CAN LOCUS OF CONTROL AND METACOGNITIVE BELIEFS PREDICT OCD SYMPTOMOLOGY; AN ANALYSIS WITHIN THE METACOGNITIVE MODEL

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ETHICAL DECLARATION

I hereby declare that I am the sole author of this thesis and that I have conducted my work in accordance with academic rules and ethical behaviour at every stage from the planning of the thesis to its defence. I confirm that I have cited all ideas, information and findings that are not specific to my study, as required by the code of ethical behaviour, and that all statements not cited are my own.

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Date: 10.01.2024

Signature:

ABSTRACT

CAN LOCUS OF CONTROL AND METACOGNITIVE BELIEFS PREDICT OCD SYMPTOMOLOGY; AN ANALYSIS WITHIN THE METACOGNITIVE MODEL

Keskinpala, Ecem

Master's Program in Clinical Psychology

Advisor: Asst. Prof. Dr. Yasemin Meral Öğütçü

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This study aimed to investigate the predictive roles of metacognitive beliefs and locus of control on obsessive-compulsive symptoms. 335 people between the ages of 18 and 76 participated. Demographic Form, Padua Inventory, Metacognitive Questionnaire-30, and Locus of Control Scale were used and conducted via Google Forms. Five different Stepwise Hierarchical Regression analyses were performed with metacognitive beliefs and locus of control as independent variables for each OCD symptom subtypes the dependent variable. The results revealed that while uncontrollability and danger, and need to control thoughts beliefs predicted all symptoms of OCD, positive beliefs predicted rumination, washing and urges. After the variability of these factors is controlled, external control predicted rumination, washing, checking and urges symptoms of OCD, and internal control only predicted rumination symptom. These findings contribute to our understanding of the complex structure of OCD in the context of metacognition and locus of control. This underscores the significance of metacognitive beliefs related to obsessive-compulsive symptoms, with external control playing a broader predictive role across various

symptoms compared to internal control, which predominantly influences rumination. This study provides valuable information about the specific dynamics underlying obsessive-compulsive symptoms. It provides implications for tailoring interventions to address the distinct metacognitive patterns and locus of control associated with each symptom subtypes. Further research is warranted to explore additional factors that may influence this complex relationship and to replicate these findings in diverse populations.

Keywords: Obsessive Compulsive Disorder, Metacognitive Beliefs, Locus of Control, External Control, Internal Control

ÖZET

KONTROL ODAĞI VE ÜSTBİLİŞSEL İNANÇLAR OKB SEMPTOMLARINI YORDAR MI; METABİLİŞSEL MODEL ÇERÇEVESİNDE BİR ANALİZ

Keskinpala, Ecem

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Bu çalışmada üstbilişsel inançların ve kontrol odağının obsesif kompulsif belirtiler üzerindeki yordayıcı rolünün araştırılması amaçlandı. Çalışmaya 18-76 yaş arası 335 kişi katıldı. Çalışmada Demografik Form, Padua Envanteri, Üstbiliş Ölçeği-30, Kontrol Odağı Ölçeği kullanılmış ve Google Formlar aracılığıyla uygulanmıştır. Her OKB semptomu için üstbilişsel inançlar ve kontrol odağının bağımsız değişkenler olduğu beş farklı Aşamalı Hiyerarşik Regresyon analizi yapılmıştır. Sonuçlar, kontrol edilemezlik ve tehlike ile düşünceleri kontrol etme ihtiyacı inançlarının OKB'nin tüm semptomlarını yordadığını, olumlu inançların ise ruminasyon, yıkama ve dürtüleri yordadığını ortaya çıkardı. Bu faktörlerin değişkenliği kontrol altına alındıktan sonra, dış kontrol OKB'nin ruminasyon, yıkama kontrol etme ve dürtüler semptomlarını yordarken, iç kontrol yalnızca ruminasyon belirtisini yordamıştır. Bu bulgular OKB'nin karmaşık yapısını üstbiliş ve kontrol odağı bağlamında anlamamıza katkıda bulunmaktadır. Sonuçlar obsesif-kompulsif semptomlarla ilgili üstbilişsel inançların öneminin altını çiziyor; dış kontrol, ağırlıklı olarak ruminasyonu etkileyen iç kontrole kıyasla OKB semptomları üzerinde daha geniş bir öngörücü rol oynuyor. Bu çalışma,

obsesif-kompulsif semptomların altında yatan spesifik dinamikler hakkında değerli bilgiler sağlar ve her semptom alt tipiyle ilişkili farklı üstbilişsel kalıplara ve kontrol odağına yönelik müdahalelerin uyarlanması konusunda çıkarımlar sağlar, Bu karmaşık ilişkiyi etkileyebilecek ek faktörleri araştırmak ve bu bulguları farklı popülasyonlarda tekrarlamak için daha fazla araştırmaya ihtiyaç vardır.

Anahtar Kelimeler: Obsesif kompolsif Bozukluk, Üstbilişsel İnançlar, Kontrol Odağı, İç Kontrol, Dış Kontrol.

Dedicated to my mom and dad…

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LIST OF ABBREVIATIONS

OCD: Obsessive-Compulsive Disorder

MCB: Metacognitive Beliefs

LOC: Locus of Control

PI: Padua Inventory

PADUA_TotalScore: Padua Inventory total score

Padua_Rumination: Padua Inventory Rumination subscale

PADUA_Washing: Padua Inventory washing subscale

PADUA_Checking: Padua Inventory control subscale

PADUA_Urges: Padua Inventory urges subscale

PADUA_Preciseness: Padua Inventory preciness subscale

MCQ30: Metacognition Questionnaire-30 total score

MCQ30_PosiBeliefs: Metacognition Questionnaire-30 positive beliefs subscale

MCQ30_CogConfidence: Metacognition Questionnaire-30 cognitive confidence subscale

MCQ30_Uncontrollability: Metacognition Questionnaire-30 uncontrollability and danger subscale

MCQ30_CogCons: Metacognition Questionnaire-30 cognitive self-consciousness subscale

MCQ30_NeedCont: Metacognition Questionnaire-30 need to control thoughts subscale

LOC: Locus of Control total score

LOC_PersCont: Locus of Control Personal Control subscale

LOC_ExternalCont: Locus of Control External Control subscale

CHAPTER 1: INTRODUCTION

Obsessive-compulsive disorder (OCD) is characterized by the presence of either obsessions, compulsions, or frequently both (APA, 2000). Obsessions are repetitive and enduring thoughts, urges, or images (Abramowitz et al., 2009). Distinguishing features of obsessions from everyday concerns include their intrusive nature and the significant anxiety they cause. Individuals recognize that these thoughts originate in their minds and attempt to alleviate the anxiety through alternative thoughts or actions, known as compulsions. Compulsions involve repetitive behaviors or mental processes undertaken to ease or prevent the anxiety triggered by obsessions (Abramowitz et al., 2009). The manifestations of obsessions and compulsions are diverse, encompassing concerns about contamination coupled with cleaning or washing, fears of causing harm to oneself or others associated with checking, intrusive aggressive or sexual thoughts linked to mental rituals, and concerns about symmetry connected with ordering or counting (Stein et al., 2019). Multiple cognitive models seek to elucidate OCD within the framework of the cognitive approach.

Findings about the distrust of memory, perception, attention, and decision ability and their relation to different pathologies bring about the need for a further explanation for OCD because, in this condition, cognitive abilities are intact. Still, functioning is compromised by maladaptive metacognitive processes (Ben Shachar et al., 2013). Metacognition is "thoughts about thoughts" relating to an individual's subjective understanding of their cognitive processes to address performance (Koren et al., 2006; Nelson and Narens, 1990, 1994). The metacognitive model of OCD accentuates beliefs about the importance, meaning, and power of thoughts. Additionally, the model focuses on the beliefs about the need to control thoughts and perform rituals (Wells, 1997, 2000; Wells and Matthews, 1994). Therefore, control is a concept frequently taken into consideration while explaining OCD.

Concern regarding the possible loss of control over thoughts and actions while maintaining the desire to control these through rituals can be utilized to understand obsessive-compulsive (OC) symptomology (Clark, 2004; Purdon and Clark, 2002). Locus of control (LOC) indicates if an individual's attribution is internal or external (Rotter, 1966). It relates to a person's perception of how controllable circumstances

are, not their supposed capacity to influence an event's results (Inozu et al., 2012). Discussing these concepts together might illuminate phenomena as diverse as OCD and its symptoms.

Metacognitive beliefs (MCB) predict OCD symptomology, but LOC's characteristic role, in addition to this relationship, is aimed to be discovered in this research. Although there is extensive research on metacognition and OCD (Fisher, 2009; Fisher and Wells, 2005; Gwilliam et al.,2004), and there is limited research on locus of control. Although control is frequently mentioned in the literature when evaluating OCD, locus of control is a relatively less studied concept in this context (Inozu et al., 2012; Karancı and Altın, 2004). The literature review concluded that there is yet to be any source on the concept of locus of control in the field of metacognition; the fact that these two concepts are studied together in the context of OCD is unique to this study. In the following, obsessive-compulsive symptomology, metacognitive beliefs and their relation to OCD, locus of control will be discussed, and these concepts will be introduced in detail.

1.1. Obsessive-Compulsive Disorder

In this chapter, the intricacies of Obsessive-Compulsive Disorder (OCD), a mental health condition, is explored. The chapter further explores the epidemiology and demography of OCD, investigating factors such as prevalence, gender variations, age of onset, and associated risk factors. It addresses the disorder's challenging course and persistent nature, examining symptom subtypes. The classification of OCD within the DSM-5, alterations in diagnostic criteria, and insight categories are discussed. The chapter concludes by emphasizing the importance of considering the diverse nature of OCD and its cognitive components for a comprehensive understanding related to the disorder.

OCD involves recurring and distressing obsessions, compulsions, or both, characterized by persistent thoughts, impulses, or images inducing anxiety. Compulsions are efforts to ease this distress (Abramowitz et al., 2009). OCD is associated with various distressing emotions, including guilt, shame, and embarrassment. However, the most recognizable conflicting emotions are fear and anxiety. Fear, being the fundamental emotion of anxiety, holds a pivotal position in the human psyche and experience, stemming from its adaptive and survival function

that signals threat and imminent danger (Barlow, 2002).In some circumstances, fear is not the result of probable or understandable events, but rather, it is related to one's thoughts or actions and events that are highly improbable, possibly impossible. The distress caused by intense emotions brings the need for relief, and individuals achieve this through performing rituals and habits seemingly unrelated to fear and anxiety source. However, a decrease in anxiety reinforces the association between obsessional fear and neutralizing response, which, as a result, creates a self-fulfilling cycle that is referred to as OCD (Clark, 2019).

Before the release of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association [APA], 2013), obsessive-compulsive disorder (OCD) was classified within anxiety disorders. However, in the most recent edition of the DSM-5, it is now placed under the category of "obsessive-compulsive related disorders." In this grouping, OCD is identified as a representative disorder, alongside other spectrum conditions like body dysmorphic disorder, hoarding disorder, trichotillomania, and excoriation disorder (commonly known as skin picking). Despite alterations in the diagnostic classification, the fundamental description of the disorder remains consistent: the presence of recurring obsessions or compulsions that significantly consume time and cause distress. Treating the disorder presents challenges due to the distinctive and persistent nature of obsessional fear. While obsessions and compulsions are unique to the disorder, they may also be observed to varying degrees as part of normal human functioning.

Obsessions are regarded as unwanted, unacceptable, and recurring intrusive thoughts, images, or urges that individuals find challenging to suppress or manage. Despite recognizing these mental intrusions' excessive or senseless nature, these thoughts cause distress (Rachman, 1985). The nature of these thoughts encompasses disturbing, offensive, and sometimes nonsensical themes associated with dirt, contamination, aggression, doubt, sexual acts, religion, or symmetry and precision. Compulsions are the associated components manifested as behaviors or mental acts, often accompanied by a compelling urge to perform the ritual (Rachman and Hodgson, 1980). The purpose of this intense urge becomes apparent through a decrease in voluntary control. Despite initial resistance, the individual eventually yields. The compulsive behaviors encompass activities like washing, checking, repetitive actions or utterances,

arranging, and mental rituals like repeating specific words, phrases, and prayers (APA, 2013). Subsequently, the DSM-5 criteria for OCD will be explored in the following section.

1.1.1.*DSM-5 Diagnosis of OCD*

Current diagnostic criteria for OCD according to the DSM-5 (American Psychological Association, 2013) is presented in the following table (Table 1).

Table 1. The Diagnostic Criteria for Obsessive Compulsive Disorder (Source: American Psychiatric Association, 2013).

A. Presence of obsessions, compulsions, or both:

Obsessions are defined by (1) and (2):

1. Recurrent and persistent thoughts, urges, or impulses that are experienced, at some time during the disturbance, as intrusive and unwanted, and that in most individuals cause marked anxiety or distress.

2. The individual attempts to ignore or suppress such thoughts, urges, or images, or to neutralize them with some other thought or action (i.e., by performing a compulsion).

Compulsions are defined by (1) and (2):

1. Repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly.

2. The behaviors or mental acts are aimed at preventing or reducing anxiety or distress, or preventing some dreaded event or situation; however, these behaviors or mental acts are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive.

Note: Young children may not be able to articulate the aims of these behaviors or mental acts.

B. The obsessions or compulsions are time-consuming (e.g., take more than 1 hour per day) or cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

C. The obsessive-compulsive symptoms are not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.

D. The disturbance is not better explained by the symptoms of another mental disorder (e.g., excessive worries, as in generalized anxiety disorder; preoccupation with appearance, as in body dysmorphic disorder; difficulty discarding or parting with possessions, as in hoarding disorder; hair pulling, as in trichotillomania [hair-pulling disorder]; skin picking, as in excoriation [skin-picking] disorder; stereotypies, as in stereotypic movement disorder; ritualized eating behavior, as in eating disorders; preoccupation with substances or gambling, as in substance-related and addictive disorders; preoccupation with having an illness, as in illness anxiety disorder; sexual urges or fantasies, as in paraphilic disorders; impulses, as in disruptive, impulse-control, and conduct disorders; guilty ruminations, as in major depressive disorder; thought insertion or delusional preoccupations, as in schizophrenia spectrum and other psychotic disorders; or repetitive patterns of behavior, as in autism spectrum disorder).

Specify if:

With good or fair insight: The individual recognizes that obsessive-compulsive disorder beliefs are definitely or probably not true or that they may or may not be true.

With poor insight: The individual thinks obsessive-compulsive disorder beliefs are probably true.

With absent insight/delusional beliefs: The individual is completely convinced that obsessive-compulsive disorder beliefs are true.

Specify if:

Tic-related: The individual has a current or past history of a tic disorder.

In the DSM-3 (APA, 1980), OCD was defined as an anxiety disorder. This classification was accepted considering the accentuation of threat-based obsessions, compulsions that can be viewed as anxiety reduction responses, and avoidance behavior, which are some qualities of OCD linked to anxiety disorders (e.g., Brown, 1998; de Silva, 1986).

While DSM-5 introduces a reclassification with a designated category named obsessive-compulsive related disorders, the alterations to the diagnostic criteria are minimal (see Abramowitz and Jacoby, 2014; Van Ameringen, Patterson, and Simpson, 2014). In DSM-5, the term "poor insight" is more thorough, and there are sub-categories of insight related to OCD. Individuals might have a "good or fair insight" regarding their obsessions and compulsions by considering them unrealistic. Second, they might have a significant perception that their beliefs regarding the obsessions are probably realistic, suggesting "poor insight." Finally, individuals with OCD might be convinced that their obsessional concerns are accurate, and this explains the third type of insight, which is "absent insight/delusional beliefs" (APA, 2013). This classification is an improvement, as the absence of insight is associated with poorer therapy outcomes. Also, this recognition prevents the misdiagnosis of OCD with schizophrenia (Abramowitz and Jacoby, 2014). An additional criterion, labeled "tic-related," is introduced to determine if the individual currently has or has had a tic disorder. This inclusion is essential as the coexistence of tic disorders presents distinct differences in symptoms, comorbidity, course, and family history compared to individuals with OCD without a history of tic-related disorder (APA, 2013).

There has been a debate about reclassifying OCD from anxiety disorders. Proponents argue that OCD shares symptomatic similarities with other spectrum-related disorders (Hollander, 1996) and has common neural circuitry, treatment response, and comorbidity rates within this new grouping (Phillips et al., 2010). However, opponents argue that focusing on compulsivity as the core feature overlooks the functional nature of compulsions and lacks specificity (Storch et al., 2008). Additionally, concerns are raised about inconsistencies in clinical courses, comorbidity rates, and neural circuitry between OCD and spectrum disorders (see Abramowitz and Jacoby, 2014; Stein et al., 2010; Storch et al., 2008). This argumentative approach suggests that while the reclassification has valid reasons, it may neglect the role of cognition and

metacognition in OCD's pathogenesis and hinder diverse perspectives on understanding the disorder. In the context of this study, it is important not to reduce OCD to compulsivity and consider its diverse nature.

