who take their partner's support and help in stressful situations tend to use more Positive Reappraisal as an adaptive cognitive coping strategy, but to use less Self-Blame and Rumination as maladaptive cognitive coping strategies which in turn be satisfied more with their relationship, thus they are more likely to marry.

The finding regarding familial monthly income shows that participant with low/middle income reported to utilize Catastrophizing more than those with high income. This result is

consistent with a study conducted by Navarro and colleagues (2021). They show that low income is associated with increased use of Catastrophizing.

Lastly, the history of psychological treatment was found to differ in the use of cognitive coping strategies. Participants who have the history of psychological treatment generally scored higher in maladaptive coping strategies, but lower in adaptive coping strategies than those who do not the history. This can be explained as people are more likely to take psychological help because they have difficulties to regulate their emotions, thus they tend to use maladaptive strategies more.

4.1.4. Finding regarding differences in the demographics on mental health

According to the results, age, level of education, status of relationship, familial monthly income, and a history of psychological treatment were found to have a significant relationship with mental health (i.e., psychopathological symptoms and Life with Satisfaction); however, gender and residence status were found to have an insignificant link to schema domains. Therefore, it can be stated that mental health was relationally affected by the differences of age, level of education, status of relationship, familial monthly income, and the history of psychological treatment, but not relationally affected by gender and residence status.

Firstly, age was found to be linked to mental health. Emerging adults (18-29-year-old) were more likely to display psychopathological symptoms than adults (30-65-year-old). Furthermore, adults were more likely to be satisfied with their lives than emerging adults. Although the findings are mixed in the literature, some studies reveal that older adults are more satisfied with their lives and display less psychopathological symptoms. One of these studies conducted by Li and colleagues (2011) finds that older adults (61-93-year-old) are more satisfied with their lives than younger adults (17-22-year-old). They argue that older adults are more satisfied with because they have perceived emotional support balance with friends. This can be stated for the current study finding that emerging adult might be deprived of perceived emotional support balance with friends because their friendships are not solid as adults due to the nature of their instable lives.

Secondly, level of education had a significant difference in mental health. Participants with bachelor's degree reported to display more psychopathological symptoms, but less life satisfaction than participants with master's or doctorate degree. A study which is done by Steele and colleagues (2007) shows that each additional level of education increases the

facility of people to take a mental service, such as seeing a psychologist. Therefore, people with master's or doctorate degree have more facility to take a psychological help which in turn the increased their well-being. However, this result should be cautiously approached because the difference between cell sizes of groups is large.

Thirdly, status of relationship had a significant difference in mental health. Married participants were less likely to have psychopathological symptoms, but more likely to be satisfied with their lives than those either single or in a relationship. This finding is consistent with the finding of a study conducted by Braithwaite and Holt-Lunstad (2016). They argue that although the relationship between the romantic relationship and mental health is bidirectional, stronger effects are observed when mental health is an outcome and the relationship is a predictor. That refers that a healthy relationship predicts better mental health. Indeed, they find that committed relationships, such as marriage are related with greater benefits than less committed relationships, such as cohabitation. Another study done by Braithwaite and colleagues (2010) supports this finding. According to this study, people with committed relationship display less psychological problems. This can be explained as since people who have adaptive relationship which is where couple cohesion, acceptance of emotional expression, intimacy, coping assistance present tend to marry which in turn better well-being.

Regarding differences of familial monthly income, participants with low/middle income were more likely to display psychopathological symptoms, but less likely to be satisfied with their lives than those with high income. This is consistent with the current literature. For example, three studies which were conducted by Gresenz and colleagues (2001), Araya and colleagues (2002), and Eisenberg and colleagues (2007) find that mental health problems are more common among people with low/middle income. This can be stated that they are more likely to experience difficulties related with finance. Moreover, they are less likely to benefit mental health services due to the financial shortages.

Lastly, the history of psychological treatment was found to differ in mental health. Participants with the history of psychological treatment was associated to more psychopathological symptoms, but less life satisfaction than those with no history. This can be explained that participants experience difficulties to cope with their own in which turn increased psychological symptoms, but decreased well-being, thus they tend to take a psychological treatment.

4.2. Findings Regarding Correlation Coefficients between Variables

To find out the inter-correlations between schema domains, the neuropsychological personality traits, cognitive emotion regulation, and mental health, Pearson's correlation analysis was conducted. Although the findings of the correlation were discussed in section 3.3., the strongest and remarkable relationships were discussed in this session for the sake of simplicity.

The most striking finding of this analysis is that although Acceptance is categorized as one of the adaptive cognitive coping strategies under the More Adaptive Coping Strategies, it acts as a maladaptive cognitive coping strategy. It was found to be positively correlated with schema domains and psychopathological symptoms, but negatively correlated with SwL. This might be stated as Acceptance brings despair as a side product with itself, meaning someone has to accept that there is no place for changing when s/he acknowledges the reality. For example, when someone is abandoned by the loved one, s/he needs to acknowledge nothing to do for changing the reality of being abandoned. It sounds like despairs in a way. The key point is what this person does with this despair afterwards. Indeed, Nakamura and Orth (2005) suggest that there are two forms of Acceptance; namely, Active Accepting and Resigning Acceptance. Acceptance is adaptive when one acknowledges the reality in which, what is experienced cannot be changed, and then make the best of it in a constructive way. This is called Active Acceptance. However, Acceptance is maladaptive when one abandons outward-directed behaviors with negative expectations about the future and a loss of hope. This is called Resigning Acceptance. Therefore, it can be claimed that people with stronger EMSs were more likely to utilize Resigning Acceptance rather than Active Acceptance, which in turn they display more psychopathological symptoms.

Regarding schema domains, ILES, DR, and IAOD were found to have the highest correlations with Self-Blame, Catastrophizing, Acceptance, and psychopathological symptoms that refer that people with stronger EMSs in these three domains tend to more utilize Self-Blame, Catastrophizing, Acceptance and display more psychopathological symptoms. This finding is consistent with the literature. For example, Yakın and colleagues (2018) find that higher levels of EMSs are positively related to not only difficulties in coping but also displaying psychological symptoms. Furthermore, ILES and IAOD were found to have the stronger association with the Behavioral Inhibition System (BIS) than DR. ILES involving EMSs related to standards which are hard or impossible (at most of time) to achieve and beliefs about deserve to be punished, and IAOD involving EMSs associated

with depending on others and worrying about the future can be postulated to be associated with the higher levels of BIS activation that people have. Lastly, DR and IAOD were found to have the stronger association with Life with Satisfaction than ILES. This is consistent with the findings in the literate. For example, Sahraee and colleagues (2020) finds that emotional deprivation, defectiveness/shame and dependence/incompetence, which are the EMSs categorized under DR and IAOD, are the best predictor for lower levels of life satisfaction.

In terms of cognitive coping strategies, Self-Blame, Catastrophizing, Acceptance and Positive Reappraisal were found to have the stronger relationship with BIS among the others cognitive coping strategies. Participants who reported to use Self-Blame, Catastrophizing and Acceptance scored higher, but those who reported to use Positive Reappraisal scored lower in BIS. Although there are two studies reveal the association between maladaptive cognitive coping strategies and the high level of BIS in the current literature (Li et al., 2015; Leen-Feldner et al., 2004), the associations of Acceptance and Positive Reappraisal is the first shown at the scope of our knowledge. Moreover, Self-Blame, Catastrophizing, Rumination, Acceptance, Positive Refocusing and Positive Reappraisal were found to have the stronger relationship with psychopathological symptoms. Participants who reported to utilize Self-Blame, Catastrophizing, Rumination and Acceptance reported to display more psychopathological symptoms; however, those who reported to utilize Positive Refocusing and Positive Reappraisal reported to display less psychopathological symptoms. This finding is consistent with the literature. For example, Li and colleagues (2015) finds that catastrophizing, rumination, and lower positive reappraisal predict depression. Another study done by Garnefski and colleagues (2002) shows that higher levels of Self-Blame and Catastrophizing, bot lower levels of Positive Reappraisal are the best predictor of higher levels of emotional problems. Lastly, Catastrophizing and Positive Reappraisal had the stronger relationship with Life with Satisfaction among the others. The finding is consistent with the current literature. Extremera and colleagues (2020) and Balzarotti and colleagues (2016) find that Catastrophizing predicts lower levels of life satisfaction; however, Positive Reappraisal predicts higher levels of life satisfaction.

Finally, regarding the neuropsychological personality traits, BIS was found to have the stronger relationship with psychopathological Symptoms. Participants with higher levels of BIS tend to display more psychopathological symptoms. The findings of the current literature support this result. For example, Vervoot and colleagues (2009) finds that higher levels of BIS are strongly related to increased symptoms of depression and anxiety. Another

study conducted by Pickett and colleagues (2011) reveals that higher levels of BIS predict increased post-traumatic stress symptoms.

4.3. Findings Regarding Mediation Analyses

To investigate the mediator role of the neuropsychological personality traits (i.e., BIS and BAS) and CER (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) in the relationship between schema domains (i.e., ILES, DR, and IAOD) and mental health (i.e., PS, and SwL) sequential multiple mediation analysis was conducted. Since the findings related to associated factors between schema domains and mental health were extensively discussed in the previous section, the findings associated with only mediator analyses were discussed in this section.

4.3.1. Findings regarding mediators between schema domains and psychopathological symptoms

In this section, the findings of the mediation analysis of three sets of three models were discussed. At the first model the mediation role of BIS and LACCS (i.e., i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing) were hypothesized as the sequential mediators between schema domains and PS. At the second model, BIS and MACCS (Refocusing on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) were hypothesized as the sequential mediators. At the last model BIS and Acceptance were hypothesized as the sequential mediators in this relationship.

Regarding the findings of the mediation analyses for the first model, firstly BIS was found to mediate the relationship between two schema domains (i.e., ILES and DR) and PS. Accordingly, stronger schemas in ILES and DR were associated with the increased sensitivity in BIS which in turn was associated with more psychopathological symptoms. The findings are as expected with an exception which is that BIS did not mediate the relationship between IAOD. Such EMSs like Enmeshment, Self-Sacrifice, Subjugation, and Dependency/Incompetence belong to the schema domain of IAOD (Sarıtaş & Gençöz, 2011). The main commonality of these EMSs can be claimed as an excessive focus on others (Young, Klosko, & Weishaar, 2003). This can be postulated that people with stronger schemas in IAOD might perceive their efforts of fulfilling other's needs at the price of their

needs as rewarding; therefore, although they display psychological symptoms this perception might prevent the higher activation in their BIS.