1.1.1.Epidemiology and Demography

This segment of the research will delve into the epidemiology of OCD, examining factors such as the initiation, prevalence, gender variations, coexistence with other conditions, and the utilization of treatment.

Prevalence

Due to differences in methodology among epidemiological studies, lifetime prevalence assessments vary. The Epidemiologic Catchment Area (ECA) study, conducted based on DSM-III criteria, reported a lifetime prevalence of 2.5% (Karno et al., 1988). Subsequent studies, such as the National Comorbidity Study Replication (NCS-R), found similar results, indicating a lifetime prevalence of 2.3% (Ruscio et al., 2010). Discrepancies arise in 12-month prevalence estimates, with the NCS-R indicating 1.2%, and a separate German National Health Interview and Examination Survey reporting 0.7% (Adam et al., 2012). Despite these variations, it is reasonable to infer that OCD has a 1 to 2 percent lifetime prevalence in the general population.

Nonetheless, these findings pertain to individuals meeting the classical criteria for an OCD diagnosis. A more inclusive population exhibits subthreshold manifestations of OCD or presents with specific symptoms only. The NCS-R investigation found that 28.2% of people acknowledged having dealt with obsessions or compulsions at some stage in their lifetime (Ruscio et al., 2010). In the German research, the occurrence of subthreshold OCD in the past 12 months was identified at 4.5%, and a higher percentage, 8.5%, reported experiencing symptoms related to obsessive-compulsive behavior (Adam et al., 2012).The likelihood of developing a diagnosable case of OCD increases when obsessive-compulsive symptoms are present. This condition is also associated with a higher incidence of other mental disorders, more pronounced functional impairment, and increased utilization of healthcare services (Adam et al., 2012; Fryman et al., 2014; Ruscio et al., 2010). While these subclinical conditions may be perceived as less severe and disabling compared to diagnosed OCD, acknowledging them is crucial as they indicate that obsessions and compulsions contribute to a broader mental health burden beyond what prevalence rates suggest (Clark, 2019).

Gender, Age, Onset

Gender differences related to the prevalence of OCD vary across the studies done with different age groups. According to a systematic review article (Mathes et al., 2019) when examining the influence of gender, previous research involving child samples has predominantly observed a higher percentage of males with OCD (Mathis et al., 2011; Mancebo et al., 2008). However, studies on adult samples either report equal distributions (Fullana et al., 2009) or a higher proportion of females (Rasmussen and Eisen, 1990). Recent research continues to support these variations in both adults and adolescents. A Longitudinal cohort study done by Fineberg and colleagues in 2013 reported that the cumulative prevalence rates of OCD were 5.3% for females and 1.7% for males (Fineberg et al., 2013). Likewise, recent-month prevalence estimates for OCD were elevated among girls (4.9%) compared to boys (1.4%) in an adolescent sample (Vivan et al., 2014). Related to the symptom subtypes among adults, results of a cross-sectional study reported that women tend to experience concerns about contamination or feeling responsible for harm, while men are more likely to have blasphemous thoughts (Torresan et al., 2013). Recent research conducted in 2020 by Benatti and colleagues, examining symptom presentation, aligns with previous findings, indicating that females exhibited heightened levels of cleaning and washing compulsions compared to males. This is consistent with the outcomes of a study by Tükel and colleagues in the Turkish population, where contamination obsessions were significantly more prevalent in females, and aggressive and sexual obsessions were notably more common in males (Tükel et al., 2004). It's worth noting that, in contrast to these studies, recent research observed no gender-based variations in the dimensions of OCD symptoms in a community-based sample of adults (Raines et al., 2018).

OCD predominantly impacts young individuals, with the average age of onset reported as 19.5 in the NCS-R (Ruscio et al., 2010). The highest risk group is young adults between 18 and 24 years old. Initial onset after the age of 40 is reported by less than 5% of individuals with the condition. The majority, around 65%, experience OCD before the age of 25 (Rasmussen and Eisen, 1992; Rasmussen and Hodgson, 1980). Children and adolescents facing severe OCD often face an increased risk of a chronic prognosis, with many reporting onset during childhood or adolescence (Rettew et al.,

1992; Thomsen, 1995). Research indicates a potential decline in OCD rates with age (Karno and Golding, 1991; Ruscio et al., 2010).

The onset of the disorder varies widely, with some individuals experiencing a gradual development. However, an acute onset, triggered by significant life events such as the loss of a loved one, medical illness, or major financial problems, may be experienced by some individuals. (Black, 1974; Lensi et al., 1996; Rachman and Hodgson, 1980). The recent COVID-19 pandemic and the resulting quarantine considerably influenced physical well-being and mental health, affecting both clinical and general populations (Zaccari et al., 2021). Studies reveal that a surge in distress, worry, and fear has influenced responses to current situations, intensifying certain pre-existing mental health issues, notably OCD (Oosterhoff and Palmer, 2019; Shojaei and Masoumi, 2020). In this context, the health ramifications of the COVID-19 pandemic on OCD cannot be underestimated. The preventive actions taken to combat COVID-19, like frequent handwashing, maintaining elevated hygiene standards, and avoiding handshakes, could have induced psychological distress in individuals with OCD, leading to a subsequent escalation of their symptoms. The study reveals significant alterations in the overall intensity of obsessions and compulsions when comparing the pre-pandemic and post-pandemic periods (Davide et al., 2020). Specifically, in adults, there is evident clinical deterioration in obsessive-compulsive (OC) symptoms (Storch et al., 2021; Benatti et al., 2020; Kuckertz et al., 2019), a rise in contagion obsessions, and washing compulsions (Jelinek et al., 2021; Davide et al., 2020; Matsunaga et al., 2020). An increased need for psychiatric emergency services among OCD patients with substance abuse and a heightened frequency of psychiatric emergency consultations during the lockdown in OCD patients compared to the preceding year (Davide et al., 2020). During the pandemic, children and adolescents experienced a decline in mental health, particularly those with poor insight and obsessions featuring aggressive content, as indicated by research findings (Nissen et al., 2020). Moreover, another study that included individuals aged 6–18, incorporating those undergoing psychological treatment or cognitive behavioral therapy, demonstrated a significant increase in contamination obsessions and cleaning and washing compulsions during the pandemic (Tanir et al., 2020). Grasping these dynamics is essential to customize interventions and support systems that meet the specific requirements of individuals with OCD within the global context.

Risk Factors

Although factors such as birth complications, reproductive history, and stressful life events have been proposed as potential risk factors, systematic investigations have not identified a substantial correlation between the initiation of obsessive-compulsive disorder (OCD) and environmental risk factors (Brander et al., 2016). OCD is discussed to be a family-related disorder. The study determined that having a first-degree relative with OCD significantly elevates the likelihood of developing OCD, making it about 4-5 times more probable (Mataix-Cols et al., 2013; Taylor, 2013). Parental factors examined in a systematic review included concepts such as parental rearing, overprotection, parental care, and rejection; however, research done on these areas did not reach a consensus on whether they influence the evolution of the disorder. While this might indicate genetic factors, little research has been done using concordant twin studies, so it is expected to be an issue of confounding (Mataix-Cols, 2016). Family members who live with an individual with OCD are under much stress because they are somehow involved with the disorder, whether they are trying to prevent or cooperate with the rituals they witness. Usually, they make adjustments according to members with OCD, which increases family dysfunction (Calvocoressi et al., 1995).

The course of the disorder

The progression and result of the disorder are strongly linked to the timing of seeking treatment. Usually, individuals with OCD rarely pursue treatment, and this delay can range from 2 to 7 years (Lensi et al., 1996; Rasmussen and Tsuang, 1986). Those with less severe symptoms are less inclined to seek treatment (Ruscio et al., 2010), and seeking treatment is often more prevalent when there is a coexisting condition (Torres et al., 2006). A small proportion of people with OCD undergo specialized treatment for the disorder, potentially linked to the overlooked importance of disorder-specific interventions for OCD, among other factors (Pollard et al., 1989; Ruscio et al., 2010; Clark, 2019).

OCD has a persisting and constantly recurring nature, and symptoms increase and decrease over time (Skoog and Skoog,1999). The typical course of the disorder cannot be determined. Most OCD sufferers have a chronic, ongoing course of the condition.

Others have obsessive-compulsive symptoms that wax and wane intermittently in response to stressful life events (Demal et al., 1993; Lensi et al., 1996). It can be concluded that the onset of the disorder is early and implicit usually coincides with adolescence and symptoms are installed during stressful periods and simmer down during comparably stable intervals. This can go on for years until it reaches a point of intolerable symptom severity, and the individual finally seeks treatment (Clark, 2019). The upcoming section will delve into comorbid disorders associated with OCD and explore their respective comorbidity rates.

1.1.2.Comorbidity

Comorbidity is a prominent factor, often associated with heightened symptom severity, reduced treatment effectiveness, and a more challenging course of the disorder (Bronisch and Hecht, 1990; Brown and Barlow, 1992). OCD shows a significant comorbidity rate, with 50% to 75% of patients having an additional diagnosis (Antony et al., 1998; Brown et al., 2001; Karno and Golding, 1991; see Yaryura-Tobias et al.). In terms of lifetime comorbidity, OCD occurring in isolation constitutes less than 15% of cases (Brown et al., 2001; Crino and Andrews, 1996).

Although it is common for individuals with OCD to be diagnosed with depression or anxiety disorders, the reverse pattern is less prevalent. In other words, individuals with depression or anxiety disorders are less likely to receive an additional diagnosis of OCD. (Antony et al., 1998; Brown et al., 2001; Crino and Andrews, 1996). The sequence in which the disorders occur varies among disorders. In the case of comorbidity of anxiety disorders, these tend to occur prior to OCD, but in the case of depression, it follows the onset of the disorder (Brown et al., 2001). Having an obsessive episode increases the likelihood of accompanying depression, anxiety, eating, and tic disorders (Yaryura-Tobias et al., 2000).

Individuals with obsessive-compulsive disorder (OCD) often experience a low mood or concurrent depression. Additionally, they share similar concerns related to feelings of guilt, worthlessness, failure, and responsibility, resembling the characteristic features of depression (Van Oppen and Arntz, 1994). Major depressive episodes are prevalent among individuals with OCD, with rates ranging from 30 to 50% (Bellodi et al., 1992; Brown et al., 1993; Karno and Golding, 1991; Lensi et al., 1996). Recent epidemiological studies corroborate these initial findings, indicating that 25-50% of

individuals with OCD have either a current or past history of depressive disorders (Huang et al., 2014; Subramanian et al., 2012). The majority of research suggests that depression is the most common coexisting condition, followed by Generalized Anxiety Disorder (GAD) and substance use disorders. While there are conflicting findings on the chronological sequence of these disorders, the prevailing pattern suggests that OCD typically precedes the onset of depression (Demal et al., 1993; Rickelt et al., 2016; Subramanian et al., 2012).

The DSM-5 reclassification of the disorder has sparked heated debates over the association between OCD and anxiety disorders. Social anxiety disorder is identified as having the highest comorbidity rate with OCD (35-41%), followed by specific phobias (17-21%) initially. The status of panic disorder in relation to OCD is less definitive, as certain studies report moderately high rates of comorbidity (29%), while others suggest relatively low levels of co-occurrence (12%). The prevalence of co-occurring Generalized Anxiety Disorder (GAD) is not clearly established, varying from infrequent (7%) to somewhat less common (12-22%) based on different studies (Antony et al., 1998; Brown et al., 1993, 2001). Recent investigations indicate that social anxiety remains the most frequently observed comorbid disorder, with separation anxiety emerging as the second most prevalent comorbid anxiety disorder (Ruscio et al., 2010). Another study indicated that GAD has the highest comorbidity rate among anxiety disorders with OCD (31.4%), followed by panic disorder (22.1%), social anxiety (17.3%), and specific phobia (15.1%) (Torres et al., 2006).

1.1.3.Symptom Subtypes

OCD is diverse in content condition and constituted of various symptoms related to various forms of obsessive thoughts and compulsive behaviors. While the DSM-V description of OCD depicts a wide range of distinctive symptoms, clinicians have long noted that certain symptom types show limited responsiveness to specific treatments. This differentiation in treatment response, alongside symptom variety, brought about the proposition that there are subtypes of OCD. Various methods to identify different types of OCD were discovered to clarify possible differences in the treatment response and etiology of the disorder (McKay et al., 2004).

The existing literature on OCD subtypes primarily concentrates on overt symptom manifestations. Some of these classifications are rooted in factor analyses, seeking the latent structure of OCD symptomology, or cluster analyses, aiming to delineate distinct groupings based on symptoms. Early attempts to classify symptoms of obsessive-compulsive disorder (OCD) initially concentrated on compulsive behavior. Hoehn Saric and Barksdale (1983) proposed an "impulsive" vs. "non-impulsive" categorization, aiming to differentiate OCD patients with tics from those without. Rasmussen and Eisen (1991) introduced a classification into three groups: (a) improper risk assessment, (b) pathological doubt, and (c) incompleteness. While these conceptual approaches were intriguing, they lacked empirical validation until later, with the emergence of psychometrically validated tools. The Maudsley Obsessional Compulsive Inventory (MOCI), formulated by Hodgson and Ranchman (1977), identified three primary symptom dimensions through factor analysis: washing, checking, and doubting conscientiousness. Another widely employed self-report measure, the Compulsive Activity Checklist (CAC; Philpott, 1975), unveiled a two-factor solution: washing and cleanliness, and checking, as proposed by Freund, Steketee, and Foa (1987). The Padua Inventory (PI; Sanavio, 1988) marked a departure by considering obsessional phenomena, covering irrational, distasteful thoughts, and impermissible urges. Initial factor analyses uncovered dimensions such as becoming contaminated, checking behavior, and impaired control over mental activities. In subsequent analyses, an additional dimension, urges and loss of control over motor behavior, surfaced, not previously designated as a subtype. The revised edition of PI identified five factors: washing, checking, rumination, impulses, and precision (van Oppen, Hoekstra, and Emmelkamp, 1995). These early efforts to classify OCD symptom subtypes identified dimensions such as washing, doubting-checking, and obsessional phenomena, which have persisted in analyses of clinical and nonclinical samples.

Extensive research has been conducted on OCD symptoms, particularly contamination obsessions and the corresponding rituals of washing and cleaning (decontamination) (Ball et al., 1996). Additional investigations suggest that the washing subtype can be subcategorized into two groups: individuals who fear causing harm to others or being harmed through contamination and those who are troubled by specific substances without expressing concern about harm (Calamari et al., 2004; Feinstein et al., 2003).

The first set of individuals is frequently associated with obsessive beliefs related to the potential for illness or infection due to contamination. This may involve a sense of responsibility for transmitting contamination to others in certain circumstances. In order to avoid this believed threat, washing procedures are performed. The second group engaged in strong disgust reactions and performed decontamination on compulsions to relieve discomfort associated with being contaminated. As a result, they reported fewer obsessions (McKay and Tsao, 2005; Tsao and McKay, 2004).

Checking behaviors may be prompted by various obsessions, such as those related to harm, aggression, or sexuality (Feinstein et al., 2003). The fundamental purpose of obsessive-compulsive checking is to mitigate the discomfort linked to uncertainty or doubt regarding anticipated negative outcomes for oneself or others (Rachman, 2003). In some cases, checking is reinforced by concrete situations, for example, exiting the house, or tangible prompts like light switches; in certain examples, it is performed as a result of a sudden inner impulse or inclination (intrusive thoughts) and without premeditation or external stimulus. These thoughts are seen as threatening. This concept is strongly connected to thought-action fusion, where thinking about a negative event is believed to increase its likelihood of happening (Shafran et al., 1996). The diverse array of external and internal triggers leading to checking rituals underscores the importance of thorough cognitive assessment, case conceptualization, and personalized interventions for each individual (Sookman et al., 2005).

Obsessions without overt rituals are thought to affect about 25% of OCD sufferers (Frost and Steketee, 2002). This subdivision has commonly received little attention and was previously considered treatment-resistant (Rachman, 2003). Characteristics of this subgroup can be defined as beliefs about the significance of thoughts and the need to regulate painful or inappropriate intrusions (sexual, harmful, or religious thoughts) (Rachman, 2003). Neutralizing strategies are passive and active avoidance of the scenarios that trigger the distressing intrusions observed through covert rituals and acts such as repeating certain words, thought suppression, and manipulating “bad” thoughts to appear more positive. The function of these neutralizing acts is identical to overt symptoms as they both serve the main goal of reducing obsessional distress (Rachman, 2003). Performance of the covert rituals (neutralizing acts) is considered essential as they prevent dealing with intrusions, reduce anxiety, guilt, and feelings of

immorality, and reinforce mental control. Individuals might integrate the associated meaning of the intrusion on the self (Sookman and Pinard, 1999); therefore, gaining mental control over events is crucial while coping with the negatively perceived self. Lee and Kwon (2003) classified obsessions into two categories: autogenous and reactive. Autogenous obsessions lack identifiable external stimuli and are perceived as involuntary and guilt-inducing. In contrast, reactive obsessions are prompted by external stimuli and typically involve concerns about contamination, accidents, and the pursuit of perfection.

Although the initial aim of creating symptom-based subtypes was to develop a comprehensive understanding of the OCD phenomena, this method had limited utility. Although symptom-based grouping has its advantages, specific symptoms may have different underlying mechanisms. For example, performing washing compulsions might be to compensate for anxiety created by possible disasters or to reduce disgust. Thus, symptom-based subtypes might not be enough on their own. Discrepancies in factors like neuropsychological functioning or beliefs related to OCD may be linked to differences in OCD symptoms. Research from the Obsessive-Compulsive Cognitions Working Group (OCCWG) [OCCWG, 1997, 2001, 2003, 2005] indicates that the following cognitive domains are associated with obsessive fears and compulsive urges: perfectionism, overestimation of threat, intolerance of uncertainty, attaching excessive importance to thoughts, and the need to control intrusive thoughts and feelings of responsibility. In cognitive-behavioral theories of OCD, negative evaluations of intrusive thoughts and other OCD-related beliefs have grown in significance (Frost and Steketee, 2002). As a result, efforts have been made to comprehend the relationship between ideas and symptoms, to categorize people into different categories based on their beliefs and evaluations, and to create therapeutic procedures that specifically address these views.

The upcoming chapter will explore the belief domains of OCD and their connection to various symptoms. The importance of thoughts and thought control, initially explored in the cognitive approach to OCD, is also incorporated into the metacognitive approach. These beliefs are discussed in detail to enhance comprehension of the basis of metacognitive model and its connection to OCD.

1.2. *Belief Domains of OCD*

In exploring the origin and variations of OCD, cognitive theorists have proposed several domains of beliefs, encompassing responsibility (Salkovskis, 1985), the inclination to control thoughts (Clark and Purdon, 1993), the significance of thoughts (Rachman, 1997), perfectionism (Frost and Steketee, 1997), intolerance of uncertainty (Dugas et al., 2001), and threat overestimation (Carr, 1974).

These beliefs can be divided into two categories: metacognitive and cognitive. Cognitive beliefs are general or societal ideas, whereas meta-cognitive beliefs are about the meaning and control of thoughts (Myers et al., 2008). These different types of beliefs have been incorporated into cognitive and metacognitive models of OCD. They have common ground on the idea that explaining the meaning of intrusive thoughts is what enhances obsessive-compulsive problems (e.g., Shafran, 2005). Their differences mainly focus on what type of beliefs are important and whether the thought's content or function is considered to have an influence. The parts of these beliefs that are considered cognitive will be briefly discussed in the following.

In 1985, Salkovskis introduced a cognitive-behavioral theory of OCD, asserting that assessments of intrusive thoughts, especially those related to responsibility, were instrumental in driving obsessive behaviors. The idea that inflated prediction of the likelihood and consequences of danger is the central concept of OCD was created by Carr (1974). Subsequently, McFall and Wollersheim (1979) proposed that focusing on the appraisal of threat, rather than estimation, is crucial for comprehending OCD. The threat-based model aimed to integrate with Salkovskis' model by asserting that the impact of responsibility on OCD was contingent on the severity assessments of negative outcomes (Menzies et al., 2000). Regarding intolerance to uncertainty (e.g. Frost and Shows, 1993), it originates from concepts such as pathological doubt and memory deficits. People diagnosed with obsessive-compulsive disorder (OCD) frequently display excessive uncertainty concerning the characteristics of a stimulus, situation, or behavior, which can be explained as pathological doubt (Rasmussen and Eisen, 1989; Reed, 1985).

Regarding the need to control thoughts, Purdon and Clark (1999) emphasized the role of thought control in OCD by stating the significance of faulty beliefs about controlling one's thoughts and negative interpretations of the consequences of failing to control

intrusive thoughts. These faulty beliefs include the belief that every thought, especially negative ones, must be controlled, losing control over thoughts is equivalent to losing control over behavior and controlling thoughts is crucial for self-control. Such beliefs lead to heightened vigilance for intrusive thoughts and active resistance through suppression. According to the model, the emphasis on managing negative thoughts is underscored in both Salkovskis' and Rachman's frameworks. Attempts to suppress unwanted thoughts can paradoxically increase their frequency, as though suppression is often unsuccessful. Unsuccessful endeavors to control thoughts may result in increased efforts to regain control, reinforcing convictions about the importance of the thoughts and exacerbating mood. Additionally, failed attempts at thought control can instigate catastrophic beliefs regarding personal responsibility and the significance of the thoughts. Purdon (1999) proposed that individuals with OCD are more likely to use thought suppression in comparison to those with other anxiety disorders. This tendency is mainly attributed to the ego-dystonic nature of obsessions. Obsessive thoughts provoke stronger resistance and a compelling desire to suppress or exert control, in contrast to concerns, which are seen as more ego-syntonic and generate less resistance. In essence, the thought control model of OCD posits that distorted beliefs regarding the significance of controlling thoughts and negative expectations about the consequences of failure contribute to obsessional difficulties. Efforts to suppress intrusive thoughts paradoxically heighten their occurrence, reinforcing these beliefs and exacerbating mood disturbances. The unique ego-dystonic nature of obsessions leads individuals with OCD to engage in thought suppression more frequently than individuals with other anxiety disorders.

The significance of thoughts was deliberated within the framework of OCD, drawing inspiration from the contributions of Salkovskis (1985) and Clark (1986). Rachman (1997) presented a cognitive interpretation of obsessions, asserting that "obsessions arise from catastrophic misinterpretations of the significance of one's thoughts (images, impulses)." This suggests that obsessions persist as long as these misinterpretations persist and wane when the misunderstandings are reduced. These misinterpretations may involve any perception that the intrusive idea holds personal importance, disclosure, fearfulness, or even calamity. They are not just restricted to responsibility assessments. Rachman (1997) explained this misinterpretation as “transforming a commonplace nuisance into a torment” (Rachman,1997, p. 794). The

intrusive idea is typically interpreted negatively and projected onto the subject's self-being "bad, mad, or dangerous." Hence the over importance of thoughts belief domain was integrated into OCD phenomena. Examples, such as the idea that thoughts can trigger anxiety (Clark, 1986), feedback from patients stating that their obsessions carry significance (Freeston et al., 1993), and the existence of cognitive tendencies like thought-action fusion (TAF; Shafran et al., 1996), substantiate Ranchman's (1997) theory emphasizing the excessive significance of thoughts.

Wells and Matthews (1994) offered an explicit and completely metacognitive model of OCD, which Wells (1997, 2000) expanded upon. The metacognitive model emphasizes metacognitive views about the power and significance of ideas and the necessity to undertake rituals to control thoughts and avoid perceived danger. Wells (1997) argues that the primary predictor of obsessive-compulsive symptoms is metacognitions, and responsibility is a repercussion of these and has no added explanation to what is already available. Studies comparing the models have revealed that when intercorrelations and worry are controlled, metacognitions uniquely predicted OC symptoms but responsibility did not (Gwilliam et al., 2004; Myers and Wells, 2005). In the following section metacognitive model will be discussed in detail.

The following section will initially provide details about the metacognitive model, followed by a discussion of obsessive-compulsive disorder within the context of the metacognitive framework.

1.3.Metacognitive Model of OCD

The significance of metacognition in obsessive-compulsive disorder (OCD) has garnered growing attention. Metacognition pertains to the beliefs or understanding of cognitive processes and the strategies employed to monitor and regulate cognition (Flavell, 1979). Metacognition is the awareness, evaluation, and regulation of one's cognitive processes and beliefs about those cognitive processes (Wells, 1995). The metacognitive approach argues that the basis of psychopathology lies in the meanings attributed to these thoughts rather than the thoughts a person has (Wells and Purdon, 1999). Cognitive perspectives on how OCD forms and persists focus on beliefs about obsessions, such as an exaggerated sense of responsibility. These beliefs can be considered metacognitive, involving the cognitive assessment of a cognitive element. Clark and Purdon's (1993) ideas about cognitive control align with the suggestions of

the metacognitive model. However, these ideas weren't formally incorporated into a model in the literature until Wells introduced them. Wells' research, particularly on the metacognitive model of OCD (Wells, 1997), provides valuable insights. The metacognitive model relies on a few theoretical approaches, and understanding these approaches helps grasp the model's explanations for OCD.

Cognitive Attention Syndrome (CAS), the theoretical approach based on the metacognitive model, focuses on the person's increased attention to threat and self (Wells, 2011). CAS originates from positive beliefs about behaviors such as rumination, worrying, and danger monitoring and negative beliefs about the uncontrollability, danger, and meaning of thoughts (Wells and Matthews, 1994; 1996). Examples of positive beliefs include “Focusing on danger keeps me safe.”, “If I worry about my symptoms, I will not miss anything important.”, “If I analyze why I feel the way I do, I will find answers.” and “I must control my thoughts, or I will do something bad.” can be given. Negative beliefs can be as follows: “I have no control over my worries/ruminations.” “Worrying can harm my body.”, “Some thoughts can cause bad things to happen.”, “Thinking about something makes it real.”, “Feeling anxious.” means I must be in danger.” (Wells, 2011). The beliefs that form the source of CAS differ from those suggested by the cognitive-behavioral approach. These focus on the third theoretical approach, the metacognitive beliefs model. These are metacognitive beliefs about the meaning of thoughts, danger, attention, and control of thoughts (Wells, 2011). Such metacognitions affect the selection of dysfunctional coping strategies (Spada et al., 2008; Wells, 2011).

According to this, intrusive thoughts, a common experience for everyone, elicit metacognitive beliefs centered on the significance and impact of thoughts. Under the influence of metacognitions and CAS, individuals intensify their focus on intrusive thoughts, attributing greater importance to them and thereby heightening their perception of threat (Spada et al., 2008; Wells, 2011). This process leads individuals to misinterpret these thoughts rather than viewing them as passing ideas. Misinterpretations involve the belief that intrusive thoughts will manifest in reality sourced by “thought fusion beliefs”. Thought fusion beliefs intertwine reality with emotions and thoughts, categorized into three groups: Thought-action fusion, thought-

event fusion, and thought-object fusion. These beliefs, deemed causative in OCD development, contribute to heightened anxiety and distress (Wells, 1997; 2011).

Individuals may harbor metacognitive beliefs dictating the need to control intrusive thoughts, potentially giving rise to specific behaviors aimed at exerting that control (Wells, 2011). In response to emotions, intrusive thoughts, and perceived threats, individuals with OCD might adopt repetitive behaviors and neutralizing rituals (McNicol and Wells, 2012; Wells, 2011).
It is crucial to emphasize that, beyond metacognitive beliefs concerning thoughts and emotions, there are also beliefs about performing rituals, constituting the second essential element of the metacognitive model of OCD. Metacognitive beliefs about rituals primarily function to regulate the psychological distress resulting from thought fusion. Individuals may hold beliefs that performing rituals can alleviate anxiety and distress or prevent feared events or situations, thus reinforcing ritualistic behaviors (Wells, 2011).

In essence, the metacognitive model of OCD underscores the significance of two types of metacognitive understanding: beliefs concerning the importance or meaning of thoughts and feelings, and beliefs about engaging in rituals. All mechanisms within the metacognitive model of OCD operate cyclically. In this cycle, heightened distress, negative assessments, and maladaptive responses take precedence in the cognitive system (Wells, 1997). Consequently, the metacognitive model not only elucidates the onset of OCD but also elucidates its perpetuation. Metacognitive model of OCD is presented in Figure 1.

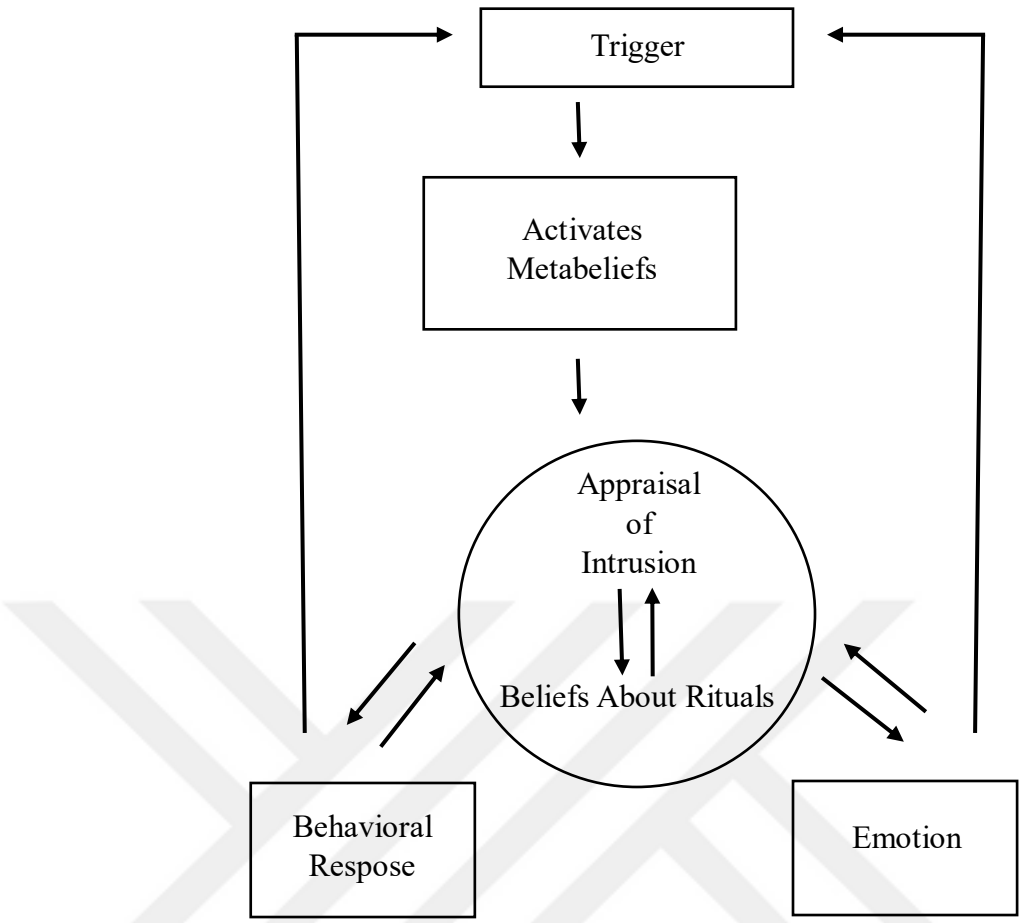

Figure 1. Metacognitive Model of OCD (Source: Wells, 1997)

1.3.1.Metacognitive Beliefs and OCD

General metacognitive beliefs can be summarized as positive beliefs about worry, which individuals perceive worrying as beneficial; negative beliefs about worry, which evaluates beliefs regarding the harmful effects of worrying on mental and physical well-being, as well as beliefs about the uncontrollability of worry; cognitive confidence, which measures individuals' lack of confidence in their own attention and memory abilities; beliefs about the need to control thoughts, which assesses negative beliefs about the consequences of not being able to control one's thoughts; and cognitive self-consciousness, which measures the inclination to focus attention on one's thought processes. (Cartwright-Hatton and Wells, 1997).

Drawing on prior research, a robust predictive association exists between metacognitive beliefs and OCD (Wells, 1994). Negative beliefs about worry emerged as the most influential predictor of OCD symptoms, followed by positive beliefs about worry and the necessity to control thoughts. In contrast, cognitive control and cognitive self-consciousness were noteworthy predictors in only a select number of studies

(Cartwright-Hatton and Wells, 1997; Cho et al., 2012; Irak and Tosun, 2008; Sica et al., 2007; Solem et al., 2009; Wells and Papageorgiou, 1998; Yilmaz et al., 2008). Wells and Papageorgiou's (1998) research outcomes revealed that, after accounting for commonalities between worry and obsessive-compulsive symptoms, distinct metacognitive factors contribute to various subtypes of obsessive-compulsive symptoms. Positive convictions concerning worry specifically correlated with checking behavior, while both positive and negative beliefs about uncontrollability were indicative of obsessive thoughts associated with harm. Health-related concerns autonomously influenced obsessive thoughts, and negative beliefs concerning danger and uncontrollability predicted washing compulsions. Concurrently, cognitive self-consciousness was associated with dressing and grooming compulsions. Related to the specificity of metacognitions to OCD, a study involving healthy participants aimed to explore the relevance of certain metacognitions to OCD. The findings indicated that the score for cognitive self-consciousness was higher in OCD patients compared to both anxious individuals and the control group (Janeck et al., 2003). Individuals with OCD exhibit significant negative beliefs about worry, which correlates with the intensity of obsessions (Moritz et al., 2010). This aspect is considered a potential target for therapeutic intervention. Another metacognitive dimension associated with OCD is cognitive confidence. A study by Hermans et al. (2008) demonstrated that individuals with OCD lack confidence in their cognitive functions, contributing to distrust in their perceptions, increasing doubts, and leading to negative evaluations of memory and attention efficiency. These mechanisms may contribute to the escalation of checking compulsions. Also, the pronounced need to control thoughts in OCD patients is identified by Solem et al. as a crucial factor reinforcing obsessive-compulsive symptoms.