Secondly, LACCS were found to mediate the relationship between all schema domains and psychopathological symptoms. Stronger schemas in schema domains predicted the increased use of LACCS which in turn predicted more psychopathological symptoms. This is consistent with the current findings in the literature. For example, a study done by Yakın and colleagues (2019) shows that negative coping mediates the relationship between schema domains and psychopathological symptoms.

Lastly, BIS and LACCS were also found to serially mediate this relationship for all three schema domains. Thus, this finding supported our hypothesis. Accordingly, stronger schemas in schema domains were associated with higher levels of activation in BIS, which in turn predicted increased used LACCS, which in turn was associated with more psychopathological symptoms that participants have.

Regarding the findings of mediation analyses for the second model, BIS was found to mediate the relationship between all schema domains and PS, meaning stronger schemas in all three schemas domains predicted the increased sensitivity in BIS which in turn more psychopathological symptoms.

Furthermore, MACCS were found to mediates this relationship for ILES and IAOD. Therefore, stronger schemas in ILES and IAOD predicted the decreased use of MACCS which in turn more psychopathological symptoms. For DR, this association was the same, but the only difference was only Positive Refocusing among MACCS was found to mediate this relationship.

Lastly, BIS and MACCS were found to sequentially mediate this relationship, but for DR, only Positive Refocusing among all MACCS revealed an effect. Accordingly, stronger schemas were associated the decreased use of MACCS which in turn more psychopathological symptoms that participants have. Therefore, this finding was confirmed our hypothesis.

In terms of the findings of the mediation analyses for the third model, BIS was found to mediate the relationship between all schema domains and psychopathological symptoms, meaning stronger schemas in all three schemas domains predicted the increased sensitivity in BIS which in turn more psychopathological symptoms.

Secondly, Acceptance was found to mediate the association between all schema domains and psychopathological symptoms. Stronger schemas in schema domains predicted the increased use of Acceptance which in turn predicted more psychopathological symptoms

that participants have. This finding was remarkable because Acceptance was found to act as LACCS, although it belongs to MACCS. As is stated in the previous section, people with stronger schemas might tend to utilize a maladaptive form of Acceptance. Indeed, Nakamura and Orth (2005) define this form of Acceptance as Resigning Acceptance which is the decrease of outward-directed behaviors due to the negative expectations about the future and a loss of hope. Therefore, although this can be seen as a logical explanation why Acceptance was found as a negative indicator of mental health; however, this assumption needs further investigation.

Finally, BIS and Acceptance were found to serially mediate this relationship for all three schema domains. Thus, stronger schemas in schema domains were associated with higher levels of activation in BIS, which in turn predicted the enhanced used Acceptance, which in turn was related to more psychopathological symptoms that participants have.

4.3.2. Findings regarding mediators between schema domains and satisfaction with life

The neuropsychological personality traits (i.e., BIS, and BAS) and cognitive coping emotion regulation (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) were hypothesized as serial mediators in the link between schema domains (i.e., ILES, DR, and IAOD) and Satisfaction with Life (SwL). In this part of the thesis, the findings of the serial mediation analysis of models were discussed. It would be helpful to point out that the effects of the results regarding this relationship are small, thus the results should be approached with caution.

Regarding the findings of the mediation analyses for the first and second model which suggested the neuropsychological personality traits and MACCS (i.e., Refocusing on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) as mediators, the neuropsychological personality traits did not mediate the association between schema domains and satisfaction with life (SwL) with an exception which is that BAS mediated the relationship between ILES and SwL. Accordingly, stronger schemas in ILES predicted the increased activation in BAS which in turn the increased level of SwL. The domain of ILES contains EMSs, such as Entitlement and Insufficient Self-control (Sarıtaş & Gençöz, 2011). As the names of the EMSs infer, these specific EMSs are mainly about an excessive focus on one's own superiority and difficulty for sufficient self-control (Young, Klosko, & Weishaar, 2003). Therefore, it can be claimed that BAS of people with these

EMSs are more likely to get more activated which in turn they might experience excessive enjoy in some areas in their lives.

Secondly, MACCS were found to mediate the association between all three domains and satisfaction of life. Hence, Participants with stronger EMSs in schema domains predicted the decreased use of MACCS which in turn predicted the decreased levels of life satisfaction.

Lastly, the neuropsychological personality traits and MACCS were found to serially mediate this association for all three schema domains. For the first model, stronger EMSs in DR and IAOD predicted the decreased level activation in BAS which in turn predicted the decreased use in MACCS which in turn the decreased levels of life satisfaction. This confirms our hypothesis about the serial mediator role of BAS and MACCS. However, stronger EMSs in ILES predicted the increased activation in BAS which in turn the increased use in MACCS which in turn the higher levels in life satisfaction. This result is unexpected. This can be postulated as above that BAS of people with EMSs, such as Entitlement and Insufficient Self-control which are categorized under ILES (Sarıtaş & Gençöz, 2011), are more likely to get more activated which in turn they tend to utilize MACCS which in turn this might affect them to experience excessive enjoy in some areas in their lives. Another striking point here is that although stronger EMSs were found to be associated with the decreased use in MACCS which in turn the decreased levels of life satisfaction, when BAS entered into the equation stronger EMSs in ILES predicted the increased activation in BAS which in turn the increased use in MACCS which in turn the increased levels of life satisfaction.

For the second model, stronger EMSs in schema domains were associated with the increased activation BIS which in turn was associated with the decreased use of MACCS which in turn predicted the decreased levels of life satisfaction. Thus, this confirms what we suggested in our hypothesis. Furthermore, although BIS do not mediate this relationship, when MACCS enter into equation their sequential effect mediates the relationship. Since no research studies on the serial mediating roles of the neuropsychological personality traits and cognitive coping strategies in the relationship between schema domains and mental health, this research is the first one focusing on in the literature. Therefore, it cannot be compared with the current findings in the literature.

Regarding the findings of the mediation analysis for the third model which hypothesized BAS and LACCS as the serial mediators, the only significant result was found in ILES. Firstly, BAS was found to mediate the relationship between ILES and SwL; hence, stronger EMSs in ILES predicted the increased activation in BAS which in turn predicted

the increased levels of life satisfaction. Secondly, only Self-Blame and Catastrophizing among LACCS was found to mediate this relationship. Thus, stronger EMSs in ILES predicted the increased use of Self-Blame or Catastrophizing which in turn the decreased levels of life satisfaction. Lastly, BAS and Self-Blame or Catastrophizing were found to sequentially mediate this relationship. Accordingly, stronger EMSs in ILES predicted the increased activation in BAS which in turn decreased used of Self-Blame or Catastrophizing which in turn increased levels of life satisfaction. Some EMSs in ILES, such as Entitlement and Insufficient Self-Control can be stated to be associated with this effect. Thus, stronger Entitlement and Insufficient Self-Control schemas with the increased BAS sensitivity might be related to the increased life satisfaction.

In terms of the findings the mediation analysis for the fourth model which suggested BIS and LACCS as serial mediators, firstly, BIS was found not to mediate this relationship. Secondly, only Self-Blame or Catastrophizing among LACCS was found to mediate this relationship for ILES and IAOD, but not DR. Thus, stronger EMSs in ILES or IAOD predicted the increased use of Self-Blame or Catastrophizing which in turn predicted the decreased levels of life satisfaction. Lastly, BIS and Self-Blame or Catastrophizing were found to sequentially mediate this relationship. Accordingly, stronger EMSs in ILES or IAOD predicted the increased activation in BIS which in turn the increased use of Self-Blame or Catastrophizing which in turn predicted the decreased levels of life satisfaction. It should be noted that only Self-Blame and Catastrophizing among LACCS were found to have an impact on this association. It might be argued these findings to be needed further investigation.

Regarding the fifth and sixth models which hypothesized the neuropsychological personality traits and Acceptance as serial mediators, the results of these models were found statistically insignificant, meaning that BAS or BIS and Acceptance were found not to sequentially mediate the association between schema domains and Life with Satisfaction. It should be also noted that although Acceptance was found to have an impact in the link between schema domains and psychopathological symptoms, it did not show an effect in the link between schema domains and satisfaction with life. It can be argued this to be needed further inquiries.

4.4. Limitations and Strengths

This study aimed to find out the serial mediator role of neuropsychological personality traits and CER in the association between early maladaptive schemas and mental health.

Thus, it was designed to test the hypotheses derived from the current findings in the literature through empirical evidence. Although the hypotheses were generally confirmed with the findings, it should be noted that the findings are mainly correlational and cross-sectional. Therefore, it is not possible to draw causality from the findings of this study.

Another limitation of the study is that data were obtained through scales based on self-reports. For instance, participants with schema avoidance or overcompensation coping styles were likely to score lower at the schema inventory. Therefore, although all scales which were used in this study have been found to suitable for research purposes and used in many studies at many times, the scales based on self-report in nature might be seen as an obstacle to accuracy.

Furthermore, as it can be seen in the result section, several serial mediation models have been presented in accordance with the analyses of the data via SPSS PROCESS version 3 Sequential Mediation Model 6 (Hayes, 2018a). For the sake of simplicity, other statistical methods, such as Structural Equation Modeling can be used to decrease the number of models to be separately presented.

Lastly, since data obtained throughout an online survey, high drop-out rates were observed. Although nearly 1000 people began to complete the survey, but only 497 of those completed all of the questions.

In terms of strengths of the present study, as stated earlier mental health that was conceptualized the absence of psychopathological symptoms and the present of life satisfaction. Accordingly, not only indicators associated with the relationship between schema domains and psychopathological symptoms but also between schema domains and satisfaction with life was investigated in this study.

Furthermore, this study is one of few studies that investigate the associations of cognitive emotion regulation with schema domains and its relation with mental health. Moreover, this is the first study that examines the associations of neuropsychological personality traits with schema domains. Over and above, the present study is also the first study to investigate the sequential mediator role of neuropsychological and cognitive emotion regulation in the association between early maladaptive schemas and mental health. Therefore, it can be claimed that the present contributes to the literature in that sense.

4.5. Clinical Implications and Further Suggestions

Uncovering early maladaptive schemas rooted in toxic childhood experiences and their impact in the present moment's experiences are the main focus of the treatment in schema therapy (Young, Klosko, & Weishaar, 2003). Therefore, it can be claimed that this study with findings contributes to the treatment process and mental health promotion as it reveals the possible predictors of the link of early maladaptive schemas and mental health.