The MCQ-30's subscale related to the desire to control thoughts emerged as a notable predictor, along with other commonly observed metacognitive factors, across various subtypes of obsessive-compulsive symptoms (Tosun and Irak, 2008). Specifically, positive beliefs about uncontrollability and danger, as well as the need to control thoughts, stood out as significant metacognitive predictors for the checking subscale. Similarly, for the washing and slowness subscales, the need to control thoughts, uncontrollability, and danger played crucial roles as metacognitive predictors. Moreover, the MCQ-30's uncontrollability and danger, cognitive self-consciousness,

and need to control thoughts subscales were identified as meaningful predictors for the doubting subscale. These findings underscore the idea that distinct metacognitive predictors are linked to various forms of obsessive-compulsive symptoms, while emphasizing the consistent importance of the desire to control thoughts as a shared factor (Tosun and Irak, 2008).

While the metacognitive model of obsessive-compulsive disorder (OCD) is intended to be distinct from cognitive models, it should be noted that traditional cognitive models also incorporate elements of metacognition to some degree. The notion of thought-action fusion (TAF) in the realm of beliefs was initially introduced by Rachman (1997, 1998) as part of his cognitive-behavioral model of obsessions and has been extensively examined in the context of obsessive issues (Berle and Starcevic, 2005). Additionally, the Obsessive-Compulsive Cognitions Working Group (OCCWG), an international research collective, has not only concentrated on non-metacognitive beliefs like perfectionism but has also incorporated the metacognitive element of the significance and control of thoughts within the cognitive model (Obsessive Compulsive Cognitions Working Group, 2005). The difference between the two conceptualizations, however, was from a metacognitive standpoint; both theoretical research and the practical application of theory revolve around understanding the functioning of the cognitive attentional syndrome in OCD. This perspective recognizes the various cognitive belief domains outlined in cognitive theories as elements of the patients' persistent thinking, which they employ to comprehend and manage their intrusive thoughts and emotions. Cognitive theories primarily emphasize the content of the appraisal, whereas metacognitive theory emphasizes the processes and knowledge that form the foundation of that negative appraisal. In essence, while cognitive theories focus on what is being appraised, metacognitive theory delves into the underlying processes and knowledge involved in that appraisal (Fisher, 2009). The main finding in the study of Solem et al. (2009) revealed that the change in the MCQ-30 (Metacognitions Questionnaire-30) accounted for a significant portion of the variability observed in obsessive-compulsive symptoms. Notably, changes in metacognitions demonstrated greater predictive power in determining symptom levels compared to changes in beliefs regarding responsibility and perfectionism. After accounting for the overlap between the predictors, it was

observed that only metacognition remained a significant factor in predicting the outcome.

Metacognition in the context of therapy varies across studies. In research, they measured metacognitions and responsibility beliefs compared to post-treatment outcomes of ERP. change in metacognition was a better predictor of the outcome levels than responsibility (Solem et al., 2009). However, the study was not conducted in a way that would imply a causal relationship. So, the authors concluded that maybe changes in the symptom levels impacted the metacognition level. This might be a good example to conclude the role of metacognition on treatment outcomes related to OCD. Also, there is growing research related to the effect of metacognitive therapy on OCD.

The following section will initially provide information about the concept of Locus of Control (LOC), followed by a discussion of obsessive-compulsive disorder within that context.

1.3.Locus of Control

Control plays a significant role in psychological functioning, as supported by both experimental and correlational research. Studies conducted throughout the lifespan, from infancy to old age, have consistently demonstrated that individuals' perceived control is associated with various favorable outcomes. These outcomes encompass diverse areas such as health, achievement, optimism, persistence, motivation, coping abilities, self-esteem, personal adjustment, and success and failure across different domains of life (Skinner, 1996).

Rotter's social learning theory (Rotter, 1954) posits that an individual's behavior is influenced by their expectations of reinforcement, the perceived value of that reinforcement, and their specific circumstances (Kormanik and Rocco, 2009). Rotter further developed the locus of control (LOC) construct, differentiating between internal (internality) and external (externality) control of reinforcement (Rotter, 1966). Internality reflects the belief that one's actions or enduring characteristics influence reinforcement, while externality suggests that reinforcement results from luck, fate, or external factors. Nevertheless, Frost and Clayson (1991), have construed the conceptualization of internality as mastery over an individual's surroundings. However, this interpretation appears flawed. For instance, while controlling whether

it will rain is beyond one's capacity (pertaining to the environment), managing how wet one gets in the downpour is within one's control (relating to the outcome). Bandura (1977) and subsequently Gurin and Brim (1984) have illuminated the correlation between internality and the environment, emphasizing that it entails "the person's estimate of the extent to which a particular behavior will lead to a desired outcome in a specific environment" (Gurin and Brim, 1984, p. 286).

As previously mentioned, the concept of locus of control involves differentiating between causes labeled "internal," which are connected to the individual, and causes termed "external," which are unrelated to the individual. Scholars have further broken down internal causes into actions (such as behaviors, responses, or efforts) and attributes (such as ability, personality, attractiveness, or genetic makeup) (Skinner, 1996). The category of actions can be more specifically subdivided into behavioral actions and cognitive actions (or thoughts) as potential avenues or methods of control (Averill, 1973; Bandura, 1989). External causes are categorized as those controlled by "powerful others" at various levels (such as task difficulty, the system, institutions, or society) and those perceived as beyond human control (including chance, luck, fate, God, nature, the cosmos, or unknown causes (Abeles, 1991; Connell, 1985; Levenson, 1973; Weisz, 1986).

Lefcourt (1976) presents an alternative perspective, introducing the concept of perceived control. This notion proposes that individuals can decrease the impact of predictable stressors, indicating a measure of control. In this context, perceived control entails a broader anticipation of possessing internal control over reinforcement. While the terms "LOC" (locus of control) and "SC" (sense of control) are often used interchangeably to describe one's perceived control over life events, Skinner (1996) highlights the fundamental conceptual distinctions between these two dimensions of control. Specifically, LOC pertains to the belief an individual holds regarding the controllability of situations, whereas SC encompasses both the belief in control over situations and the perceived ability to influence the outcomes of events. Although individuals with an external locus of control typically experience a diminished sense of control, it should not be assumed that those with an internal locus of control always have a heightened sense of control. Someone can believe that events are influenced by their abilities (internal locus of control) while simultaneously feeling that they lack the

necessary skills to exert control over those events (low sense of control). (Skinner, 1996, 2007)

Initially, researchers anticipated that beliefs regarding different categories of causes, distinguished by factors like internal versus external, would conform to a bipolar structure. However, contrary to these predictions, locus of control dimensions do not exist as mutually exclusive. Although it might appear reasonable for beliefs concerning the impact of internal causes (such as effort) and external causes (like powerful others) to create a singular bipolar dimension, they actually represent distinct dimensions. The perception of mutual exclusivity arises primarily in forced-choice questionnaires (Skinner, 1996).

1.3.1.Locus of Control and OCD

The confusion surrounding control is due to the presence of numerous terms, which has caused theoretical uncertainty. There are mixed approaches regarding the connections between different ideas, and even which ideas should be considered when studying control. Findings related to a particular concept under one designation are seldom integrated with findings related to the same concept under alternative designations. For example, even though locus of control and perceived non-contingency both pertain to beliefs about the connection between one's actions and outcomes, investigations on these concepts are infrequently consolidated in the same analysis (Lefcourt, 1980). Moreover, given the abundance of constructs, establishing the relative importance of specific perceptions for particular outcomes, domains, or age groups can be a complex task. For instance, while numerous studies have demonstrated the advantages of an internal LOC, certain studies propose that an external orientation could be beneficial during severe illness (Burish et al., 1984).

In recent years, there has been a growing emphasis on exploring the connection between the locus of control and self-reported mental health issues (Holder and Levi, 1988). A significant area of interest has focused on examining the connection between locus of control and psychological distress. Several studies have presented results supporting the notion that individuals in American society, attributing the control of events in their lives to external factors, tend to report higher levels of psychopathology and maladjustment compared to those who perceive themselves as having control over their own reinforcements. In other words, research findings have indicated a

significant association between an external locus of control and psychopathology (Hale and Cochran, 1986). The concept of locus of control has garnered specific attention in the realm of depression. It has been observed that individuals experiencing depression often hold the belief that events in their lives are governed by external factors. Research outcomes corroborate this observation, revealing a substantial and moderately strong connection between locus of control orientation and the severity of depression. Across various studies, a consistent finding is that an increased external locus of control is associated with heightened levels of depression (Ganellen, 1984; Burger, 1984; Benassi, Sweeney, and Dufour, 1988).

In obsessive-compulsive disorder (OCD), many typical symptoms can be viewed as a manifestation of an individual's anxiety about losing control over their thoughts and behaviors, coupled with a strong inclination to assert control through repetitive rituals. This perspective is supported by the research conducted by Clark (2004) and Purdon and Clark (2002). In the initial cognitive models of OCD (Carr, 1974; McFall and Wollersheim, 1979), compulsive behaviors were interpreted as efforts to regain a sense of control over undesirable outcomes. However, contemporary cognitive theories of OCD incorporate the concept of mental control, where individuals misinterpret ordinary thoughts as unacceptable or threatening. Clark's (2004) comprehensive cognitive model of OCD emphasizes the role of distorted assessments of mental control attempts in managing intrusive thoughts and the perceived negative consequences when control is perceived to fail. Despite the well-established adverse impacts of flawed thought control appraisals in OCD research, recent cognitive theories of OCD have largely neglected individuals' beliefs about the controllability of life events (Moulding and Kyrios, 2006).

Researchers were interested in studying the differences in locus of control between individuals who engage in checking behavior due to anxiety and those who don't. They speculated that locus of control, which refers to the belief in personal control over the environment, may influence the tendency to engage in checking as a way to control external threats. They proposed that individuals with a high internal locus of control, who feel they have more personal control, might be more inclined to engage in checking behavior even if it is dysfunctional. This could be seen as an active coping strategy. To examine this concept, Gershuny and Sher (1995) carried out a study.

However, their research did not reveal any noteworthy distinctions in locus of control between individuals who engage in checking behaviors and those who do not. Nevertheless, the findings did indicate that individuals with checking tendencies demonstrated elevated levels of perfectionism, worry, and doubt in comparison to other groups (anxious control and non-anxious control). The implication is that heightened perfectionism, worry, and doubt might prompt checkers to exert more control over perceived external threats through compulsive checking, aiming to alleviate and prevent these perceived threats.

Kennedy et al. (1998) conducted a study examining locus of control (LOC) across multiple clinical groups, encompassing individuals with depression, anxiety disorders, and a control group with no diagnosed conditions. The research revealed that there were no notable variations in internal LOC scores between the groups of patients and the control group. However, the group diagnosed with obsessive-compulsive disorder (OCD) exhibited the lowest scores indicating externality when compared to other patients with anxiety and depressive disorders in the study. The authors posit that individuals experiencing obsessive-compulsive disorder (OCD) acknowledge the significance of maintaining internal control. They propose that obsessions and rituals in OCD could function as ineffective strategies aimed at bolstering internal self-control and diminishing dependence on external sources of control. Altin and Karanci (2008) undertook a study involving a nonclinical group of Turkish adolescents, exploring the connection between locus of control (LOC) and the assessment of responsibility. Their findings indicated that while LOC didn't exhibit a direct correlation with obsessive-compulsive (OC) symptoms, it played a moderating role in the influence of responsibility assessments on OC symptoms, especially in relation to obsessive symptoms. The study's outcome inferred that the most elevated levels of obsessive-compulsive (OC) symptoms are linked to an inflated sense of responsibility and the perception that control over one's life is predominantly external. Inozu et al., (2012) conducted a study related to locus of control and OCD symptoms. Based on prior research, they anticipated an interaction effect between LOC and obsessive beliefs, particularly those related to importance of thought control. Additionally, the conjecture proposed that an increased tendency for controlling thoughts, along with an external locus of control (a diminished sense of control), would display a more pronounced connection with particular obsessive-compulsive (OC) symptoms like

checking and cleaning, as opposed to obsessional urges of harm. Results from the research unveiled that the interaction of locus of control (LOC) with the importance and control of beliefs anticipated the intensity of overall OC symptoms and checking symptoms, although with a modest yet noteworthy correlation.

1.5.Aim of This Study

OCD is a multifaceted and diverse disorder. Therefore, the theories produced to explain it include equally diverse and eclectic approaches. Although the literature on OCD has been reviewed in this chapter, the current study was not conducted on the clinical population, so from this point on, this concept will continue to be considered as the level of OC symptomology.

Despite the effectiveness of exposure and response prevention (ERP) in treating obsessive-compulsive disorder (OCD), certain clients do not experience the same benefits from this therapeutic intervention (Abramowitz, 1997; Williams et al., 2014). While there has been ongoing discussion about categorizing OCD into specific symptom dimensions, there is agreement that OCD exhibits distinct symptom patterns that generally align with broader dimensions. These dimensions typically respond similarly to both psychological and pharmacological treatments (see Roswell and Francis, 2015). Because of this reasoning, the DSM-5 hasn't formally classified subtypes for OCD. However, identifying symptoms within common dimensions is useful in guiding treatment approaches because therapeutic approaches must be customized based on the specific issues and requirements presented by the individual. For that reason, expanding on the conception of the disorder is crucial in the clinical setting.

While studies regarding the locus of control and OC symptomology done before did not include the metacognitive beliefs construct as a predictor variable, in addition, there is very little literature regarding the construct of locus of control within OC symptomology (Inozu et al., 2012; Karancı and Altın, 2004). Although studies incorporated different control beliefs and beliefs related to thought control in OCD, they did not incorporate LOC with its subscales, which are internal (personal) control and external control. Rather, studies incorporated only the overall LOC score and considered it as reflecting external control. The confusion surrounding certain ideas has negatively affected the research on control, both in theory, practice, and

experiments. By including dimensions of LOC in relation to metacognitive beliefs, confusion related to the description of control is aimed to be minimized in the current study. Another objective of the study is to investigate variations in the levels of metacognitive beliefs, locus of control, and obsessive-compulsive symptoms between females and males.

The heterogeneity of OCD is an important obstacle related to the treatment of OCD; therefore, new constructs such as locus of control and their incorporation into the conceptualization of the disorder might be beneficial. Doing this with metacognitive beliefs seems to be a comprehensive approach, as cognitive theories of OCD concentrate on what thoughts and beliefs are being evaluated, whereas metacognitive theory delves deeper into the underlying processes and knowledge that are involved in this evaluation (Fisher, 2009). Bringing these two different concepts together in a study may contribute to shedding more light on a heterogeneous concept such as OCD.

By investigating the MCB, LOC, and OC symptomology in a shared context, a new conceptualization of the disorder might be made, and a better understanding of the disorder can be incorporated into the literature. As a result, treatment of the disorder might be modified to generate better outcomes.

1.6.Hypotheses

Exploratory Analysis

The level of MCB, LOC, and OC symptoms will differ across females and males.

Main analysis

H1: Participants' level of OC symptoms will be positively correlated with the MCB levels.

H2: Participants' level of OC symptoms will be positively correlated with their level of external LOC.

H3: Participants' level of OC symptoms will be positively correlated with their level of decreased internal LOC.

H4: MCB will be significant predictors for OC rumination. External and internal LOC will significantly predict OC rumination after the variance caused by MCB is controlled (H4a).

H5: MCB will be significant predictors for OC washing. External and internal LOC will significantly predict OC washing after the variance caused by MCB is controlled (H5a).

H6: MCB will be significant predictors for OC checking. External and internal LOC will significantly predict OC checking after the variance caused by MCB is controlled (H6a).

H7: MCB will be significant predictors for OC urges. External and internal LOC will significantly predict OC urges after the variance caused by MCB is controlled (H7a).

H8: MCB will be significant predictors for OC preciseness. External and internal LOC will significantly predict OC preciseness after the variance caused by MCB is controlled (H8a).

CHAPTER 2: METHOD

In the following chapter, participant characteristics will be described, and measurements used in the present study will be presented. Then the procedure and statistical analysis used in the present study will be explained.

2.1. Participants

In this research, data collection exclusively took place through online means. The participants were selected using a convenience sampling method, with a total of 335 individuals aged 18 and above recruited for participation. The study employed a convenient sampling method for participant selection. The data consists of 197 female (58.8 %), 137 male (40.9 %), and 1(0.3%) non-binary participant. Non-binary participant's data was excluded from the study in the t-test analyses done based on gender. Related to the level of education, 6 participants graduated from elementary school (1.8 %); 3 participants graduated from middle school (0.9 %); 83 participants graduated from high school (24.8 %). 181 participants had a bachelor's degree (54 %); 42 participants had a master's degree (12.5 %); 20 participants had a Ph.D. (6%). Regarding the socioeconomic status of the sample, 21 (6.3%) participants stated their level of income as low, 65 (19.4) as lower-middle, 180 (53.7%) as middle, 64 (19.1) as higher-middle and 5 (1.5%) as high. When the marital status of the participants is examined 108 (32.2 %) participants are single, 44 (13.1 %) participants are not married but, in a relationship, 163 (48.7 %) participants are married, 12 (3.6 %) participants are divorced/separated, 8 (2.4 %) participants lost their spouse. Out of 335 participants, 105 (31.3%) of them stated that they got psychological help in the past or are still getting psychological help however 230 (68.7%) of them did not seek psychological help in the past, in addition to this 38 (11.3%) participants stated to have a psychiatric diagnosis. The ages of the participants ranged from 18 to 76 (M = 39.89, SD = 17.14). The mean age of female participants is 41.67 (SD = 16.16) and for males it is 37.45 (SD = 18.24). Demographic descriptives of the sample can be viewed in Table 2 and Table 3.

Table 2. The Demographics of the Participants

Variables	Levels	*N*	%
Gender	Female	197	58.8

	Male	137	40.9
	Non-binary	1	0.3
Education Status	Elementary School	6	1.8
	Middle School	3	0.9
	High School	83	24.8
	University	181	54
	Postgraduate	42	12.5
	Doctorate	20	6
Socioeconomic Status	Low	21	6.3
	Lower middle	65	19.4
	Middle	180	53.7
	Higher middle	64	19.1
	High	5	1.5
Marital Status	Single	108	32.2
	In a relationship	44	13.1
	Married	163	48.7
	Widow	8	2.4
	Divorced	12	3.6
Psychiatric Diagnosis	Yes	38	11.3
	No	297	88.7
Previous Psychological Help	Yes	105	31.3
	No	230	68.7

Table 3. Descriptive Statistics of Age

	Female		Male		Non-binary
	M	*SD*	*M*	*SD*	*M*
Age	41.67	16.16	37.45	18.25	25

2.2. Measurements

In the following, measurement tools used in the present study will be presented. To collect data, three scales and a demographic form are used. At the very beginning of the data collection process, an Informed Consent was presented to participants. After

signing the informed consent (Appendix B), participants filled out the demographic information form (Appendix C), Padua Inventory (Appendix D), Metacognition Questionnaire (Appendix E), and Locus of Control Scale (Appendix F), respectively. Details related to the properties of these scales are separately explained below.

2.2.1. Demographic Information Form

The demographic information form was developed by the researcher to obtain information related to the sociodemographic qualities of the sample such as age, vocation, education, and income status. Furthermore, questions about if they had any prior psychiatric diagnosis or sought any psychological help at any point in their life were asked in this part as this information is necessary and could interfere with the results of the study (see appendix C).

2.2.2. Padua Inventory

To be able to measure the type and severity of the obsessive-compulsive symptoms Padua Inventory (PI) was administered to the participants (Appendix D). This scale is originally developed by Sanavio (1988) and it was adapted to the Turkish population by Beşiroğlu et al (2005). It is a self-report questionnaire, containing 41, 5-point likert type questions. The degree of disturbance for each item is graded on a scale of 0 to 4, with 0 indicating that the item is not at all troubling and 4 indicating that it is extremely distressing. The total score that can be acquired from the scale varies between 0 and 164 points and expresses the degree of discomfort caused by obsessive-compulsive symptoms.

This scale, initially devised by Sanavio (1988) and subsequently refined by Van Oppen et al. (1992) to its present version, has its origins in studies involving both ordinary individuals and those with neuroses and obsessive-compulsive disorders. A factor analysis of data from 967 healthy adults yielded a four-component solution: (1) impaired control over mental activities; (2) contamination; (3) checking behaviors; and (4) impulses and concerns about losing control over motor behavior (Sanavio, 1988). Preceding the PI, self-report scales focusing on obsessive-compulsive symptoms adequately gauged various checking and contamination compulsions. However, the PI offers the advantage of two additional obsessional scales beyond the conventional checking and contamination subscales (Burns et al., 1996). The first obsessional factor, termed impaired control over mental activities, encompasses queries about the struggle

to halt distressing thoughts and ruminations. The second obsessional factor involves urges and concerns about losing control over motor behavior, encompassing fears of impulsive thoughts of a sexual or violent nature translating into actions. The two compulsive factors remain as washing and checking, aligning with prior research, originating from concerns about becoming contaminated and the fear of failing to prevent or cause harm (Abramowitz, 2009). The PI stands out as an instrument that extends the exploration of obsessive-compulsive symptomology in both clinical and non-clinical samples. Notably, it includes robust obsessional dimensions distinct from compulsive dimensions (Sternberger and Burns, 1990).

A problem was discovered related to the obsessional subscales of PI. These subscales rather than measuring only obsessions also measured worry (Freeston et al., 1994). Revision done by Van Oppen, Hoekstra, and Emmelkamp (1995), demonstrated to have a robust factor structure across samples of OCD patients, patients with other anxiety disorders, and normal subjects. According to evidence for the PI-R's construct validity, it has been demonstrated that obsessive-compulsives can be distinguished from panic patients, social phobics, and normal people (Van Oppen et al., 1995). As a result of this revision short form of the scale includes items that are more specific to obsessive-compulsive symptomology. The short form consists of 5-factor structures. Except for the 19 questions removed and a sub-factor added, the factor structure is mostly suitable for the original scale (Van Oppen, 1992). The 5-factor solution can be interpreted as (I) impulses (8 items), (II) washing (10 items), (III) checking (8 items), (IV) rumination (11 items), and (V) precision (6 items). This study's "precision" component is a novel, undiscovered dimension. The scale was found to have high test-retest reliability (r=0.79-0.83). The total scale and other subscales had high internal consistency, ranging between .81-.94, except for the impulses subscale, which ranged between .57-.77 for different samples (Van Oppen et al., 1995). The impulses subscale had variable internal consistency in separate studies (Sanavio, 1988; Sternberger and Burns, 1990; Kyrios et al., 1996; Macdonald and Silva, 1999; Goodarzi and Firoozabadi, 2005).

It was adapted to the Turkish population by Beşiroğlu et al. (2005). As a result of Exploratory Factor Analysis, Principal Components Method, and Varimax transformation, 6-factor structures were obtained that explained 62% of the total variance. While item 45 was included in the impulses subscale in the original form, it

was included in the rumination subscale in the adaptation. The precision subscale consisting of 6 items in the PE short form was divided into two-factor structures consisting of three questions each. Initially, these factorial constructs were named counting and repetitive behaviors. The Cronbach's alpha coefficient of the internal consistency of the total and subscales of the scale is .95. Internal consistency for the rumination subscale is .92, for the washing subscale it is .88, for the checking subscale it is .91, and for the precision subscale it is .80. The impulse subscale has the lowest internal consistency which is .79. The values of the other subscales and the impulse subscale are also considered quite reliable. As a result of the statistical analysis for the test-retest reliability of the scale, the correlation coefficients between the item scores obtained in two different periods ranged from .59 to.84 The test-retest reliability coefficient of the total scale is reported to be .91. Statistically significant high correlation coefficients (r= 0.81-0.92, p < .001) were obtained for the form in all domains (Beşiroğlu et al., 2005).

The Cronbach's alpha level in the present study was .95. For the subscales the Cronbach alpha values were found to range from .79 to .94 (.94 for rumination, .89 for washing, .91 for checking, .79 for urges, and .81 for precision).

2.2.3. Metacognitive Beliefs Questionnaire

To measure metacognitive beliefs which can be described as processes that evaluate, control, and organize the content of the cognitions, Metacognition Questionnaire-30 (MCQ-30) was administered (Appendix E). The original of Metacognitions Questionnaire was developed by Cartwright-Hatton and Wells (1997) and it was adapted to the Turkish population by Tosun and Irak (2008).MCQ-30 contains a 4-point likert type, 30 questions with 5 subscales. The points on the scale were defined as follows: 1 (do not agree), 2 (agree slightly), 3 (agree moderately), and 4 (agree very much). The total score is 120 and a high score on the MCQ-30 implies a high level of dysfunctional or unfavorable metacognitive beliefs.

The questionnaire assesses domains of positive and negative metacognitive attitudes, metacognitive monitoring, and judgments of cognitive confidence, which includes five interrelated but conceptually separate components. The five subscales are (1) positive beliefs about worry, (2) negative beliefs about uncontrollable and dangerous thoughts, (3) cognitive confidence (measuring trust in attention and memory), (4) negative

beliefs about consequences of not controlling thoughts, and (5) cognitive self-consciousness (the tendency to concentrate attention on thought processes). The alpha reliability values of the five subscales range from .72 to .89 (Cartwright-Hatton and Wells, 1997).

The original version 65-item Metacognitions Questionnaire was developed by Cartwright-Hatton and Wells (1997). In 2004, Wells and Cartwright-Hatton created an adaptation of the scale, the MCQ-30. The adaptation was done by selecting six items representative of each five sub-factors in the original MCQ, which resulted in a thirty-item version. The highest-loading items were selected from each subscale, if the meaning of the items was questioned by the participants they were not included. (Wells and Cartwright-Hatton, 2004).

The scale's overall Alpha value is.93, while the factors' Alpha values range from .72 to .93. All the inter-subscale correlations were significant, and they were consistent with those found in the long version of the MCQ-30. The construct validity comparator fit index (CFI) is .90, which denotes a good fit of the constructed model. On the other hand, the structure testing analysis's root mean square residual (RMSR), is .04. As this coefficient falls below .05, a good model fit is indicated. When MCQ-30 was compared to trait anxiety, obsessive-compulsive symptoms, and pathological worry for convergent validity, MCQ-30 significantly correlated with each of these three measures (Wells and Cartwright-Hatton 2004).

The scale is adapted to Turkish by Tosun and Irak (2008). The MCQ-30's inter-item correlations were similar to the original form and varied from .09 to 76. The entire scale and the subscales for the Turkish version's test-retest reliability ranged from.40 to 94 for scale items and.70 to .85 for subscales, respectively. For the complete scale, the Cronbach Alpha coefficient was .86, which indicated good internal consistency. The MCQ-30 has appropriate psychometric qualities in a Turkish sample, per the reliability and validity analyses of the scale's Turkish translation. The Turkish version of the scale included five components, which matched the original version's factor structure, according to an exploratory factor analysis, which also revealed that the scale is consistent with the original form. Additionally, fit indices from confirmatory factor analysis indicated a good match to a five-component model in line with the initial MCQ-30 (Tosun and Irak, 2008).

The Cronbach's alpha level in the present study was found as .91.The Cronbach alpha levels for positive beliefs about worry is found to be .84, for cognitive confidence it is .88, for negative beliefs about uncontrollable and dangerous thoughts it is .83, for cognitive self-consciousness it is .72, for negative beliefs about consequences of not controlling thoughts it is .73.

2.2.4. Locus of Control

The Locus of Control Scale (LCS) was administered to the participants (appendix F). It was originally developed by Rotter (1966) and this original scale was first adapted for the Turkish population by Dağ (1991) and in a later study developed by Dağ (2002).

This scale aims to measure if individuals attribute the results of their actions to internal or external factors. The scale was developed by expectation theory and as a concept it aims to describe specific attribution patterns based on the results of actions and their reinforcements. LCS contains 47 questions which are 5-point likert scale 1 stands for "totally inappropriate", whereas 5 stands for "totally appropriate". 25 items of the scale are scored straight, and 22 items are scored in reverse. The questions consist of 5 subscales one of these subscales is positioned under the concept of internal locus of control and 4 of them are positioned under the concept of external control. All the items under the personal control/internal locus of control subscale are coded in reverse. Lower scores reflect an internal locus of control, whereas higher levels indicate an external locus of control. The possible score range is between 47 and 235.

The original scale named Rotter's Internal and External Locus of Control Scale (Rotter, 1966) had 29 items and the statement responses consisted of only two choices. Thus, the scale scores vary between 0 and 23, and a rising score indicates an increase in belief in the external control. The Cronbach Alpha coefficients for this version of the scale were found to be between the values of .65 and .79 and test-retest reliability values were found to be between .49 and .83 (Rotter, 1966).

The first adaptation to the Turkish population was done by Dag in 1991 with the same format as the original. Cronbach Alpha coefficient of the scale was found to be a=.70 and the test-retest reliability coefficient was r=.83 for this scale. In this research, factor analysis showed 7 sub-dimensions and these factors, which can explain 47.7% of the total variance. (Dag, 1991).

In the most recent adaptation study done by Dağ aim was to create a simple and meaningful scale that describes the concept of Locus of Control comprehensively. Dichotomy regarding the answers of the scale brought a complaint from the samples based on none of the two items being suitable for them. Therefore, the scale is updated to a 5-point likert form. Apart from that factor analyses of the original scale were found to be very complicated in the adaptation study done by Dağ (1991). Thus, while creating the latest adaptation scale expression pool of 80 items, they were selected from scales previously developed for measuring the concept of Locus of Control. 42 out of 46 items from the Rotter's Internal and External Locus of Control Scale's Turkish adaptation (Dağ, 1991a; Rotter, 1966) have been chosen, and other 38 items that were not in the Rotter's scale were selected from various Locus of Control related scales. The scale has two unique items that the researcher created based on his own experiences. This expression pool of 80 items is given to 272 University students with the data collected an item analysis was conducted to determine which items were statistically functional from the 80-item scale. For each item of the scale, item-total correlations were calculated with the item dropout technique. Items that could not distinguish the upper and lower-end groups from each other significantly were eliminated. Thus, 47 items were kept in the scale in the scale. The scores obtained in the original 80-item scale for these 47 items were taken into factor analysis. In this analysis, it was revealed that there were 13 factors with an eigenvalue above 1 explaining 60.8% of the total variance. However, by taking the first 5 of these factors (explaining 40.1% of the total variance), it was decided that the remaining majority were non-significant technical factors. According to this analysis, LCS consisted of five factors: (I) to believe in internal control or personal control (18-items), (II) to believe in luck (11-items), (III) meaninglessness to strive (10-items), (IV) fatalism (3-items), (V) belief in an unfaithful world (5-items).

Cronbach's alpha =.92 was found to be the internal consistency coefficient for the latest adaptation (Dag, 2002). Which is higher than the internal consistency of the first adaptation study done by Dağ (1991) a = .70. Indeed, the Likert format is expected to produce a more reliable scale than a format that forces answers with two options (Gorsuch, 1997). Considering that the scores of the dimension formed by each factor can be calculated as if it were a subscale. The alpha coefficients of the "to believe in internal control or personal control", "to believe in luck", "meaninglessness to strive",

"fatalism", and "belief in an unfaithful word" subscales were found to be .87, .79, .76, .74, .61 respectively. The test-retest reliability coefficient of the scale is Pearson's r = .88 (sd = 89; p < .0001). The test-retest reliability coefficients of the subscales of the scale were found as .83, .81, .61, .89, and .74, respectively (Dağ, 2002).

According to the findings of the convergent validity research, the LCS significantly correlated with the Rotter's I-E scale (Dağ, 1991a; Rotter, 1966) (r=.67), Rosenbaum's Learned Resourcefulness Schedule (Dağ, 1991c; Rosenbaum, 1980) (r=-.39), the Symptom Check List (SCL-90-R) (Dağ, 1991b; Derogatis, 1977) (r=.25), and the Paranormal Beliefs Scale (Dağ, 1999; Tobacyk ve Milford, 1983; Tobacyk, 1988) (r=.46). These findings concluded that LCS was a trustworthy and appropriate measurement for Turkish university students.

The Cronbach's alpha level in the present study was found as .88 for the total scale. It is .89 for personal control which stands for internal locus of control and for external locus of control which consists of luck, meaningless to strive, fatalism, and unfaithful world subscales Cronbach alpha coefficient is .82.

2.3. Procedure

At the outset, the current study obtained ethical approval from the Ethics Committees of İzmir University of Economics (Appendix A). Participants consisted of people aged above 18 who were proficient in the Turkish language as native speakers and had access to the online forms created and shared by the researcher through social media and other online resources such as WhatsApp, Instagram, Twitter, and mail lists. The research was conducted through Google Forms and the study was conducted on a completely voluntary basis.