This study presents that the changes in neuropsychological personality traits and cognitive emotion regulation (CER) might have an impact on this link. Thus, in the treatment not only focusing on early maladaptive schemas but also focusing on neuropsychological personality traits and CER would be beneficial for desirable treatment outcomes. In fact, since neuropsychological personality traits are based on learning, they can be claimed to change by means of new learning, meaning; as the new pathways derived from new learning in the brain get stronger while they are utilized, the new traits get more stable (Fisher, Rose, & Rose, 2007). Therefore, neuropsychological personality traits can be one of the issues to study in the treatment. Moreover, CER can be another issue to study in the treatment. The point that is to be careful about here is that although Acceptance is shown as an adaptive strategy to treat many psychological disorders, it is highly likely to turn into a maladaptive one when considered the interaction with early maladaptive schemas, meaning that people with strong early maladaptive schemas tend to use Acceptance as a maladaptive strategy. Therefore, it can be suggested to clinicians to tailor the treatment with possible better outcomes in the light of this finding.

For the future studies, it can be suggested to conduct an experiential study to find out possible causal relationship between the variables. Moreover, the study can be replicated with a clinical sample to be compared with a non-clinical sample. Lastly, in this study one facet of well-being (i.e., satisfaction with life) was assessed. As stated earlier although focusing on one facet of the subjective well-being often gives reliable information about subjective well-being itself (Deiner et al., 2016), other components (i.e., Positive Experience and Negative Experience) can be assessed to obtain further information.

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APPENDICES

APPENDIX A: INFORMED CONSENT FORM

Değerli Katılımcı,

Bu çalışma Başkent Üniversitesi Klinik Psikoloji Yüksek Lisans tezi kapsamında Vasfiye Derya Şen tarafından Dr. Öğr. Üyesi Elvin Doğutepe danışmanlığında yürütülmektedir. Erken dönem uyum bozucu şemalar ve psikolojik sağlık arasındaki ilişkide bilişsel duygu düzenlemenin ve pekiştirmeye duyarlılık eğiliminin rolü araştırılmaktadır.

Önümüzdeki yaklaşık 15 dakika boyunca, sizden bazı ölçeklerden oluşan bir ölçek setini doldurmanız istenmektedir.

Araştırmadaki tüm veriler topluca değerlendirilecek ve kimliğiniz araştırmacı dahil herkesten gizli tutulacaktır. Elde edilen bulgular literatüre katkı sağlayacaktır.

Çalışmaya katılımda gönüllülük esastır. Bu çalışmadan herhangi bir neden belirtmeksizin istediğiniz an çekilebilirsiniz. Çalışmadan çekilmeniz durumunda herhangi bir yaptırımla karşılaşmayacaksınız. Bu çalışmaya katılmanın fiziksel ya da ruhsal sağlık ve bütünlüğünüz açısından herhangi bir riski bulunmamaktadır.

Araştırma bulgularının geçerliliği açısından eksik soru bırakmamanız ve vereceğiniz cevapların doğruluğu çok önemlidir. Lütfen tüm açıklamaları dikkatlice okuyunuz ve anketteki soruların tamamını cevaplayınız. Sizi tam olarak yansıtmadığını düşündüğünüz durumlarda size en yakın gelen cevabı işaretleyiniz.

Çalışma ile ilgili sorularınız için Vasfiye Derya Şen ile iletişim kurabilirsiniz.

APPENDIX B: DEMOGRAPHIC FORM

Lütfen size uygun gelen seçeneğin yanına işaret koyunuz ve cevaplanmamış soru bırakmayınız.

1. Cinsiyetiniz: __ Kadın __Erkek __Diğer

2. Yaşınız: ___

3. Eğitim durumunuz: __İlkokul __Ortaokul __Lise __ Lisans __ Yüksek Lisans __ Doktora ya da sonrası

4. Nerede yaşıyorsunuz? __ Aile yanı __ Akraba yanı __ Arkadaşlarla evde __ Tek başına evde __ Yurt __ Diğer (belirtiniz): .....

5. İlişki durumunuz? __ Bekar __ İlişkisi var __ Sözlü/Nişanlı __ Evli

6. Evinize (ailenizin) giren aylık toplam gelir ne kadardır? __ 0-999 TL __ 1000-1999 TL __ 2000-2999 TL __ 3000-3999 TL__ 4000-4999 TL __ 5000-5999 TL __ 6000 TL ve üstü

7. Daha önce psikolojik ve/veya psikiyatrik tedavi aldınız mı? __ Evet __ Hayır

8. Daha önce psikolojik ve/veya psikiyatrik tedavi aldıysanız, ne tür tedavi/tedaviler aldınız? (Daha önce psikolojik ve/veya psikiyatrik tedavi almadıysanız bu soruyu boş bırakınız)

Bireysel Psikoterapi __ Grup Psikoterapisi __ İlaç Tedavisi __ Diğer (lütfen belirtiniz): .....

APPENDIX C: YOUNG SCHEMA QUESTIONNAIRE – SHORT FORM 3 (YSQ-SF3)

Aşağıda, kişilerin kendilerini tanımlarken kullandıkları ifadeler sıralanmıştır. Lütfen her bir ifadeyi okuyun ve sizi ne kadar iyi tanımladığına karar veriniz. Emin olamadığınız sorularda neyin doğru olabileceğinden çok, sizin **duygusal olarak** ne hissettiğinize dayanarak cevap verin.Bir kaç soru, anne babanızla ilişkiniz hakkındadır. Eğer biri veya her ikisi şu anda yaşamıyorlarsa, bu soruları o veya onlar hayatta iken ilişkinizi göz önüne alarak cevaplandırınız. Seçeneklerden sizi en iyi tanımladığını düşündüğünüz seçeneği lütfen seçiniz.

	Benim için tamamıyla yanlış (1)	**Benim için büyük ölçüde yanlış (2)**	**Bana uyan tarafı uymayan tarafından biraz fazla (3)**	**Benim için orta derecede doğru (4)**	**Benim için çoğunlukla doğru (5)**	**Beni mükemmel şekilde tanımlıyor (6)**
Bana bakan, benimle zaman geçiren, başıma gelen olaylarla gerçekten ilgilenen kimsem olmadı. (1)	○	○	○	○	○	○
Beni terkedeceklerinden korktuğum için yakın olduğum insanların peşini bırakmam. (2)	○	○	○	○	○	○
İnsanların beni kullandıklarını hissediyorum. (3)	○	○	○	○	○	○
Uyumsuzum. (4)	○	○	○	○	○	○
Beğendiğim hiçbir erkek/kadın, kusurlarımı görürse beni sevmez. (5)	○	○	○	○	○	○
İş (veya okul) hayatımda neredeyse hiçbir şeyi diğer insanlar kadar iyi yapamıyorum. (6)	○	○	○	○	○	○
Günlük yaşamımı tek başıma idare edebilme becerisine sahip olduğumu hissetmiyorum. (7)	○	○	○	○	○	○
Kötü bir şey olacağı duygusundan kurtulamıyorum. (8)	○	○	○	○	○	○
Anne babamdan ayrılmayı, bağımsız hareket edebilmeyi	○	○	○	○	○	○

yaşıtlarım kadar başaramadım. (9)						
Eğer istediğimi yaparsam, başımı derde sokarım diye düşünürüm. (10)	○	○	○	○	○	○
Genellikle yakınlarıma ilgi gösteren ve bakan ben olurum. (11)	○	○	○	○	○	○
Olumlu duygularımı diğerlerine göstermekten utanırım (sevdiğimi, önemsediğimi göstermek gibi). (12)	○	○	○	○	○	○
Yaptığım çoğu şeyde en iyi olmalıyım; ikinci olmayı kabullenemem. (13)	○	○	○	○	○	○
Diğer insanlardan bir şeyler istediğimde bana "hayır" denilmesini çok zor kabullenirim. (14)	○	○	○	○	○	○
Kendimi sıradan ve sıkıcı işleri yapmaya zorlayamam. (15)	○	○	○	○	○	○
Paramın olması ve önemli insanlar tanıyor olmak beni değerli yapar. (16)	○	○	○	○	○	○
Her şey yolunda gidiyor görünse bile, bunun bozulacağını hissederim. (17)	○	○	○	○	○	○
Eğer bir yanlış yaparsam, cezalandırılmayı hakkederim. (18)	○	○	○	○	○	○
Çevremde bana sıcaklık, koruma ve duygusal yakınlık gösteren kimsem yok. (19)	○	○	○	○	○	○
Diğer insanlara o kadar muhtacım ki onları kaybedeceğim diye çok endişeleniyorum. (20)	○	○	○	○	○	○
İnsanlara karşı tedbiri elden bırakamam yoksa bana kasıtlı olarak zarar vereceklerini hissederim. (21)	○	○	○	○	○	○
Temel olarak diğer insanlardan farklıyım. (22)	○	○	○	○	○	○
Gerçek beni tanırlarsa beğendiğim hiç kimse bana yakın	○	○	○	○	○	○

olmak istemez. (23)						
İşleri halletmede son derece yetersizim. (24)	○	○	○	○	○	○
Gündelik işlerde kendimi başkalarına bağımlı biri olarak görüyorum. (25)	○	○	○	○	○	○
Her an bir felaket (doğal, adli, mali veya tıbbi) olabilir diye hissediyorum. (26)	○	○	○	○	○	○
Annem, babam ve ben birbirimizin hayatı ve sorunlarıyla aşırı ilgili olmaya eğilimliyiz. (27)	○	○	○	○	○	○
Diğer insanların isteklerine uymaktan başka yolum yokmuş gibi hissediyorum; eğer böyle yapmazsam bir şekilde beni reddederler veya intikam alırlar. (28)	○	○	○	○	○	○
Başkalarını kendimden daha fazla düşündüğüm için ben iyi bir insanım. (29)	○	○	○	○	○	○
Duygularımı diğerlerine açmayı utanç verici bulurum. (30)	○	○	○	○	○	○
En iyisini yapmalıyım, "yeterince iyi" ile yetinemem. (31)	○	○	○	○	○	○
Ben özel biriyim ve diğer insanlar için konulmuş olan kısıtlamaları veya sınırları kabul etmek zorunda değilim. (32)	○	○	○	○	○	○
Eğer hedefime ulaşamazsam kolaylıkla yılgınlığa düşer ve vazgeçerim. (33)	○	○	○	○	○	○
Başkalarının da farkında olduğu başarılar benim için en değerlisidir. (34)	○	○	○	○	○	○
İyi bir şey olursa, bunu kötü bir şeyin izleyeceğinden endişe ederim. (35)	○	○	○	○	○	○
Eğer yanlış yaparsam, bunun özürü yoktur. (36)	○	○	○	○	○	○
Birisi için özel olduğumu hiç hissetmedim. (37)	○	○	○	○	○	○