Initially, eligible participants began by reviewing the Informed Consent document, containing details about the researchers, the study's objectives, and general process information. Subsequently, they provided their voluntary consent and were able to proceed in that regard. (Appendix B). Afterward, participants proceeded with the study, completing the Demographic Form, Padua Inventory, Metacognition Questionnaire-30, and Locus of Control Scale in that order. Overall, the entire study took participants approximately 10-15 minutes to complete and each question that belonged to the scales was programmed to be "necessary" to ensure the research's integrity and avoid missing data.

2.4. Analyses

The data obtained from the participants are analyzed through the statistical analyses were conducted using version 21 of the Statistical Package for Social Sciences (SPSS) program. Various statistical methods are used to test the research hypothesis. Preliminary analyses involved calculating descriptive statistics, assessing normality for continuous variables, and conducting reliability analyses for the scales. Before any analyses Kolmogorov-Smirnov test is used to analyze the data distribution with skewness and kurtosis coefficients and the results determined the use of parametric and non-parametric tests. In this study, all skewness and kurtosis values fell within the range of (-1.50) to (+1.50), which are considered critical values for normality testing according to Tabachnick and Fidell (2007). Cronbach's alpha values for all scales were compared with the original studies, confirming that the reliability scores in this study aligned with those reported in the original research.

To assess gender-based group differences, an independent samples t-test analysis was utilized. Additionally, Pearson correlation analyses were carried out to investigate the associations among the study variables, including obsessive-compulsive symptoms (OC-symptoms), metacognitive beliefs (MCB), locus of control (LOC) dimensions, and age.

For the main analysis, Multiple Hierarchical Regression Analysis (Stepwise) was conducted between MCB, LOC, and obsessive-compulsive symptom variables. This was done to examine the predictive power of MCB and LOC on OC symptoms. Five different analyses were conducted for each symptom. In the first step of the hierarchical method, the subscales of MCB were included in the analysis. In the second step, the subscales of the LOC scale were included in the analysis as internal and external LOC by using the stepwise method.

CHAPTER 3: RESULTS

The results of this study will be presented in two stages. In the first phase, descriptive qualities will be presented such as the Mean (M), standard deviation (SD), maximum (Max), and minimum (Min) values of the variables. In the second phase, the exploratory and main hypotheses will be tested; therefore, they will contain group differences, Pearson correlation analysis, and hierarchical regression analysis.

3.1. Descriptive Statistics

To obtain descriptive statistics, the mean, standard deviation, maximum, and minimum scores were calculated for age, all scales, and their subscales, and they are presented in Table 4

Table 4. Descriptive Statistics of the Measures (N=335)

Variable Name	*SD*	*M*	*Range*
Age	17.14	39.89	18-76
PADUA	28.35	46.45	0-141
PADUA_Rumination	10.52	13.76	0-44
PADUA_Washing	8.46	14.18	0-39
PADUA_Checking	7.48	10.35	0-31
PADUA_Urges	4.50	3.91	0-21
PADUA_Preciseness	4.37	3.91	0-23
MCQ30	15.50	64.38	30-110
MCQ30_PosiBeliefs	4.19	11.48	6-24
MCQ30_CogConfidence	4.73	12.60	6-24
MCQ30_Uncontrollability	4.57	12.82	6-24
MCQ30_CogCons	3.90	12.90	6-24
MCQ30_NeedCont	3.93	12.58	6-24
LOC	19.75	121.38	47-166
LOC_PersCont	11.94	47.22	18-90
LOC_ExternalCont	15.20	74.16	29-120

3.2. Preliminary Analysis

3.2.1. Gender Differences

An independent samples t-test was conducted to examine differences between female and male participants for MCB, OC symptoms, LOC, and all of their subscales (Table 5).

Related to gender differences in participants' total score of OC symptoms, the analysis's findings showed that there was no significant gender difference, between female (M = 45.88; SD = 28.85) and male (M = 46.88; SD = 27.42) participants $t(332)$ = -.32, p = .75. Furthermore, there was no significant gender difference in the washing subscale between female (M = 14.15; SD = 8.95) and male (M = 14.07; SD = 7.55) participants $t(319.85)$ = .90, p = .93. There were no significant gender differences between the scores of rumination $t(332)$ = .90, p = .37, checking $t(332)$ = -.79, p = .43, urges $t(332)$ = -1.75, p = .08, and preciseness $t(332)$ = -1.18, p = .24.subscales. However, there was a significant gender difference in the uncontrollability and danger subscale between female (M = 13.22; SD = 4.51) and male (M = 12.17; SD = 4.55) participants $t(332)$ = 2.10, p = .04. There was no significant difference for positive beliefs about worry $t(332)$ = -1.21, p = .23, cognitive confidence $t(332)$ = 1.45, p = .15, cognitive self-consciousness $t(264.47)$ = .44, p = .66, need to control thoughts $t(332)$ = -1.62, p = .11 or the total score $t(332)$ = .43, p = .67.There was no gender difference for total score of LOC scale $t(332)$ = .27, p = .79, external control $t(332)$ = -.01, p = .99 or internal control $t(253.67)$ = .44, p = .66 subscale.

Table 5**.** Independent t-test Results Comparing Participants in Terms of Gender

Variables	Male		Female				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
PADUA	46.88	27.42	45.88	28.85	-0.32	0.75	0.04
PADUA_Rumination	11.74	9.26	12.98	9.87	1.16	0.25	0.10
PADUA_Washing	14.07	7.55	14.15	8.95	0.90	0.93	0.01
PADUA_Checking	10.67	7.06	10.03	7.67	-0.79	0.43	0.09
PADUA_Urges	5.76	5.60	4.69	4.92	-1.86	0.06	0.20
PADUA_Preciness	4.26	4.46	3.69	4.30	-1.18	0.24	0.01
MCQ30	63.87	16.36	64.61	14.84	0.43	0.67	0.05
MCQ30_PosiBeliefs	11.83	4.34	11.27	4.08	-1.21	0.23	0.13

MCQ30_CogConfidence	12.13	4.43	12.88	4.88	1.45	0.15	0.16
MCQ30_Uncontrollability	12.17	4.55	13.22	4.51	2.10	0.04	0.23
MCQ30_CogCons	14.77	4.23	14.96	3.66	0.44	0.66	0.05
MCQ30_NeedCont	12.98	3.96	12.27	3.87	-1.62	0.11	0.18
LOC	121.15	20.49	121.74	19.12	0.27	0.79	0.03
LOC_PersCont	46.91	13.30	47.52	10.87	0.44	0.66	0.05
LOC_ExternalCont	74.23	15.72	74.21	14.85	-0.01	0.99	0.00

3.3. Main Analyses

3.3.1. Correlation Analyses

Pearson correlation analysis was conducted to investigate the relationships between the total score of OC symptoms, rumination, washing, control, urges, preciseness, total MCB score, positive beliefs about worry, cognitive confidence, cognitive self-consciousness, need to control thoughts, uncontrollability and danger, LOC total score, internal LOC, external LOC (Table 6).

Result of the analysis indicated that there was significant positive correlation between rumination and positive beliefs about worry (r = .39, p = .00), cognitive confidence (r = .38, p = .00), negative uncontrollability and danger thoughts (r = .70, p = .00), cognitive self-consciousness (r = .43, p = .00), need to control thoughts (r = 53, p = .00), and external LOC (r = .41, p = .00). There was also statistically significant positive correlation between washing and positive beliefs about worry (r = .28, p = .00), cognitive confidence (r = .14, p = .00), uncontrollability and danger (r = .36, p = .00), cognitive self-consciousness (r = .31, p = .00), need to control thoughts (r = 35, p = .00), and external LOC (r = .27, p = .00). Between the checking factor of obsessive compulsive symptomology and positive beliefs about worry (r = .29, p = .00), cognitive confidence (r = .19, p = .00), uncontrollability and danger (r = .42, p = .00), cognitive self-consciousness (r = .33, p = .00), need to control thoughts (r = .38, p = .00), and external LOC (r = .30, p = .00) there was a significant positive correlation. This was repeated for the remaining symptoms. There was a significant positive correlation between Urges and positive beliefs about worry (r = .27, p = .00), cognitive confidence (r = .28, p = .00), uncontrollability and danger (r = .48, p = .00), cognitive self-consciousness (r = .27, p = .00), need to control thoughts (r = .40, p = .00), and external LOC (r = .31, p = .00). Also with the preciseness factor of obsessive-compulsive symptomology there was significant positive correlation with positive

beliefs about worry (r = .31, p = .00), cognitive confidence (r = .21, p = .00), uncontrollability and danger (r = .32, p = .00), cognitive self-consciousness (r = .31, p = .00), need to control thoughts (r = .34, p = .00), and external LOC (r = .22, p = .00). The highest correlation coefficient was between rumination and uncontrollability and danger.

Table 6. Pearson Correlation Analysis Between Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.PADUA	1	0.86**	0.74**	0.85**	0.70**	0.72**	0.62**	0.40**	0.31**	0.61**	0.43**	0.52**	0.33**	0.04	0.40**
2.PADUA_Rumination		1	0.45**	0.64**	0.65**	0.47**	0.66**	0.39**	0.36**	0.70**	0.43**	0.53**	0.35**	0.06	0.41**
3.PADUA_Washing			1	0.54**	0.37**	0.47**	0.39**	0.28**	0.14*	0.36**	0.31**	0.35**	0.20**	-0.01	0.27**
4.PADUA_Checking				1	0.51**	0.63**	0.44**	0.29**	0.19**	0.42**	0.33**	0.38**	0.25**	0.04	0.30**
5.PADUA_Urges					1	0.44**	0.47**	0.27**	0.28**	0.48**	0.27**	0.40**	0.25**	0.03	0.31**
6.PADUA_Preciness						1	0.40**	0.31**	0.21**	0.32**	0.31**	0.34**	0.19**	0.04	0.22**
7.MCQ30							1	0.70**	0.66**	0.78**	0.70**	0.81**	0.17**	-0.15**	0.34**
8.MCQ30_PosiBeliefs								1	0.36**	0.37**	0.36**	0.46**	0.16**	-0.03	0.23**
9.MCQ30_CogConfidence									1	0.36**	0.19**	0.39**	0.12*	-0.06	0.20**
10.MCQ30_Uncontrollability										1	0.52**	0.57**	0.22**	-0.02	0.30**
11.MCQ30_CogCons											1	0.56**	-0.03	-0.27**	0.18**
12.MCQ30_NeedCont												1	0.13*	-0.19**	0.32**
13.LOC													1	0.64**	0.80**
14.LOC_PersCont														1	0.05
15. LOC_ExternalCont															1

$^{**}p < 0.01$, $^{*}p < 0.05$

PADUA_TotalScore: Padua Inventory total score, PADUA_Ruminatiıon: Padua Inventory rumination subscale, PADUA_Washing: Padua Inventory washing subscale, PADUA_Checking: Padua Inventory control subscale, PADUA_Urges: Padua Inventory urges subscale, PADUA_Preciseness: Padua Inventory preciness subscale, MCQ30: Metacognition Questionnaire-30 total score, MCQ30_PosiBeliefs: Metacognition Questionnaire-30 positive beliefs subscale, MCQ30_CogConfidence: Metacognition Questionnaire-30 cognitive confidence subscale, MCQ30_Uncontrollability: Metacognition Questionnaire-30 uncontrollability and danger, MCQ30_CogCons: Metacognition Questionnaire-30 cognitive self-consciousness subscale, MCQ30_NeedCont: Metacognition Questionnaire-30 need to control thoughts subscale, LOC: Locus of Control total score, LOC_PersCont: Locus of Control Personal Control subscale, LOC_ExternalCont: Locus of Control External Control subscales.

3.3.2. Hierarchical Regression Analyses

In this section, hierarchical regression analysis was conducted to examine the relationship between MCB and LOC in predicting different types of OC symptoms. In the first step of the hierarchical regression analysis, five different subscales of MCB were included with the stepwise method. In the second step of the hierarchical regression analysis, the LOC was included in the model as internal and external control using the stepwise method. By repeating this procedure for each obsessive-compulsive symptom, the aim was to understand the type of variance occurring within the symptom better.

3.3.2.1. Hierarchical Regression Analysis for Rumination Subscale

Statistical results of the hierarchical regression conducted with rumination as the dependent variable are reported in the Table 7. In the first step, five different subscales of MCB were included in the analysis. In the second, the LOC was included in the model as internal and external control.

The results of the analysis concluded that MCB such as uncontrollability and danger (β = .58, $t(333)$ = 12.38, p = .00), need to control thoughts (β = .15, $t(332)$ = 3.02, p = .00), and positive beliefs about worry (β = .11, $t(331)$= 2.42, p = .02) significantly predicted rumination subscale. As the predictive qualities for the LOC, both subscales external LOC (β = .17, $t(330)$ = 4.49, p = .00) and internal LOC (β = .10, $t(329)$ = 2.55, p = .01) significantly predicted rumination. According to the final model, %49 of the total variance of rumination was explained by uncontrollability and danger ($F_{change}(1, 333)$ = 322.70, p = .00), additional %2 was explained by need to control thoughts ($F_{change}(1, 332)$ = 16.12, p = .00). Additional %1 of variance of rumination was explained by positive beliefs about worry ($F_{change}(1, 331)$ = 5.86, p = .02). After controlling the variance explained by the variables in the first stage, external LOC explained ($F_{change}(1, 330)$ = 22.25, p = .00) %3; internal LOC explained ($F_{change}(1, 329)$ = 6.50, p = .01) %1 of the additional variance. The model tested in the analysis explained a total of 56% of the variance of rumination.

Table 7. Hierarchical Regression Analysis Results for Predictive Variables of Rumination

Predictive Variable	R^2	F_{Change}	β
Step 1: Metacognitive Beliefs			

MCQ_Uncontrollability	0.492	322.70	0.58
MCQ_NeedContTho	0.516	16.12	0.15
MCQ_PosiBeliefs	0.524	5.86	0.11
Model 2: Locus of Control			
LOC_External	0.554	22.25	0.17
LOC_Internal	0.563	6.50	0.10

3.3.2.2. Hierarchical Regression Analysis for Washing Subscale

Another hierarchical regression was conducted on the washing subscale of OC symptoms. The results of the analysis concluded that MCB such as uncontrollability and danger (β = .22, $t(333) = 3.62$, p = .00), need to control thoughts (β = .16, $t(332) = 2.52$, p = .01), and positive beliefs about worry (β = .12, $t(331) = 2.08$, p = .04) significantly predicted washing subscale. As the predictive qualities for the LOC, external LOC (β = .14, $t(330) = 2.65$, p = .01) significantly predicted washing. According to the model summary %13 of the total variance of washing is explained by uncontrollability and danger ($F_{change}(1, 333) = 49.74$, p = .00), additional %3 is explained by need to control thoughts ($F_{change}(1, 332) = 11.44$, p = .00). Additional %1 of variance of washing is explained by positive beliefs about worry ($F_{change}(1, 331) = 4.32$, p = .04). After controlling the variance explained by the variables in the first stage external LOC ($F_{change}(1, 330) = 7.00$, p = .01) explained %2 of the additional variance. The model tested in the analysis explained a total of 19% of the variance of washing.

Table 8.Hierarchical Regression Analysis Results for Predictive Variables of Washing

Predictive Variable	R^2	F_{Change}	β
Step 1: Metacognitive Beliefs			
MCQ_Uncontrollability	0.130	49.74	0.22
MCQ_NeedContTho	0.159	11.44	0.16
MCQ_PosiBeliefs	0.170	4.32	0.12
Step 2: Locus of Control			
LOC_External	0.187	7.00	0.14

3.3.2.3. Hierarchical Regression Analysis for Checking Subscale

The results of the hierarchical regression analysis done with checking subscale as the dependent variable concluded that MCB such as uncontrollability and danger (β = .30, t(333) = 5.03, p = .00), need to control thoughts (β = .21, t(332) = 3.57, p = .00), significantly predicted checking subscale. As the predictive qualities for the LOC, the external LOC (β = .17, t(331) = 3.23, p = .00) significantly predicted checking. According to this %18 of the total variance of checking was explained by uncontrollability and danger (F_{change}(1, 333) = 71.94, p = .00), additional %3 was explained by need to control thoughts (F_{change}(1, 332) = 12.77, p = .00). After controlling the variance explained by the variables in the first stage external LOC (F_{change}(1, 331) = 10.44, p = .00) explained %2 of the additional variance. The model tested in the analysis explained 23% of the checking variance.

Table 9. Hierarchical Regression Analysis Results for Predictive Variables of Checking

Predictive Variable	R^2	F_{Change}	β
Model 1: Metacognitive Beliefs			
MCQ_Uncontrollability	0.178	71.94	0.30
MCQ_NeedContTho	0.208	12.77	0.21
Model 2: Locus of Checking			
LOC_External	0.232	10.44	0.17

3.3.2.4. Hierarchical Regression Analysis for Urges Subscale

Next, the urges subscale is taken into the regression analysis as the dependent variable. The results of the analysis concluded that MCB such as uncontrollability and danger (β = .37, t(333) = 6.40, p = .00), need to control thoughts (β = .19, t(332) = 3.24, p = .00) significantly predicted urges subscale. As the predictive qualities for the LOC, the external LOC (β = .16, t(331) = 3.13, p = .00) significantly predicted urges. According to this %23 of the total variance of urges is explained by uncontrollability and danger (F_{change}(1, 333) = 98.56, p = .00), additional %2 percent is explained by need to control thoughts (F_{change}(1, 332) = 10.49, p = .00). After controlling the variance explained by the variables in the first stage external LOC (F_{change}(1, 331) = 9.79, p = .00) explained

%2 of the additional variance. The model tested in the analysis explained a total of 27% of the variance of urges.

Table 10.Hierarchical Regression Analysis Results for Predictive Variables of Urges

Predictive Variable	R^2	F_{Change}	β
Model 1: Metacognitive Beliefs			
MCQ_Uncontrollability	0.228	98.56	0.37
MCQ_NeedContTho	0.252	10.49	0.19
Model 2: Locus of Control			
LOC_External	0.273	9.79	0.16

3.3.2.5. Hierarchical Regression Analysis for Preciseness Subscale

Finally, hierarchical regression analysis was conducted on the preciseness subscale as the dependent variable, with the subscales of MCB and LOC as the independent variable. The results of the analysis concluded that MCB such as uncontrollability and danger (β = .17, t(333) = 2.53, p = .01), positive beliefs about worry (β = .18, t(332)= 3.10, p = .00) and need to control thoughts (β = .16, t(331) = 2.52, p = .01) significantly predicted preciseness subscale. According to this %11 of the total variance of preciseness was explained by uncontrollability and danger (F_{change}(1, 333) = 42.47, p = .00), additional %3 was explained by positive beliefs about worry (F_{change}(1, 332) = 11.97, p = .00). Additional %2 of variance of preciseness was explained by need to control thoughts (F_{change}(1, 331) = 6.36, p = .01). The model tested in the analysis explained a total of %16 of the variance of preciseness.

Table 11. Hierarchical Regression Analysis Results for Predictive Variables of Precision

Predictive Variable	R^2	F_{Change}	β
Model 1: Metacognitive Beliefs			
MCQ_Uncontrollability	0.113	42.47	0.17
MCQ_PosiBeliefs	0.144	11.97	0.18
MCQ_NeedContTho	0.160	6.36	0.16

CHAPTER 4: DISCUSSION

This study investigated the predictive power of metacognitive beliefs (MCB) and locus of control (LOC) on obsessive-compulsive (OC) symptoms. Initially, gender differences across various aspects of OC symptoms, including subfactors like rumination, washing, checking, urges, and precision, will be discussed. Metacognitive beliefs will then be delved into, examining subfactors according to gender, such as positive beliefs about worry, cognitive confidence, uncontrollability and danger, cognitive self-consciousness, and need to control thoughts. Finally, internal and external LOC will be examined according to gender.

Results of the study suggested no significant gender differences in OC symptoms, LOC and their subfactors. Also, there was no gender difference in the MCB and their subfactors except for uncontrollability and danger. Subsequently, the correlational relationships between the subscales of OC symptoms, MCB, and LOC will be discussed. Results showed that participants' rumination, washing, checking, urges, and precision scores significantly correlated with the subscales of MCBin a positive direction. While rumination, washing, checking, urges, and precision significantly correlated with external LOC positively, there was no significant correlation between internal LOC and OC symptoms. Finally, the predictive role of MCB and LOC on OC symptoms will be discussed. After examining these findings, the subsequent sections will address the study's limitations and propose recommendations for future research. According to the results of the study predictive power of the different MCB, the internal and external LOC varied for each symptom level.

4.1. Gender Differences

The results showed that only the uncontrollability and danger subscale of MCB had significant gender differences between male and female participants. However, there were no significant gender differences for other subscales of MCB and for the subscales of LOC, and OC symptoms.

In the current study, female participants' scores were higher than males in the uncontrollability and danger subscale, meaning the perception of dangerous acts or thoughts with uncontrollable content caused more distress for females than males. A similar result was found in the Greek version of the MCQ-30 validation investigation.

Results revealed that women exhibited notably higher scores than men in uncontrollability and danger (Typaldou et al., 2014). The Turkish adaptation study of the MCQ-30 showed gender differences across multiple subscales. In the adaptation study done by Tosun and Irak (2008), it was observed that men had a higher mean in the positive beliefs subscale; women had a higher mean in the uncontrollability and danger subscale and the need to control thoughts subscale. However, in the present study, no gender difference was observed across subscales other than the uncontrollability and danger. It is important to note that the number of male and female participants in the current study is unequal, and the age range (18-76) is wider than in the Turkish adaptation (17-36), which should be considered when interpreting these discrepancies. In the original version of the scale's study (Wells and Cartwright-Hatton, 2004), gender did not show a notable impact on any MCQ-30 scores, and the age range was similar to the current study (18-69). The Turkish adaptation study concluded that overall MCB score and some subscales had a significant negative relationship with age. While investigating these associations between metacognition and age across various age groups is believed to hold significant implications, additional research is warranted. Also, examining metacognition in relation to gender requires further investigation to enhance diagnostic accuracy and treatment approaches.

Contrary to expectations, there was no gender difference in the obsessive-compulsive symptom levels. Despite this, various findings in the literature highlight gender disparities in OC symptoms. For example, in multiple studies, females displayed more intense washing symptoms or hygiene and contamination obsessions than males (Benatti et al., 2020; Labad et al., 2008; Tükel et al., 2004). Also, in various studies, sexual/religious obsessions or obsessions related to urges factor are found to be higher for males compared to females (Labad et al., 2008; Tükel et al., 2004). In the current study, although scores for washing were higher for females, the difference was slight and insignificant. Similarly, scores for urges were higher for males; however, there was no significant difference related to this subscale. The absence of gender differences in our study may be attributed to uneven participant numbers or the non-clinical nature of the sample. It is worth noting that typically, studies investigating gender differences in OC symptoms involve clinical samples and employ different measurement tools. In research done by Tükel et al. in 2004, contamination obsessions

were found to be significantly more prevalent in the female group, while aggressive and sexual obsessions were notably more common in the male group. A more recent study conducted by Benatti et al. in 2020 concluded that the female subgroup exhibited higher levels of cleaning and washing compulsions than the male subgroup (28.7% vs. 12.6% in the male group). Clinical samples were employed in both groups, and the symptom display-based tools often used in clinical studies, such as the Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al., 1989) and Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS, Rosa´rio-Campos et al., 2006. The current research used a self-report measure, the Padua Inventory. The discrepancy in measurement tools and employment of a community sample may contribute to the variation in gender difference results.

Gender differences in internal and external LOC were not observed in the current study. While literature commonly suggests that men tend to have a higher internal LOC and women exhibit a higher external LOC (Strickland and Haley, 1980; Dixon et al., 1976; Doherty and Baldwin, 1985), the findings of this study differ from these general patterns. Results of the research Zaidi and Mohsin (2013) conducted on graduate students reported that males scored higher in personal control, while females scored higher in external control, contributing to the discourse on gender differences in internality and externality. Another study by Akhtar and Saxena (2014) on adolescents (age range 14-18) concluded that boys strongly believe in personal control. On the other hand, girls in similar situations are more likely to rely on external factors. These findings are attributed to women's broader social support networks and active engagement with them, linking social phenomena with personal control. LOC is discussed to be influenced by the lifespan or domain differences (Lachman, 1988). Therefore, it is essential to acknowledge that these studies focused on a younger and more restricted age range than the present study (18-76). Also, there are contradicting findings, such as those reported by Dag (2002) in an adaptation study, indicating no gender differences in internal and external LOC. Given these inconsistencies, further research is warranted to better understand the nuanced relationship between gender and LOC.

4.2. Correlation Analyses

Consistent with the hypothesis, the correlation analysis result indicated a significant positive correlation between all subscales of MCB and OC symptoms, as the

hypothesis suggested. This indicates that higher levels of the metacognitive belief subscales predict higher levels of obsessive-compulsive symptomology or vice versa. This is supported by various research conducted based on metacognitions and OC symptoms. The study conducted by Clark et al. (2003) to further investigate the relationship between maladaptive metacognitive control beliefs and obsessional symptoms revealed positive correlations between metacognitions and obsessional symptoms. A handful of studies examine the relationship between MCB and different obsessive-compulsive dimensions (Pazvantoğlu et al., 2013; Tumkaya et al., 2018; Jürgens et al., 2019; Nance et al., 2018) and found correlations between MCB and different OC symptoms. In the current study, uncontrollability and danger and need to control thoughts were the only two subfactors that showed high to moderate correlations with all symptoms; other MCB and OC symptoms showed weak to moderate correlations. Therefore, these factors and symptom types will be discussed in detail for this part of the correlational relationships.

In a study done by Tumkaya et al. (2018), they examined the MCB according to subfactors of OC symptoms both in clinical and control groups. They only reported a significant difference between the groups for the scores of uncontrollability and danger, need to control thoughts and cognitive confidence. The highest correlation was found between uncontrollability and danger and rumination across all the correlations between subscales of MCB and symptom types. Among all the correlations examined between MCB and OC symptoms, the strongest correlation was observed between uncontrollability and danger and rumination. In other words, these two factors are more strongly related than those studied. The study done by Tumkaya et al. (2018) is concordant with this finding as they also find strong positive correlations between these two factors for both clinical and control groups. The present study found moderate correlations between uncontrollability and danger subscale and washing, checking, urges, and preciseness symptoms. The correlational relationship between uncontrollability and danger and washing is supported by the study conducted by Tumkaya et al. (2018), as they also found significant moderate correlations between these factors for both clinical and control groups. For preciseness symptoms, a study conducted by Nance et al. (2018) concluded a significant moderate correlation between uncontrollability and danger and preciseness.

In the present study, need to control thoughts subscale correlated positively with all the symptom types to a moderate degree. Research done by Wells and Cartwright-Hatton (2004) concluded that there were positive correlations between need to control thoughts and rumination, washing, checking, urges, and preciseness subscales; however, correlation degrees were weak to moderate. Jürgens et al. (2019) also found moderate relationships between need to control thoughts and checking and preciseness symptoms. Because obsessive-compulsive disorder is a heterogeneous condition, studies conducted show different results related to different correlational relationships between MCB and OC symptoms. This might be due to different measurement tools used to evaluate OCD in the studies, as their definitions of the symptom subtypes differ. So, studies usually conducted research on overall OC symptoms severity. Also, studies differed in whether they observed this relationship in a clinical or community sample. Thus, it is challenging to form a consensus regarding how specific MCB and obsessive-compulsive symptom dimensions relate.

Consistent with the hypothesis, the results of the correlation analyses between OC symptoms and external LOC presented that there was a significant positive correlation between rumination, washing, checking, urges, precision symptoms, and external LOC. The positive correlation indicates that as the intensity of OC symptoms increases, the external LOC also tends to increase. In their research, Inozu et al. (2012) found no significant correlations between OC symptoms and overall LOC score. However, a study by Altın and Karanci (2008) found positive correlations between overall LOC score and checking and obsession symptoms. The discrepancy might be because LOC is not included as a multidimensional concept like the current study. Although research regarding LOC and OC symptoms is limited, external LOC is associated with higher levels of OC symptoms. Research done by Altın and Karanci (2008) indicated that the highest level of OC symptoms occurred when there was a combination of elevated responsibility and a diminished sense of control, indicated by an external LOC. Also, another research done by Akbarikia and Gasparyan (2012) revealed a significant connection between powerful others (external LOC) with both the overall severity of OCD symptoms and specific sub-scales such as aggression, checking, and collecting.

Inconsistent with the hypothesis, no significant correlations were found between internal LOC and rumination, washing, checking, urges, and preciseness symptoms.

Except for the washing subscale, OC symptoms were positively correlated with the internal LOC; however, correlations were statistically insignificant. It is important to note that the internal LOC subscale questions are reverse-coded in the calculation process. Therefore, the scores reflect a diminished sense of internal control. A positive correlation between these variables can be interpreted as a diminished sense of internal control associated with higher levels of OC symptoms or vice versa. There is very limited research regarding internal LOC and OC symptoms. Typically, in these studies, researchers included overall LOC scores and interpreted high scores as external control and low scores as internal control. However, as discussed earlier, LOC is not a bipolar dimension, implying you have one or the other. Rather, it is a perceived control over external events, and both can be present within the same individual but differentiate according to different domains. Although there is limited research regarding LOC and OC symptoms, Kennedy et al. (1998) investigated the LOC in different clinical groups with depression or anxiety disorders, comparing them to a normal control group. The study revealed that, although there were no differences in internal LOC scale scores between patient and control groups, the group with OCD had the lowest externality scores compared to other patients with anxiety and depressive disorders. The authors propose that individuals with OCD recognize the importance of internal control, and their obsessions and rituals may function maladaptively to enhance internal control while diminishing external control.

4.3. Hierarchical Regression Analyses

The hierarchical regression analysis conducted in this study aimed to explore the predictive power of different MCB, internal LOC, and external LOC on various OC symtoms. The findings revealed variability in the influence of these factors across different symptom levels.

4.3.1. Hierarchical Regression Analysis for Rumination Subscale

A stepwise hierarchical regression analysis was conducted for rumination symptoms by including subscales of MCB in the first step and dimensions of the LOC in the second step. Results of the analysis indicated that uncontrollability and danger, need to control thoughts, positive beliefs about worry, external LOC, and internal LOC significantly explained the variance in the rumination subscale.

Different relationships regarding rumination and MCB were explored in previous research. Uncontrollability and danger was a common predictor for various OC symptoms such as neutralizing, washing, and doubt (Irak and Tosun, 2008; Tumkaya et al., 2018; Jürgens et al., 2019). However, there was no finding regarding the predictive relationship between uncontrollability and danger, and rumination symptoms. The rumination subscale is described as impaired control over mental acts and contains items like "When doubts and worries come to my mind, I cannot rest until I have talked them over with a reassuring person." Research done by Tumkaya et al. (2018) revealed that there was a relationship between need to control thoughts and rumination. In this research, need to control thoughts belief explained the second largest amount of variance. Also, positive beliefs about worry were not found to be a predictor for rumination in the previous literature. Results of the current study reported that uncontrollability and danger, the need to control thoughts, and positive beliefs significantly predicted rumination. This finding suggests that the more individuals believe their thoughts are uncontrollable and dangerous, the more likely they are to engage in rumination symptoms. Individuals who feel a strong need to control their thoughts are more prone to engaging in rumination symptoms. Also, individuals with positive attitudes or beliefs about the usefulness or effectiveness of worry might present rumination symptoms or feel like they have impaired control over their mental activities. In summary, the conclusion suggests that certain MCB, specifically uncontrollability and danger of thoughts, the need to control thoughts, and positive beliefs, play a significant role in predicting the occurrence of rumination symptoms. This subscale is considered the hardest to differentiate from worry symptoms (Freeston et al., 1994). In the revised version, this problem was fixed (Burns et al., 1995). However, it is crucial to acknowledge the obsessional and worry-evoking nature of rumination, primarily characterized by covert symptoms that do not manifest through explicit compulsive rituals. Understanding these associations can potentially inform therapeutic interventions and strategies aimed at addressing and alleviating symptoms related to impaired control over mental acts within OCD.

After the variations caused by metacognitive belief subscales were controlled, internal and external LOC were included in the analysis simultaneously. In the research conducted by Moulding and Kyrios (2006, 2007), it was demonstrated that elevated levels of desired control and reduced levels of sense of control, which indicates an

external LOC, were notably associated with OC symptoms. The current study showed that after the variations related to thought control were controlled, the external LOC significantly predicted rumination. This shows that the perception of external sources exerting control over certain outcomes is associated with ruminative symptoms.

Including the internal LOC in the model significantly explained an additional %1 of the variance in the rumination subscale. This finding aligns with research done by Altın and Karanci (2008) in which they observed that LOC only predicted the variance in the rumination subscale independent of the level of the other predictive variable in the research. This specific finding concludes that the diminished perception of internal sources of control over life events is associated with the rumination symptom. Therefore, internality and externality in the presence of rumination play a significant role. Also, rumination was the only subscale in which internal LOC significantly predicted any variance in this study.

The largest variance was explained for this subscale in the current model. This might suggest that, in understanding rumination symptoms, the interplay between MCB, internal LOC, and external LOC holds a substantial influence. Specifically, the unique contribution of both internal and external LOC is included as predictors of the rumination subscale, emphasizing the importance of considering both cognitive factors (metacognitive beliefs) and the perceived control over outcomes (locus of control) in comprehending the complexities of rumination symptom.