Yakınlarımın beni terk edeceği ya da ayrılacağından endişe duyarım. (38)	○	○	○	○	○	○
Herhangi bir anda birileri beni aldatmaya kalkışabilir. (39)	○	○	○	○	○	○
Bir yere ait değilim, yalnızım. (40)	○	○	○	○	○	○
Başkalarının sevgisine, ilgisine ve saygısına değer bir insan değilim. (41)	○	○	○	○	○	○
İş ve başarı alanlarında birçok insan benden daha yeterli. (42)	○	○	○	○	○	○
Doğru ile yanlışı birbirinden ayırmakta zorlanırım. (43)	○	○	○	○	○	○
Fiziksel bir saldırıya uğramaktan endişe duyarım. (44)	○	○	○	○	○	○
Annem, babam ve ben özel hayatımızı birbirimizden saklarsak, birbirimizi aldatmış hisseder veya suçluluk duyarız. (45)	○	○	○	○	○	○
İlişkilerimde, diğer kişinin yönlendirici olmasına izin veririm. (46)	○	○	○	○	○	○
Yakınlarımla o kadar meşgulüm ki kendime çok az zaman kalıyor. (47)	○	○	○	○	○	○
İnsanlarla beraberken içten ve cana yakın olmak benim için zordur. (48)	○	○	○	○	○	○
Tüm sorumluluklarımı yerine getirmek zorundayım. (49)	○	○	○	○	○	○
İstediğimi yapmaktan alıkonulmaktan veya kısıtlanmaktan nefret ederim. (50)	○	○	○	○	○	○
Uzun vadeli amaçlara ulaşabilmek için şu andaki zevklerimden fedakarlık etmekte zorlanırım. (51)	○	○	○	○	○	○
Başkalarından yoğun bir ilgi görmezsem kendimi daha az önemli hissederim. (52)	○	○	○	○	○	○

Yeterince dikkatli olmazsanız, neredeyse her zaman bir şeyler ters gider. (53)	○	○	○	○	○	○
Eğer işimi doğru yapmazsam sonuçlara katlanmam gerekir. (54)	○	○	○	○	○	○
Beni gerçekten dinleyen, anlayan veya benim gerçek ihtiyaçlarım ve duygularımı önemseyen kimsem olmadı. (55)	○	○	○	○	○	○
Önem verdiğim birisinin benden uzaklaştığını sezersem çok kötü hissederim. (56)	○	○	○	○	○	○
Diğer insanların niyetleriyle ilgili oldukça şüpheciyimdir. (57)	○	○	○	○	○	○
Kendimi diğer insanlara uzak veya kopmuş hissediyorum. (58)	○	○	○	○	○	○
Kendimi sevilebilecek biri gibi hissetmiyorum. (59)	○	○	○	○	○	○
İş (okul) hayatımda diğer insanlar kadar yetenekli değilim. (60)	○	○	○	○	○	○
Gündelik işler için benim kararlarıma güvenilemez. (61)	○	○	○	○	○	○
Tüm paramı kaybedip çok fakir veya zavallı duruma düşmekten endişe duyarım. (62)	○	○	○	○	○	○
Çoğunlukla annem ve babamın benimle iç içe yaşadığını hissediyorum- Benim kendime ait bir hayatım yok. (63)	○	○	○	○	○	○
Kendim için ne istediğimi bilmediğim için daima benim adıma diğer insanların karar vermesine izin veririm. (64)	○	○	○	○	○	○
Ben hep başkalarının sorunlarını dinleyen kişi oldum. (65)	○	○	○	○	○	○

Kendimi o kadar kontrol ederim ki insanlar beni duygusuz veya hissiz bulurlar. (66)	○	○	○	○	○	○
Başarmak ve bir şeyler yapmak için sürekli bir baskı altındayım. (67)	○	○	○	○	○	○
Diğer insanların uyduğu kurallara ve geleneklere uymak zorunda olmadığımı hissediyorum. (68)	○	○	○	○	○	○
Benim yararıma olduğunu bilsem bile hoşuma gitmeyen şeyleri yapmaya kendimi zorlayamam. (69)	○	○	○	○	○	○
Bir toplantıda fikrimi söylediğimde veya bir topluluğa tanıtıldığımda onaylanılmayı ve takdir görmeyi isterim. (70)	○	○	○	○	○	○
Ne kadar çok çalışırsam çalışayım, maddi olarak iflas edeceğimden ve neredeyse her şeyimi kaybedeceğimden endişe ederim. (71)	○	○	○	○	○	○
Neden yanlış yaptığımın önemi yoktur; eğer hata yaptıysam sonucuna da katlanmam gerekir. (72)	○	○	○	○	○	○
Hayatımda ne yapacağımı bilmediğim zamanlarda uygun bir öneride bulunacak veya beni yönlendirecek kimsem olmadı. (73)	○	○	○	○	○	○
İnsanların beni terk edeceği endişesiyle bazen onları kendimden uzaklaştırırım. (74)	○	○	○	○	○	○
Genellikle insanların asıl veya art niyetlerini araştırırım. (75)	○	○	○	○	○	○
Kendimi hep grupların dışında hissederim. (76)	○	○	○	○	○	○
Kabul edilemeyecek pek çok özelliğim yüzünden insanlara kendimi açamıyorum veya beni tam olarak	○	○	○	○	○	○

tanımalarına izin vermiyorum. (77)						
İş (okul) hayatımda diğer insanlar kadar zeki değilim. (78)	○	○	○	○	○	○
Ortaya çıkan gündelik sorunları çözebilme konusunda kendime güvenmiyorum. (79)	○	○	○	○	○	○
Bir doktor tarafından herhangi bir ciddi hastalık bulunmamasına rağmen bende ciddi bir hastalığın gelişmekte olduğu endişesine kapılıyorum. (80)	○	○	○	○	○	○
Sık sık annemden babamdan ya da eşimden ayrı bir kimliğimin olmadığını hissediyorum. (81)	○	○	○	○	○	○
Haklarıma saygı duyulmasını ve duygularımın hesaba katılmasını istemekte çok zorlanıyorum. (82)	○	○	○	○	○	○
Başkaları beni, diğerleri için çok, kendim için az şey yapan biri olarak görüyorlar. (83)	○	○	○	○	○	○
Diğerleri beni duygusal olarak soğuk bulurlar. (84)	○	○	○	○	○	○
Kendimi sorumluluktan kolayca sıyıramıyorum veya hatalarım için gerekçe bulamıyorum. (85)	○	○	○	○	○	○
Benim yaptıklarımın, diğer insanların katkılarından daha önemli olduğunu hissediyorum. (86)	○	○	○	○	○	○
Kararlarıma nadiren sadık kalabilirim. (87)	○	○	○	○	○	○
Bir dolu övgü ve iltifat almam kendimi değerli birisi olarak hissetmemi sağlar. (88)	○	○	○	○	○	○
Yanlış bir kararın bir felakete yol açabileceğinden endişe ederim. (89)	○	○	○	○	○	○

Ben cezalandırılmayı hak eden kötü bir insanım. (90)	○	○	○	○	○	○

APPENDIX D: COGNITIVE EMOTION REGULATION QUESTIONNAIRE (CERQ)

Herkes zaman zaman olumsuz ya da tatsız olaylarla karşılaşır ve herkes bu olaylara kendi yöntemiyle tepki verir. Lütfen aşağıdaki soruları cevaplayarak olumsuz ya da tatsız olaylar yaşadığınızda genel olarak ne düşündüğünüzü belirtiniz. Seçeneklerden sizi en iyi tanımladığını düşündüğünüz seçeneği seçiniz.

	(Neredeyse) Hiçbir zaman (1)	Nadiren (2)	Bazen (3)	Sık sık (4)	(Neredeyse) Her zaman (5)
Suçlanacak kişinin ben olduğumu düşünürüm. (1)	○	○	○	○	○
Olanları kabul etmek zorunda olduğumu düşünürüm. (2)	○	○	○	○	○
Sık sık, yaşadığım olayla ilgili ne hissettiğim hakkında düşünürüm. (3)	○	○	○	○	○
Yaşadığım şeyden daha güzel şeyler düşünürüm. (4)	○	○	○	○	○
Yapabileceğimin en iyisinin ne olduğunu düşünürüm. (5)	○	○	○	○	○
Bu durumdan bir şeyler öğrenebileceğimi düşünürüm. (6)	○	○	○	○	○
"Her şey çok daha kötü olabilirdi" diye düşünürüm. (7)	○	○	○	○	○
Sık sık, yaşadığım olayın diğer insanların başına gelen olaylardan çok daha kötü olduğunu düşünürüm. (8)	○	○	○	○	○
Suçlanacak kişinin başkaları olduğunu düşünürüm. (9)	○	○	○	○	○
Olanlardan sorumlu olan kişinin kendim olduğunu düşünürüm. (10)	○	○	○	○	○
Durumu kabul etmem gerektiğini düşünürüm. (11)	○	○	○	○	○
Zihnim yaşadığım olayla ilgili ne düşündüğüm ve ne hissettiğimle meşgul olur. (12)	○	○	○	○	○
Yaşadığım olayla ilgisi olmayan güzel şeyler düşünürüm. (13)	○	○	○	○	○
Bu durumla en iyi nasıl başa çıkabileceğimi düşünürüm. (14)	○	○	○	○	○
Olanların sonucunda daha güçlü bir insan olabileceğimi düşünürüm. (15)	○	○	○	○	○

Diğer insanların başından çok daha kötü şeyler geçtiğini düşünürüm. (16)	○	○	○	○	○
Yaşadığım şeyin ne kadar korkunç bir şey olduğunu düşünür dururum. (17)	○	○	○	○	○
Olanlardan başkalarının sorumlu olduğunu düşünürüm. (18)	○	○	○	○	○
Durumla ilgili yaptığım hatalar hakkında düşünürüm. (19)	○	○	○	○	○
Durumla ilgili hiçbir şeyi değiştiremeyeceğimi düşünürüm. (20)	○	○	○	○	○
Yaşadığım olayla ilgili neden bu şekilde hissettiğimi anlamak isterim. (21)	○	○	○	○	○
Olanları düşünmek yerine güzel bir şey düşünürüm. (22)	○	○	○	○	○
Durumu nasıl değiştirebileceğimi düşünürüm. (23)	○	○	○	○	○
Durumun olumlu yanları da olduğunu düşünürüm. (24)	○	○	○	○	○
Diğer şeylerle karşılaştırıldığında yaşadığım şeyin o kadar da kötü olmadığını düşünürüm. (25)	○	○	○	○	○
Sık sık, yaşadığım durumun bir insanın başına gelebilecek en kötü durum olduğunu düşünürüm. (26)	○	○	○	○	○
Durumla ilgili başkalarının yaptığı hataları düşünürüm. (27)	○	○	○	○	○
Temelde durum bizzat benden kaynaklanmış olmalı diye düşünürüm. (28)	○	○	○	○	○
Bu durumla yaşamayı öğrenmem gerektiğini düşünürüm. (29)	○	○	○	○	○
Durumun bende uyandırdığı duygular üzerine kafa yorarım. (30)	○	○	○	○	○
Yaşadığım güzel şeyler hakkında düşünürüm. (31)	○	○	○	○	○
Duruma dair yapabileceğim en iyi şeyi planlarım. (32)	○	○	○	○	○
Durumun olumlu yönlerini bulmaya çalışırım. (33)	○	○	○	○	○

Kendime hayatta bundan daha kötü şeylerin olduğunu söylerim. (34)	○	○	○	○	○
Sürekli bu durumun ne kadar berbat olduğunu düşünür dururum. (35)	○	○	○	○	○
Sorunun temelinde diğer insanların yattığını düşünürüm. (36)	○	○	○	○	○

APPENDIX E: BEHAVIORAL INHIBITION SYSTEM/BEHAVIORAL ACTIVATION SYSTEM SCALES (BIS/BAS SCALES)

Bu testteki her madde, insanların kendilerinden bahsederken kullandıkları bazı ifadeleri tanımlamaktadır. Lütfen her maddeyi okuyunuz ve size ne kadar uygun olup olmadığına karar veriniz. Lütfen hiçbiri maddeyi boş bırakmayınız. Her madde için, 4 seçenekten sizi en iyi tarif eden seçeneği seçiniz.

	Tamamen katılıyorum (1)	Biraz katılıyorum (2)	Biraz katılmıyorum (3)	Hiç katılmıyorum (4)
Bir insanın ailesi, hayatındaki en önemli şeydir. (1)	○	○	○	○
Başıma kötü bir şey gelmek üzere olsa bile, nadiren korkarım veya sinirlenirim. (2)	○	○	○	○
İstediğim şeyleri elde etmek için, her yolu denerim. (3)	○	○	○	○
Bir şeyi yapmakta iyiysem, onu devam ettirmeyi severim. (4)	○	○	○	○
Eğlenceli olacağını düşündüğüm yeni şeyleri denemeye her zaman istek duyarım. (5)	○	○	○	○
Nasıl giyindiğim benim için önemlidir. (6)	○	○	○	○
İstediğim şeyi elde ettiğimde, heyecanlı ve enerji dolu olurum. (7)	○	○	○	○
Eleştirilme veya azarlanma beni oldukça incitir. (8)	○	○	○	○
Bir şeyi istediğimde, genellikle onu elde etmek için elimden ne geliyorsa yaparım. (9)	○	○	○	○
Çoğu zaman bir şeyleri başka bir sebep olmaksızın, sırf eğlenceli olabilecek diye yapmak isterim. (10)	○	○	○	○
Saç kestirmek gibi şeylere zaman bulmak benim için zordur. (11)	○	○	○	○
İstediğim şeyi elde etmek için bir ihtimal görürsem, hemen harekete geçerim. (12)	○	○	○	○
Birisinin bana kızgın olduğunu bildiğimde veya düşündüğümde, oldukça endişelenirim veya üzülürüm. (13)	○	○	○	○
İstediğim bir şey için bir fırsat yakaladığımda hemen heyecanlanırım. (14)	○	○	○	○
Çoğu zaman düşünmeden o an aklıma eseni yaparım. (15)	○	○	○	○
Eğer hoş olmayan bir şeyin olacağını	○	○	○	○

düşünürsem, genellikle oldukça "gerilirim". (16)				
Çoğu zaman insanların neden öyle davrandıklarını merak ederim. (17)	○	○	○	○
Başıma iyi şeylerin gelmesi, beni çok olumlu etkiler. (18)	○	○	○	○
Önemli bir şeyi kötü yaptığımı düşündüğümde endişelenirim. (19)	○	○	○	○
Heyecan ve yeni duygular yaşamayı çok isterim. (20)	○	○	○	○
Bir şeyi elde etmeye çalıştığım zaman "kural tanımam". (21)	○	○	○	○
Arkadaşlarıma kıyasla çok az korkum vardır. (22)	○	○	○	○
Bir yarışmayı kazanmak beni heyecanlandırırdı. (23)	○	○	○	○
Hata yapmaktan endişelenirim. (24)	○	○	○	○

APPENDIX F: BRIEF SYMPTOM INVENTORY (BSI)

Aşağıda insanların bazen yaşadıkları belirtilerin ve yakınmaların bir listesi verilmiştir. Listedeki her maddeyi lütfen dikkatle okuyunuz. Daha sonra sizde o belirtinin BUGÜN DAHİL, SON BİR HAFTADIR NE KADAR VAROLDUĞUNU uygun olan yerde işaretleyiniz. Hiçbir maddeyi atlamamaya özen gösteriniz. Seçeneklerden sizi en iyi tanımladığını düşündüğünüz seçeneği seçiniz.

	Hiç yok (0)	Biraz var (1)	Orta derecede var (2)	Epey var (3)	Çok fazla var (4)
İçinizdeki sinirlilik ve titreme hali (1)	○	○	○	○	○
Baygınlık, baş dönmesi (2)	○	○	○	○	○
Bir başka kişinin sizin düşüncelerinizi kontrol edeceği fikri (3)	○	○	○	○	○
Başınıza gelen sıkıntılardan dolayı başkalarının suçlu olduğu duygusu (4)	○	○	○	○	○
Olayları hatırlamada güçlük (5)	○	○	○	○	○
Çok kolayca kızıp öfkelenme (6)	○	○	○	○	○
Göğüs (kalp) bölgesinde ağrılar (7)	○	○	○	○	○
Meydanlık (açık) yerlerden korkma duygusu (8)	○	○	○	○	○
Yaşamınıza son verme düşünceleri (9)	○	○	○	○	○
İnsanların çoğuna güvenilmeyeceği hissi (10)	○	○	○	○	○
İştahta bozukluklar (11)	○	○	○	○	○
Hiç bir nedeni olmayan ani korkular (12)	○	○	○	○	○
Kontrol edemediğiniz duygu patlamaları (13)	○	○	○	○	○
Başka insanlarla beraberken bile yalnızlık hissetme (14)	○	○	○	○	○
İşleri bitirme konusunda kendini engellenmiş hissetme (15)	○	○	○	○	○
Yalnızlık hissetme (16)	○	○	○	○	○
Hüzünlü, kederli hissetme (17)	○	○	○	○	○
Hiçbir şeye ilgi duymama (18)	○	○	○	○	○
Ağlamaklı hissetme (19)	○	○	○	○	○
Kolayca incinebilme, kırılma (20)	○	○	○	○	○

İnsanların sizi sevmediğine, kötü davrandığına inanmak (21)	○	○	○	○	○
Kendini diğerlerinden daha aşağı görme (22)	○	○	○	○	○
Mide bozukluğu, bulantı (23)	○	○	○	○	○
Diğerlerinin sizi gözlediği ya da hakkınızda konuştuğu duygusu (24)	○	○	○	○	○
Uykuya dalmada güçlük (25)	○	○	○	○	○
Yaptığınız şeyleri tekrar tekrar doğru mu diye kontrol etme (26)	○	○	○	○	○
Karar vermede güçlükler (27)	○	○	○	○	○
Otobüs, tren, metro gibi umumi vasıtalarla seyahat etmekten korkma (28)	○	○	○	○	○
Nefes darlığı, nefessiz kalma (29)	○	○	○	○	○
Sıcak, soğuk basmaları (30)	○	○	○	○	○
Sizi korkuttuğu için bazı eşya, yer ya da etkinliklerden uzak kalmaya çalışma (31)	○	○	○	○	○
Kafanızın bomboş kalması (32)	○	○	○	○	○
Bedeninizin bazı bölgelerinde uyuşmalar, karıncalanmalar (33)	○	○	○	○	○
Günahlarınız için cezalandırılmanız gerektiği düşüncesi (34)	○	○	○	○	○
Gelecekle ilgili umutsuzluk duyguları içinde olmak (35)	○	○	○	○	○
Konsantrasyonda (dikkati bir şey üzerine toplama) güçlük/zorlanma (36)	○	○	○	○	○
Bedenin bazı bölgelerinde zayıflık, güçsüzlük hissi (37)	○	○	○	○	○
Kendini gergin ve tedirgin hissetme (38)	○	○	○	○	○
Ölme ve ölüm üzerine düşünceler (39)	○	○	○	○	○
Birini dövme, ona zarar verme, yaralama isteği (40)	○	○	○	○	○
Bir şeyleri kırma/dökme isteği (41)	○	○	○	○	○
Diğerlerinin yanındayken kendinin çok fazla farkında olmak, yanlış bir şeyler yapmamaya çalışmak (42)	○	○	○	○	○
Kalabalıklarda rahatsızlık duymak (43)	○	○	○	○	○
Bir başka insana hiç yakınlık duymamak (44)	○	○	○	○	○
Dehşet ve panik nöbetleri (45)	○	○	○	○	○
Sık sık tartışmaya girme (46)	○	○	○	○	○

Yalnız bırakıldığında/kalındığında sinirlilik hissetme (47)	○	○	○	○	○
Başarılarınız için diğerlerinden yeterince takdir görmediğiniz düşüncesi (48)	○	○	○	○	○
Yerinde duramayacak kadar tedirgin hissetme (49)	○	○	○	○	○
Kendini değersiz görmek, değersizlik duyguları (50)	○	○	○	○	○
İzin verdiğiniz takdirde insanların sizi sömüreceği duygusu (51)	○	○	○	○	○
Suçluluk duyguları (52)	○	○	○	○	○
Aklınızda bir bozukluk olduğu fikri (53)	○	○	○	○	○

APPENDIX G: SATISFACTION WITH LIFE SCALE (SWLS)

Aşağıdaki ifadelere katılıp katılmadığınızı görüşünüzü yansıtan seçeneği seçerek belirtiniz. Lütfen hiçbir maddeyi boş bırakmayınız. "Kesinlikle katılmıyorum (1)"dan "kesinlikle katılıyorum (7)"a kadar olan seçeneklerden sizi en iyi tarif edeni seçiniz.

	Kesinlikle katılmıyorum (1)	Katılmıyorum (2)	Biraz katılmıyorum (3)	Ne katılıyorum ne de katılmıyorum (4)	Çok az katılıyorum (5)	Katılıyorum (6)	Kesinlikle Katılıyorum (7)
Pek çok açıdan ideallerime yakın bir yaşamım var.	○	○	○	○	○	○	○
Yaşam koşullarım mükemmeldir.	○	○	○	○	○	○	○
Yaşamım beni tatmin ediyor.	○	○	○	○	○	○	○
Şimdiye kadar, yaşamda istediğim önemli şeyleri elde ettim.	○	○	○	○	○	○	○
Hayatımı bir daha yaşama şansım olsaydı, hemen hemen hiçbir şeyi değiştirmezdim.	○	○	○	○	○	○	○

APPENDIX H: MULTIVARIATE ANALYSES OF VARIANCE

Appendix H.1. Differences of demographic variables on schema domains

In order to show possible differences of demographic variables on schema domains (i.e., Impaired Limits/Exaggerated Standards, Disconnection/Rejection, Impaired Autonomy/Other Directedness), Separate Multivariate Analyses of Variance was conducted and significant differences are presented below.

Age differences on schema domains

MANOVA was conducted to examine differences of age (emerging adulthood and adulthood) on schema domains (i.e., Impaired Limits/Exaggerated Standards, Disconnection/Rejection, Impaired Autonomy/Other Directedness).

Results showed that age had a significant main effect on schema domains [F (3,469) = 8.69, $p < .001$; Wilks' Lambda = .95; partial η^2 = .053]. In order to find out gender differences on schema domains, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .017 (i.e., .05/3) were considered to be significant with this correction. Accordingly, a significant age difference was found in schema domain of Disconnection/Rejection [F (1, 471) = 16.74, $p < .001$, partial η^2 = .033], and Impaired Limits/Exaggerated Standards [F (1, 471) = 10.92, $p < .001$, partial η^2 = .026]. Emerging adults (M = 71.30; M = 93.48, respectively) had higher Disconnection/Rejection and Impaired Limits/Exaggerated Standards scores than adults (M = 62.52; M = 87.69, respectively).

Table 26

Age Differences on schema domains

	Age			
	Emerging Adulthood	**Adulthood**	**Multivariate *F* (3,475)**	**Univariate *F* (1,477)**
Schema Domains			8.69**	
Impaired Limits/Exaggerated Standards	93.48	87.69		10.92*
Disconnection/Rejection	71.30	62.52		16.74*
Impaired Autonomy/Other Directedness	59.46	56.63		2.80

* $p < .017$ ** $p < .01$

Monthly income differences on schema domains

In order to examine differences of income (Low/Middle and High) MANOVA was conducted with schema domains (i.e., Impaired Limits/Exaggerated Standards, Disconnection/Rejection, Impaired Autonomy/Other Directedness) as dependent variables.

Results showed that income had a significant main effect on schema domains [F (3,469) = 6.54, $p < .001$; Wilks' Lambda = .96; partial $\eta^2 = .040$]. In order to find out gender differences on schema domains, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .017 (i.e., .05/3) were considered to be significant with this correction. Accordingly, a significant income difference was found in schema domain of Impaired Limits/Exaggerated Standards [F (1, 471) = 6.99, $p = .008$, partial $\eta^2 = .015$], Disconnection/Rejection [F (1, 471) = 19.39, $p < .001$, partial $\eta^2 = .040$], and Impaired Autonomy/Other Directedness [F (1, 471) = 10.48, $p = .001$, partial $\eta^2 = .022$]. Participants with low or middle income (M = 93.69; M = 73.13; M = 61.58, respectively) higher schema scores (Impaired Limits/Exaggerated Standards, Disconnection/Rejection and Impaired Autonomy/Other Directedness) than participants with high income (M = 88.90; M= 63.43; M = 55.99, respectively).

Table 28

Monthly Income Differences on schema domains

	Income		Multivariate *F*	Univariate
	Low/Middle	High	(3,469)	*F* (1,471)
Schema Domains			6.54**	
Impaired Limits/Exaggerated Standards	93.69	88.90		6.99*
Disconnection/Rejection	73.13	63.43		19.39*
Impaired Autonomy/Other Directedness	61.58	55.99		10.48*

* $p < .017$ ** $p < .01$

Relationship status differences on schema domains

In order to investigate differences of relationship status (i.e., single, in a relationship, and married) on schema domains, MANOVA was conducted. Since Box's Test of Equality of Covariance Matrices was found significant, Pillai's Trace scores were used instead of Wilks' Lambda in the analysis as Tabachnick and Fidell (2006) suggest.

As can be seen in Table 3.2.1.3., relationship status had a significant main effect on schema domains [F (6, 938) = 6.66, $p < .001$; Pillai's Trace = .082; partial $\eta^2 = .041$]. In order to find out relationship status differences on schema domains, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .017 (i.e., .05/3) were considered to be significant with this correction. Accordingly, a significant relationship status difference was found in schema domain of Impaired Limits/Exaggerated Standards [F (2, 470) = 6.90, $p = .001$, partial $\eta^2 = .029$], Disconnection/Rejection [F (2, 470) = 16.89, $p < .001$, partial $\eta^2 = .067$], and Impaired Autonomy/Other Directedness [F (2, 470) = 4.82, $p = .008$, partial $\eta^2 = .020$]. The Bonferroni post hoc analysis revealed that participants who are married (M = 86.73; M = 59.87; M = 54.91, respectively) scored significantly lower than those who are single (M = 93.64; M = 73.77; M = 60.49, respectively). Moreover, participants who are married (M = 86.73; M = 59.87, respectively) scored significantly lower than those who are in a relationship (M = 92.91; M = 69.06, respectively) in schema domain of the Impaired Limits/Exaggerated Standards, and Disconnection/Rejection, but their scores (M = 54.91) did not significantly differ from those who are in a relationship (M = 59.81) in the Impaired Autonomy/Other Directedness schema domain.

Table 29

Relationship Status Differences on Schema Domains

	Relationship Status			Multivariate *F* (6, 938)	Univariate *F* (2,470)
	Single	**In a Relationship**	**Married**		
Schema Domains				6.66**	
Impaired Limits/Exaggerated Standards	93.64	92.91	86.73		6.90*
Disconnection/Rejection	73.77	69.06	59.87		16.89*
Impaired Autonomy/Other Directedness	60.49	59.81	54.91		4.82*

* $p < .017$ ** $p < .01$

History of psychological treatment differences on schema domains

MANOVA was conducted to examine differences of psychological treatment (Yes and No) on schema domains (i.e., Impaired Limits/Exaggerated Standards, Disconnection/Rejection, Impaired Autonomy/Other Directedness). Since Box's Test of Equality of Covariance Matrices was found significant, Pillai's Trace scores were used instead of Wilks' Lambda in the analysis as Tabachnick and Fidell (2006) suggest.

According to the results, history of psychological treatment differences was found a significant main effect on schema domains [F (3,469) = 15.71, $p < .001$; Pillai's Trace = .091; partial η^2 = .091]. In order to find out psychological treatment differences on schema domains, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .017 (i.e., .05/3) were considered to be significant with this correction. According to whether or not participants have taken a psychological treatment before, a significant difference was found in all 3 schema domain of Impaired Limits/Exaggerated Standards [F (1, 471) = 36.49, $p < .001$, partial η^2 = .072], Disconnection/Rejection [F (1, 471) = 40.70 $p < .001$, partial η^2 = .080], and Impaired Autonomy/Other Directedness [F (1, 471) = 36.73, $p < .001$, partial η^2 = .072]. Participants who have taken a psychological treatment before (M = 96.62; M = 74.76; M= 63.77, respectively) had higher schema scores (Impaired Limits/Exaggerated Standards, Disconnection/Rejection and Impaired Autonomy/Other Directedness) than those who have not (M = 86.22; M = 61.28; M= 53.79, respectively).

Table 30

History of Psychological Treatment Differences on schema domains

	Psychological Treatment		Multivariate *F*	Univariate
	Yes	No	(3,469)	*F* (1,471)
Schema Domains			15.71**	
Impaired Limits/Exaggerated Standards	96.62	86.22		36.49*
Disconnection/Rejection	74.76	61.28		40.70*
Impaired Autonomy/Other Directedness	63.77	53.79		36.73*

* $p < .017$ ** $p < .001$

Appendix H.2. Differences of demographic variables on neuropsychological personality traits

Separate Multivariate Analyses of Variance was conducted with behavioral activation system (BAS) and behavioral inhibition system (BIS) as dependent variables to examine differences of demographic variables on neuropsychological personality traits.

Gender differences on neuropsychological personality traits

MANOVA was conducted with Behavioral Activation System (BAS) and Behavioral Inhibition System (BIS) as dependent variables to investigate gender (female, male) differences.

Results showed that gender differences had a significant main effect in neuropsychological personality traits [F (2,470) = 23.27, $p < .001$; Wilks' Lambda = .91; partial η^2 = .090]. In order to find out gender differences on BAS and BIS, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. Accordingly, a significant difference of gender was found in BIS [F (1, 471) = 46.62, $p < .001$, partial η^2 = .090]. Females (M = 22.87) had higher scores at BIS than males (M = 20.92). There was no significant gender difference in BAS.

Table 31

Gender Differences on Neuropsychological Personality Traits

	Gender		Multivariate *F*	Univariate
	Female	**Male**	**(2,470)**	***F* (1,471)**
Neuropsychological Personality Traits			23.27**	
Behavioral Activation System	41.71	42.08		.47
Behavioral Inhibition System	22.87	20.29		46.62*

* p <.025 ** p <.01

Age differences on neuropsychological personality traits

In order to examine age differences (emerging adulthood and adulthood), MANOVA was conducted with Behavioral Activation System (BAS) and Behavioral Inhibition System (BIS) as dependent variables

Age differences were found as a significant main effect in neuropsychological personality traits [F (2,470) = 7.09, p = .001; Wilks' Lambda = .97; partial η^2 = .029]. In order to find out gender differences on BAS and BIS, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. According to results, significant difference of age was found in BIS [F (1, 471) = 12.13, p = .001, partial η^2 = .025]. Emerging adults (M = 22.81) had higher scores at BIS than adults (M = 21.64). No significant age difference was not found in BAS.

Table 32

Age Differences on Neuropsychological Personality Traits

	Age		Multivariate *F*	Univariate
	Emerging Adulthood	**Adulthood**	**(2,470)**	***F* (1,471)**
Neuropsychological Personality Traits			7.09**	
Behavioral Activation System	42.04	41.53		1.20
Behavioral Inhibition System	22.81	21.64		12.13*

* p <.025 ** p <.01

Relationship status differences on neuropsychological personality traits

In order to investigate differences of relationship status (single, in a relationship, and married), MANOVA was conducted with Behavioral Activation System (BAS) and Behavioral Inhibition System (BIS) as dependent variables.

Results revealed that there was a significant main effect of relationship status differences in neuropsychological personality traits [F (4, 938) = 3.34, p = .010; Wilks' Lambda = .97; partial η^2 = .014]. In order to find out differences of relationship status on neuropsychological personality traits, univariate analyses were examined. The results of univariate analyses with Bonferroni correction (in which alpha level lower than .025 were accepted as significant) showed a significant difference of relationship status in BIS [F (2, 470) = 6.72, p = .001, partial η^2 = .028]. The Bonferroni post hoc analysis revealed that participants who have a relationship (M = 23.16) scored significantly higher at BIS than those who married (M = 21.60). However, scores of singles (22.36) were found as not significantly differed from of participants in a relationship (23.16). Scores of singles (22.36) at BIS were also not significantly different from those of married (21.60). Furthermore, no significant differences in relationship status were found for BAS.

Table 33

Relationship Status Differences on Neuropsychological Personality Traits

	Relationship Status			**Multivariate F (4, 938)**	**Univariate F (2,470)**
	Single	**In a Relationship**	**Married**		
Neuropsychological Personality Traits				3.34**	
Behavioral Activation System	41.84	41.66	41.84		.05
Behavioral Inhibition System	22.36	23.16	21.60		6.72*

* p <.025 ** p <.05

History of psychological treatment differences on neuropsychological personality traits

MANOVA was conducted to examine differences of psychological treatment (Yes and No) on neuropsychological personality traits.

According to the results, history of psychological treatment differences was found a significant main effect on neuropsychological personality traits [F (2,470) = 20.10, p < .001; Wilks' Lambda = .92; partial η^2 = .079]. In order to find out psychological treatment differences on neuropsychological personality traits, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. According to whether or not participants have taken a psychological treatment before, a significant difference was found in BIS [F (1, 471) = 36.77, p < .001, partial η^2 = .072] and in BAS [F (1, 471) = 5.10, p =.024, partial η^2 = .011]. Participants who have taken a psychological treatment before (M = 23.38) had higher scores than those who have not (M = 21.38) at BIS; however, participants who have not taken a psychological treatment before (M = 42.25) had higher scores than those who have (M = 41.20) at BAS.

Table 34

History of Psychological Treatment Differences on Neuropsychological Personality Traits

	Psychological Treatment		Multivariate F (2,470)	Univariate F (1,471)
	Yes	No		
Neuropsychological Personality Traits			20.10**	
Behavioral Activation System	41.20	42.25		5.10*
Behavioral Inhibition System	23.38	21.39		36.77*

* p <.025 ** p <.01

Appendix H. 3. Differences of demographic variables on cognitive emotion regulation strategies

In order to examine differences of demographic variables in cognitive emotion regulation strategies (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective), Separate Multivariate Analyses of Variance was conducted.

Gender differences on cognitive emotion regulation strategies

MANOVA was conducted with cognitive emotion regulation strategies (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning,

Positive Refocusing, Positive Reappraisal, and Putting into Perspective) as dependent variables to investigate gender (female, male) differences. Since Box's Test of Equality of Covariance Matrices was found significant, Pillai's Trace scores were used instead of Wilks' Lambda in the analysis as Tabachnick and Fidell (2006) suggest.

Results showed that gender differences had a significant main effect in cognitive emotion regulation strategies [F (9, 463) = 3.05, p = .001; Pillai's Trace = .06; partial η^2 = .056]. In order to find out gender differences on cognitive emotion regulation strategies, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .006 (i.e., .05/9) were considered to be significant with this correction. Accordingly, a significant difference of gender was found only in Rumination [F (1, 471) = 11.01, p = .001, partial η^2 = .023]. Females (M = 15.24) had higher scores at Rumination than males (M = 14.09). There was no significant gender difference in other cognitive emotion regulation strategies.

Table 35

Gender Differences on Cognitive Emotion Regulation Strategies

	Gender		Multivariate *F* (9,463)	Univariate *F* (1,471)
	Female	**Male**		
			3.05**	
Cognitive Emotion Regulation Strategies				
Self-Blame	12.13	11.43		4.28
Blaming Others	10.36	10.44		.07
Rumination	15.24	14.09		11.01*
Catastrophizing	10.51	9.62		4.98
Acceptance	13.11	12.34		6.77
Refocus on Planning	15.13	15.34		.44
Positive Refocusing	10.90	11.78		5.53
Positive Reappraisal	13.74	14.52		4.23
Putting into Perspective	12.81	12.63		.26

* $p < .006$ ** $p < .01$

Age differences on cognitive emotion regulation strategies

In order to examine age differences (emerging adulthood, and adulthood), MANOVA was conducted with cognitive emotion regulation strategies (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) as dependent variables. Since Box's Test of Equality of Covariance Matrices was found significant, Pillai's Trace scores were used instead of Wilks' Lambda in the analysis as Tabachnick and Fidell (2006) suggest.

Results showed that there was a significant main effect of age differences in cognitive emotion regulation strategies [F (9,463) = 4.92, $p < .001$; Pillai's Trace = .087; partial η^2 = .087]. In order to find out gender differences on cognitive emotion regulation strategies, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower

than .006 (i.e., .05/9) were considered to be significant with this correction. Accordingly, a significant difference of age was found in Acceptance [F (1, 477) = 12.71, p < .001, partial η^2 = .026], Refocus on Planning [F (1, 477) = 11.34, p = .001, partial η^2 = .024], Positive Refocusing [F (1, 477) = 12.34, p < .001, partial η^2 = .026], and Positive Reappraisal [F (1, 477) = 23.16, p < .001, partial η^2 = .047]. Adults (M = 15.64; M = 11.69; M = 14.73, respectively) had higher scores at Refocus on Planning, Positive Refocusing, and Positive Reappraisal than emerging adults (M = 14.76; M = 1058; M = 13.21, respectively), but emerging adults (M =13.35) scored higher at Acceptance than adults (M = 12.45).

Table 36

Age Differences on Cognitive Emotion Regulation Strategies

	Age		**Multivariate F (9,463)**	**Univariate F (1,471)**
	Emerging Adulthood	**Adulthood**		
			3.05**	
Cognitive Emotion Regulation Strategies				
Self-Blame	12.19	11.70		2.96
Blaming Others	10.63	10.10		3.79
Rumination	15.33	14.56		6.68
Catastrophizing	10.68	9.87		5.79
Acceptance	13.35	12.45		12.71*
Refocus on Planning	14.76	15.64		11.34*
Positive Refocusing	10.58	11.69		12.34*
Positive Reappraisal	13.21	14.73		23.16*
Putting into Perspective	12.37	13.20		7.76

* p <.006 ** p <.01

Relationship status differences on cognitive emotion regulation strategies

In order to investigate differences of relationship status (i.e., single, in a relationship, and married), MANOVA was conducted with cognitive emotion regulation strategies (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective) as dependent variables. Since Box's Test of Equality of Covariance Matrices was found significant, Pillai's Trace scores were used instead of Wilks' Lambda in the analysis as Tabachnick and Fidell (2006) suggest.

Results showed that there was a significant main effect of relationship status differences in cognitive emotion regulation strategies [F (18, 926) = 4.09, $p < .001$; Pillai's Trace = .15; partial η^2 = .074]. In order to find out differences of relationship status on cognitive emotion regulation strategies, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .006 (i.e., .05/9) were considered to be significant with this correction. According to this correction, a significant difference of relationship status was found in Self-Blame [F (2, 470) = 6.83, p = .001, partial η^2 = .028], Rumination [F (2, 470) = 6.95, p = .001, partial η^2 = .029], Acceptance [F (2, 470) = 9.89, $p < .001$, partial η^2 = .040], Positive Refocusing [F (2, 470) = 8.09, $p < .001$, partial η^2 = .033], Positive Reappraisal [F (2, 470) = 16.58, $p < .001$, partial η^2 = .066], and Putting into Perspective [F (2, 470) = 10.12, $p < .001$, partial η^2 = .041]. The Bonferroni post hoc analysis showed participants who are married (M = 11.32; M = 14.28; M = 12.25, respectively) scored significantly lower than those who are in a relationship (M = 12.43; M = 15.41; M = 13.22, respectively) or single (M = 12.35; M = 15.41; M = 13.47, respectively) at Self-Blame, Rumination, and Acceptance. Moreover, participants who are in a relationship (M = 10.14; M = 12.41; M = 11.72, respectively) scored significantly lower than those who are married (M = 11.77; M = 14.69; M = 13.44, respectively) at Positive Refocusing, Positive Reappraisal, and Putting into Perspective, but scores of participants who in a relationship (M = 12.41) were found to significantly differ from scores of singles (M = 14.14) at only Positive Reappraisal.

Table 37

Relationship Status Differences on Cognitive Emotion Regulation Strategies

	Relationship Status			Multivariate *F* (18, 926)	Univariate *F* (2,470)
	Single	**In a Relationship**	**Married**		
				4.09**	
Cognitive Emotion Regulation Strategies					
Self-Blame	12.35	12.43	11.32		6.83*
Blaming Others	10.69	10.23	10.18		1.53
Rumination	15.41	15.41	14.28		6.95*
Catastrophizing	10.32	10.98	9.85		3.43
Acceptance	13.47	13.22	12.25		9.89*
Refocus on Planning	15.22	14.69	15.45		2.51
Positive Refocusing	11.05	10.14	11.77		8.09*
Positive Reappraisal	14.14	12.41	14.69		16.58*
Putting into Perspective	12.74	11.72	13.44		10.12*

* p <.006 ** p <.01

Monthly income differences on cognitive emotion regulation strategies

MANOVA was conducted to examine differences of familial monthly income (Low/Middle and High) on cognitive emotion regulation strategies (i.e., Self-Blame, Blaming Others, Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective).

According to the results, income differences was found a significant main effect on cognitive emotion regulation strategies [F (9,463) = 1.99, p < .05; Wilks' Lambda = .96; partial η^2 = .99]. In order to find out psychological treatment differences on cognitive emotion regulation strategies, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .006 (i.e., .05/9) were considered to be significant

with this correction. Regarding income differences, a significant difference was found only in Catastrophizing [F (1, 471) = 10.47, p = .001, partial η^2 = .022]. Participants with low/middle income (M = 10.99) had higher scores in Catastrophizing than those with high income (M = 9.87).

Table 38

Monthly Income Differences on Cognitive Emotion Regulation Strategies

	Familial Monthly Income		**Multivariate F (9,463)**	**Univariate F (1,471)**
	Low/Middle	**High**		
			1.99**	
Cognitive Emotion Regulation Strategies				
Self-Blame	12.15	11.84		1.09
Blaming Others	10.39	10.36		.11
Rumination	15.12	14.86		.71
Catastrophizing	10.99	9.87		10.47*
Acceptance	13.09	12.82		1.03
Refocus on Planning	14.78	15.43		5.68
Positive Refocusing	11.04	11.15		.12
Positive Reappraisal	13.53	14.17		3.72
Putting into Perspective	12.36	13.02		4.55

* p <.006 ** p <.05

History of psychological treatment differences on cognitive emotion regulation strategies

MANOVA was conducted to examine differences of psychological treatment (Yes and No) on cognitive emotion regulation strategies (i.e., Self-Blame, Blaming Others,

Rumination, Catastrophizing, Acceptance, Refocus on Planning, Positive Refocusing, Positive Reappraisal, and Putting into Perspective).

According to the results, history of psychological treatment differences was found a significant main effect on cognitive emotion regulation strategies [F (9,463) = 6.23, p < .001; Wilks' Lambda = .89; partial η^2 = .108]. In order to find out psychological treatment differences on cognitive emotion regulation strategies, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .006 (i.e., .05/9) were considered to be significant with this correction. According to whether or not participants have taken a psychological treatment before, a significant difference was found in Self-Blame [F (1, 471) = 29.67, p < .001, partial η^2 = .059], Rumination [F (1, 471) = 9.88, p = .001, partial η^2 = .021], Catastrophizing [F (1, 471) = 28.49, p < .001, partial η^2 = .057], Acceptance [F (1, 471) = 10.03, p = .002, partial η^2 = .021], Positive Refocusing [F (1, 471) = 16.40, p < .001, partial η^2 = .034], Positive Reappraisal [F (1, 471) = 27.27, p < .001, partial η^2 = .055], and Putting into Perspective [F (1, 471) = 15.85, p < .001, partial η^2 = .033]. Participants who have taken a psychological treatment before (M = 12.82; M = 15.49; M = 11.30; M = 13.38, respectively) had higher scores than those who have not (M = 11.30; M = 14.56; M = 9.52; M = 12.58, respectively) at Self-Blame, Rumination, Catastrophizing, and Acceptance. However, participants who have taken a psychological treatment before (M = 10.38; M = 12.99; M = 12.09, respectively) had lower scores than those who have not (M = 11.67; M = 114.65; M = 13.28, respectively) at Positive Refocusing, Positive Reappraisal, and Putting into Perspective.

Table 39

History of Psychological Treatment Differences on Cognitive Emotion Regulation Strategies

	History of Psychological Treatment		Multivariate *F* (9,463)	Univariate *F* (1,471)
	Yes	**No**		
			6.23**	
Cognitive Emotion Regulation Strategies				
Self-Blame	12.82	11.30		29.67*
Blaming Others	10.61	10.20		2.14
Rumination	15.49	14.56		9.88*
Catastrophizing	11.30	9.52		28.49*
Acceptance	13.38	12.58		10.03*
Refocus on Planning	14.82	15.46		5.68
Positive Refocusing	10.38	11.67		16.40*
Positive Reappraisal	12.99	14.65		27.27*
Putting into Perspective	12.09	13.28		15.85*

* $p < .006$ ** $p < .01$

Appendix H. 4. Differences of demographic variables on mental health

In order to investigate differences of demographic variables in mental health (i.e., psychopathological symptoms, and satisfaction with life), Separate Multivariate Analyses of Variance was conducted.

Age differences on mental health

In order to examine age differences (emerging adulthood, and adulthood), MANOVA was conducted with mental health (i.e., psychopathological symptoms, and satisfaction with life) as dependent variables.

Results showed that there was a significant main effect of age differences in mental health [F (2, 470) = 25.61, p < .001; Wilks' Lambda = .90; partial η^2 = .098]. In order to find out gender differences on cognitive coping strategies, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. Accordingly, a significant difference of age was found in psychopathological symptoms [F (1, 471) = 39.90, p < .001, partial η^2 = .078], and satisfaction with life [F (1, 471) = 30.32, p < .001, partial η^2 = .060]. Emerging adults (M = 64.73) had higher scores at psychopathological symptoms than adults (M = 42.96), but adults (M =22.86) scored higher at satisfaction with life than emerging adults (M = 19.30).

Table 40

Age Differences on Mental Health

	Age		Multivariate F (2,470)	Univariate F (1,471)
	Emerging Adulthood	Adulthood		
Mental Health			25.61**	
Psychopathological Symptoms	64.73	42.96		39.90*
Satisfaction with Life	19.30	22.86		30.32*

* p <.025 ** p <.01

Education level differences on mental health

MANOVA was conducted with mental health (i.e., psychopathological symptoms, and satisfaction with life) as dependent variables to examine differences of education level (i.e., primary level, bachelor's degree, and Master's or Doctoral degree).

The results revealed that education level had a significant main effect on mental health [F (4, 938) = 4.26, p = .002; Wilks' Lambda = .96; partial η^2 = .018]. In order to find out differences of educational level on mental health, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. According to this correction, a significant difference of education level was found in psychopathological symptoms [F (2, 470) = 5.35, p = .005, partial η^2 = .022], and satisfaction with life [F (2, 470) = 4.73, p = .009, partial η^2 = .020]. The Bonferroni post hoc analysis showed participants who have a bachelor's degree (M = 59.78) scored significantly higher in Psychological Symptoms than those who have a master's or doctoral degree (M = 48.91), but participants with primary level (M = 44.71) did

not scored significantly differ from those either with a bachelor's degree or a master's/doctoral degree. Furthermore, at Life with Satisfaction scores of participants who have a bachelor's degree (M = 20.20) was found to significantly differ from those who have a master's or doctoral degree (M = 22.20) but, scores of those with primary level (M = 19.81) were found to not significantly differ from scores of those either with a bachelor's degree or a master's/doctoral degree.

Table 41

Education Level Differences on Mental Health

	Education Level			Multivariate F (4, 938)	Univariate F (2,470)
	Primary	Bachelor's Degree	Master's/ Doctorate Degree		
Mental Health				4.26**	
Psychopathological Symptoms	44.71	59.78	48.91		5.35*
Satisfaction with Life	19.81	20.20	22.20		4.73*

* p <.025 ** p <.01

Relationship status differences on mental health

In order to examine differences of relationship status (i.e., single, in a relationship, and married) MANOVA was conducted with mental health (i.e., psychopathological symptoms, and satisfaction with life) as dependent variables. Since Box's Test of Equality of Covariance Matrices was found significant, Pillai's Trace scores were used instead of Wilks' Lambda in the analysis as Tabachnick and Fidell (2006) suggest.

Results showed that there was a significant main effect of relationship status differences in mental health [F (4, 940) = 9.55, p < .001; Pillai's Trace = .078; partial η^2 = .039]. In order to find out differences of relationship status on mental health, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. According to this correction, a significant difference of relationship status was found in psychopathological symptoms [F (2, 470) = 14.99, p < .001, partial η^2 = .060], and satisfaction with life [F (2, 470) = 12.51, p < .001, partial η^2 = .051]. The Bonferroni post hoc analysis showed participants with married (M = 42.60) scored significantly lower than those who are single

(M = 62.00) or in a relationship (M = 62.20) in psychopathological symptoms. Moreover, scores of participants who are married (M = 23.01) were significantly higher than those who are either single (M = 19.70) or in a relationship (M = 19.66) in satisfaction with life.

Table 42

Relationship Status Differences on Mental Health

	Relationship Status			Multivariate F (4, 940)	Univariate F (2,470)
	Single	In a Relationship	Married		
Mental Health				9.55**	
Psychopathological Symptoms	62.00	62.20	42.60		14.99*
Satisfaction with Life	19.70	19.66	23.01		12.51*

* p <.025 ** p <.01

Monthly income differences on mental health

In order to examine differences of income (Low/Middle and High) MANOVA was conducted with mental health (i.e., psychopathological symptoms, and satisfaction with life) as dependent variables.

According to results, a significant main effect of income differences was found in mental health [F (2.470) = 23.12, p < .001; Wilks' Lambda = .91; partial η^2 = .090]. In order to find out income differences on mental health, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. Accordingly, a significant income difference was found in psychopathological symptoms [F (1, 471) = 18.15, p < .001, partial η^2 = .037], and satisfaction with life [F (1, 471) = 42.81, p < .001, partial η^2 = .083]. Participants with low or middle income (M = 63.94) scored higher than participants with high income (M = 48.51) at psychopathological symptoms. While, participants with low or middle income (M = 18.33) scored lower than participants with high income (M = 22.63) at satisfaction with life.

Table 43

Familial Monthly Income Differences on Mental Health

	Income		Multivariate *F*	Univariate
	Low/Middle	**High**	**(2,470)**	***F* (1,471)**
Mental Health			23.12**	
Psychopathological Symptoms	63.94	48.51		18.15*
Satisfaction with Life	18.33	22.63		42.81*

* $p < .025$ ** $p < .01$

History of psychological treatment differences on mental health

MANOVA was conducted to examine differences of psychological treatment (Yes and No) on mental health (i.e., psychopathological symptoms, and satisfaction with life) as dependent variables.

According to the results, history of psychological treatment differences was found a significant main effect on mental health [F (2,470) = 20.62, $p < .001$; Wilks' Lambda = .91; partial $\eta^2 = .081$]. In order to find out psychological treatment differences on mental health, univariate analyses were examined with Bonferroni adjustment. Thus, alpha levels lower than .025 (i.e., .05/2) were considered to be significant with this correction. According to whether or not participants have taken a psychological treatment before, a significant difference was found in both psychopathological symptoms [F (1, 471) = 38.00, $p < .001$, partial $\eta^2 = .075$], and satisfaction with life [F (1, 471) = 16.65, $p < .001$, partial $\eta^2 = .034$]. Participants who have taken a psychological treatment before (M = 66.53) had higher scores than those who have not (M = 45.08) at psychopathological symptoms. However, participants who have taken a psychological treatment before (M = 19.47) had lower scores than those who have not (M = 19.47) at satisfaction with life.

Table 44

History of Psychological Treatment Differences on Mental Health

	Psychological Treatment		Multivariate *F*	Univariate
	Yes	**No**	**(2,470)**	***F* (1,471)**
Mental Health			20.62**	
Psychopathological Symptoms	66.53	45.08		38.00*
Satisfaction with Life	19.47	22.16		16.65*

* $p < .025$ ** $p < .01$