4.3.2. Hierarchical Regression Analysis for Washing Subscale

A hierarchical regression analysis was performed using the stepwise method for washing symptoms, where the first step included subscales of MCB, and the second step involved dimensions of the LOC. The findings revealed that the variance in the washing subscale was significantly explained by uncontrollability and danger, need to control thoughts, positive beliefs about worry, and external LOC.

Different relationships regarding washing and MCB were explored in previous research. Uncontrollability and danger (Irak, 2008), and need to control thoughts (Irak, 2008; Tumkaya, 2018) were previously associated with washing symptoms. Positive beliefs about worry were not found to be a specific predictor for the washing subscale in the previous literature; however, in this study explained significant variance. Results of the current study display that individuals with more uncontrollability and danger

tended to exhibit more severe washing symptoms. Those who believed that there were severe consequences associated with not controlling their thoughts also showed more pronounced washing symptoms. Also, individuals with positive MCB about the usefulness or effectiveness of worrying tended to have more severe washing symptoms.

After accounting for the variations caused by metacognitive belief subscales, both internal and external LOC were simultaneously introduced in the analysis. The results of this study uncovered a distinctive predictive association between the external LOC and the washing symptom. What this entails is that the perception of external sources exerting control over certain outcomes is associated with washing symptoms.

4.3.3. Hierarchical Regression Analysis for Checking Subscale

For checking symptoms, uncontrollability and danger, need to control thoughts, and external control emerged as significant predictors.

Previous research pointed out the predictive power of uncontrollability and danger, and need to control thoughts related to checking symptoms (Irak, 2008). The findings from the present study indicate that individuals with more uncontrollability and danger tended to exhibit more severe checking symptoms. Additionally, those with more need to control thoughts demonstrated more pronounced checking symptoms.

After adjusting for the variations attributable to metacognitive belief subscales, both internal and external LOC were concurrently incorporated into the analysis. The external LOC was observed to contribute significantly to additional variance after accounting for the variances explained by MCB. Notably, this investigation unveiled a unique predictive association between the external LOC and checking symptoms. Although there are previous findings related to a stronger desire for control (DC) and a lower sense of control (SC), which is also defined as external control, it would be more closely connected to checking symptoms (Moulding and Kyrios, 2007). However, there is a difference related to concepts, as the external LOC does not give any information related to the desire for control. By differentiating subscales of LOC, a clear description of the external LOC related to checking symptoms is discovered in the current study. This finding suggests that the perception of external sources exerting control over certain outcomes is linked to checking symptoms.

4.3.4. Hierarchical Regression Analysis for Urges Subscale

For the urges symptoms, uncontrollability and danger, need to control thoughts, and external control emerged as significant predictors.

Urges symptom is defined by the inability to stop unpleasant thoughts and ruminations. In the previous literature, uncontrollability and danger and the consequences of not controlling thoughts were not found to be a specific predictor for the urges subscale; however, in this study, both beliefs explained significant additional variance. The findings from the present study reveal that individuals with more negative beliefs about uncontrollability and danger tend to experience more severe urges and symptoms. Moreover, those harboring more negative beliefs about the consequences of their thoughts exhibit more pronounced urges and symptoms.

After metacognitive belief subscales are added, in the second step, internal and external LOC are added to the model, to examine their potential impact on urges symptom beyond what is accounted for by MCB. This step allows for an examination of whether the LOC, both internal and external, significantly predicts additional variance in urges symptoms after considering the influence of MCB. Notably, the external LOC significantly contributed to additional variance. This suggests that the perception of external sources exerting control over certain outcomes is linked to manifesting urges symptoms.

4.3.5. Hierarchical Regression Analysis for Precision Subscale

Uncontrollability and danger, positive beliefs about worry, and need to control thoughts significantly predicted the preciseness subscale. Interestingly, the LOC displayed no predictive power after controlling for the variance caused by these three factors.

In the previous literature, uncontrollability and danger, positive beliefs and the consequences of not controlling thoughts were not found to be specific predictors for the precision subscale; however, in this study, these beliefs explained significant additional variance. The LOC, which reflects a person's belief in their ability to control events in their life, does not provide an additional explanation regarding preciseness symptoms once the effects of the specified belief factors are considered.

To be more general, people with OCD symptoms attribute outcomes of life events to external factors and powerful others. They rarely attribute control to personal variables

only in more covert-natured symptoms. Symptoms might be interpreted as their attempt at trying to gain a sense of control over what they evaluate as uncontrollable. Only in ruminative symptoms decreased personal control contributes to the symptom severity but in other situations, it does not play a role. This might be due to the cyclical nature of the disorder, as overt symptoms which might be interpreted as symptoms related to factors outside of the self, maintain relief and a sense of control, and this might direct focus to the factors that are unrelated to self. However, in more covert-natured symptoms individuals are aware of their possible personal contribution to life events.

4.4. Limitations and Future Suggestions

In addition to the insights provided to the current body of knowledge and clinical application, it is crucial to identify the limitations of the study and offer suggestions for future research.

Significant gender differences were found only in uncontrollability and danger subscale of MCB. The uneven distribution of male and female participants and a broader age range may have influenced these results. Future studies could strive for gender balance and a narrower age range, using consistent measurement tools to explore gender differences in OC symptoms more comprehensively.

The study found positive correlations between MCB, external LOC, and various OC symptoms. However, the cross-sectional design limits our ability to conclude causation. Longitudinal studies are needed to reveal the temporal relationships between MCB, LOC, and OC symptoms.

The hierarchical regression analysis discovered that the predictive power of MCB and LOC varied across symptom subtypes, highlighting the complexity of their influence. Further research could explore the interplay of these factors in various theoretical contexts related to control or different populations to enhance our understanding of their differential impact on OC symptoms. There has also been very little research conducted on MCB and LOC, and there is no research in the clinical domain. For future studies mediating and moderating role of locus of control can be examined for metacognitive beliefs and OC symptoms. Examining the relationship between these two factors might also contribute to understanding OCD and the difference between its subtypes.

The study's sample was non-clinical, potentially limiting the generalizability of findings to clinical populations. The study might be replicated with clinical OCD samples, ensuring comparability with previous studies using consistent measurement tools and methodologies.

In conclusion, addressing these limitations and pursuing the suggested avenues for future research will contribute to a more comprehensive understanding of the intricate relationships among MCB, LOC, and OC symptoms, thereby enhancing the effectiveness of interventions in clinical settings.

CHAPTER 5: CONCLUSION

The current study was the first to examine the relationship between metacognitive beliefs (MCB) and obsessive-compulsive symptoms (OC symptoms) with locus of control (LOC). The results of the study concluded that metacognitive predictors of OC symptoms differed according to symptoms. Uncontrollability and danger, as well as need to control thoughts, predicted all OC symptoms. Positive beliefs predicted rumination, washing, and precision symptoms. This concludes that negative beliefs about thought control and uncontrollability and danger predicted all symptom subtypes of OCD. Also, after the variance caused by MCB is controlled, external control predicted all symptom types except for preciseness. However, internal control only predicted rumination symptoms.

The results of the study emphasize that the inclination of MCB are linked to OC symptoms. After this relationship is controlled, the external control predicts washing, checking and urges symptoms. However, internal control only predicts the rumination scale. In addition to that, preciseness was not predicted with any of the LOC dimensions. Perception of personal control only plays a role in rumination symptoms but does not change the severity of washing, checking urges, and preciseness. However, external control influences symptom severity across washing, cleaning, and urges symptoms. According to these results, examining LOC related to symptoms and seeing it differentiate between subtypes can alter our understanding of the nature of these subtypes related to control. It can be argued that while people with low internal control and high external control present more rumination, however high external control is related to symptom severity of washing, checking, and urges. Also, external and internal control does not have an impact on the severity of preciseness symptoms. Given the fact that the LOC is domain-specific, differences in the presence of one, two, or none of its dimensions related to symptoms contribute to our understanding of subtypes.

This integrated model provides valuable insights into the multifaceted nature of rumination and contributes to a more nuanced understanding of the factors influencing this particular symptomatology within the broader spectrum of OCD symptoms.

5.1. Clinical Implications

The study's results emphasize the role of metacognitive beliefs in understanding the manifestation of obsessive-compulsive symptoms. Importantly, even after accounting for metacognitive beliefs, the external locus of control continues to predict the severity of all obsessive-compulsive symptoms. This suggests that the perception of external control has a broad and enduring impact on the overall symptomatology of obsessive-compulsive. Interventions targeting metacognitive beliefs, particularly uncontrollability and danger and the need to control thoughts, can be crucial in addressing a wide range of obsessive compulsive symptoms.

Given the specificity of the internal locus of control to rumination, therapeutic approaches focusing on enhancing internal control perceptions may be particularly beneficial for individuals struggling with rumination symptoms. Therapeutic strategies that address external locus of control perceptions may hold promise in alleviating the severity of obsessive-compulsive symptoms across various dimensions such as washing, checking, and urges. This highlights the importance of considering perceived external control in comprehensive treatment planning.

Moreover, the current study has important clinical implications for the understanding and treatment of obsessive-compulsive symptoms. The identified metacognitive predictors, such as uncontrollability and danger, need to control thoughts, and positive beliefs about worry, can serve as valuable targets for therapeutic intervention. Early recognition of individuals demonstrating these metacognitive patterns may enable timely and effective intervention, potentially preventing the escalation of obsessive-compulsive symptoms.

Mental health professionals should consider incorporating interventions that specifically address and modify these metacognitive beliefs. Therapeutic approaches aimed at challenging and restructuring uncontrollability and danger, as well as beliefs about need to control thoughts, may prove beneficial in reducing the severity of OCD symptoms. Additionally, interventions targeting positive beliefs about worry could contribute to mitigating symptomatology.

In practical terms, mental health practitioners and treatment programs should consider tailoring interventions based on the specific metacognitive profiles of individuals with OCD symptoms. Early intervention strategies could involve psychoeducation to

increase awareness of maladaptive metacognitive beliefs and provide tools to challenge and modify them. Integrating such targeted interventions into existing treatment protocols may enhance the overall efficacy of therapeutic approaches for OCD. Overall, the study's findings offer valuable insights for clinicians, educators, and mental health professionals in developing targeted interventions to address metacognitive factors associated with OCD symptomatology.

To be specific, while working with people who display ruminative symptoms, interventions can be modified to target metacognitive beliefs, and techniques regarding the enhancement of personal control and replacement of external control might improve the treatment results. Also, employing interventions aimed at metacognitive beliefs combined with reducing external control for the treatment of washing, checking, and urges symptoms might yield more favorable results. However, metacognitive treatments for precision symptoms may provide better results than treatments targeted at personal or external control.

The results of this study might be interpreted for therapeutic relationships as well. External control is present in all of the symptom types except for preciseness. It might disclose to us that while working with people with OCD especially those with more overt symptoms, they might attribute the outcome of the treatment to factors other than themselves, so this external factor might be the therapist in the clinical setting. Rather than being aware of their personal control over life events or their healing process, they might be inclined to attribute those to "the powerful other in the therapy room". People with more covert symptoms (those who present rumination) possess the same attribution about the life events controlled by external factors, therefore attributions about their clinical progress might be on the therapist but in addition to that aiding the awareness of personal control might contribute to their clinical prognosis. These factors related to therapeutic relationships might be taken into consideration while working with OCD.

In summary, the study's findings contribute valuable insights into the nuanced relationships between metacognitive beliefs, locus of control, and the diverse symptomatology of OCD. These results have implications for tailoring therapeutic interventions based on the specific metacognitive and control-related factors influencing individual experiences of OCD.

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APPENDICES

Appendix A. Ethhics Committee Approval

SAYI : B.30.2.İEÜ.0.05.05-**020**-*284* 25.04.2023 **KONU :** Etik Kurul Kararı hk.

Sayın Dr. Öğr. Üyesi Yasemin Meral Öğütçü

"The role of Locus of control on the relationship between Metacognitive Beliefs and OCD" başlıklı projenizin etik uygunluğu konusundaki başvurunuz sonuçlanmıştır.

Etik Kurulumuz 25.04.2023 tarihinde sizin başvurunuzun da içinde bulunduğu bir gün demle toplanmış ve Etik Kurul üyeleri projeleri incelemiştir.

Sonuçta 25.04.2023 tarihinde **"The role of Locus of control on the relationship between Metacognitive Beliefs and OCD"** konulu projenizin etik açıdan uygun olduğuna oy birliğiyle karar verilmiştir.

Gereği için bilgilerinize sunarım.

Saygılarımla,

Prof. Dr. Murat Bengisu

Etik Kurul Başkanı

Appendix B. Informed Consent

SAYIN KATILIMCI,

Bu araştırma, İzmir Ekonomi Üniversitesi Klinik Psikoloji Yüksek Lisans programı kapsamında Dr. Öğretim Üyesi Yasemin Meral Öğütçü danışmanlığında, Ecem Keskinpala tarafından yürütülecek olan bir tez çalışmasıdır. Çalışma yaklaşık olarak 15 dakika sürecektir. Çalışmaya katılabilmeniz için 18 yaşından büyük olmanız gerekmektedir.

Bu araştırmanın amacı üstbilişsel inançlar ve obsesif kompulsif davranışlar arasındaki ilişkide kontrol odağının rolünü araştırmaktır.

Bu çalışmaya katılmak tamamen gönüllülük esasına dayanmakla beraber çalışmaya katılmama veya herhangi bir anda çalışmayı bırakma hakkına sahipsiniz. Çalışma kapsamında sizden hiçbir kimlik bilgisi talep edilmeyecektir. Formlar aracılığıyla sizden toplanacak olan bilgiler ise gizli tutulacak ve yalnızca araştırmacı tarafından değerlendirilecektir. Sizden toplanacak olan bu bilgiler yalnızca bilimsel amaçlar doğrultusunda kullanılacaktır.

Formlardaki sorulara vereceğiniz yanıtların doğruluğu araştırmanın niteliği açısından oldukça önem taşımaktadır. Lütfen formların başındaki yönergeleri dikkatle okuyarak sorulara sizi en iyi ifade eden cevapları vermeye çalışınız.

Katılımınız için teşekkür ederiz. Araştırma ile ilgili herhangi bir bilgi edinmek ya da sorun bildirmek isterseniz adresi üzerinden araştırmacı ile iletişime geçebilirsiniz.

Yukarıda yer alan ve araştırmadan önce katılımcıya/gönüllüye verilmesi gereken bilgileri okudum ve katılmam istenen çalışmanın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım. Çalışma hakkında yazılı açıklama yukarıda adı belirtilen araştırmacı tarafından yapıldı. Bu çalışmayı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi ve bıraktığım takdirde herhangi bir olumsuzluk ile karşılaşmayacağımı anladım. Bu koşullarda söz konusu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Appendix C. Demographic Form

KATILIMCI BİLGİ FORMU

Yaş :

Cinsiyet : Kadın ☐ Erkek ☐ Diğer ☐

Eğitim seviyesi : İlkokul ☐ Ortaokul ☐ Lise ☐ Üniversite ☐

Yüksek Lisans ☐ Doktora ☐

Çalışıyor musunuz? : Evet ☐ Hayır ☐

Meslek:

Gelir düzeyi : Düşük ☐ Orta ☐ Yüksek ☐

Medeni durum: Evli ☐ Bekar ☐ Boşanmış ☐ Dul ☐

Herhangi bir kronik rahatsızlığınız var mı?

Evet ☐Belirtiniz: Hayır ☐

Herhangi bir psikiyatrik bir tanı aldınız mı?

Evet ☐Belirtiniz: Hayır ☐

Ailenizde psikiyatrik hastalık öyküsü var mıdır?

Evet ☐Belirtiniz: Hayır ☐

Sürekli kullandığınız bir ilaç var mı?

Evet ☐Belirtiniz: Hayır ☐

Son 3 ayda herhangi bir psikiyatrik ilaç kullandınız mı?

Evet ☐Belirtiniz: Hayır ☐

Şu ana kadar psikolojik destek aldınız mı veya alıyor musunuz?

Evet ☐Belirtiniz: Hayır ☐

Appendix D. Padua Inventory

PADUA ENVANTERİ (PADUA INVENTORY)

Aşağıdaki ifadeler hemen herkesin günlük yaşamında karşılaştığı düşünce ve davranışları tanımlamaktadır. Lütfen her bir ifade için size en uygun görünen ve bu tür davranış ya da düşüncelerin oluşturabileceği rahatsızlık derecesine en uygun olan tek bir seçeneği işaretleyiniz.

No		Hiç	Çok az	Çok	Epeyce çok	Aşırı
1.	Paraya dokunduğumda ellerimi kirlenmiş hissederim.	0	1	2	3	4
2.	Vücut salgıları ile (ter, tükürük, idrar, vb. gibi) hafif bir temasla bile giysilerimin kirlenebileceğini veya bir şekilde zarar görebileceğimi düşünürüm.	0	1	2	3	4
3.	Yabancıların veya belirli insanların dokunduğunu biliyorsam, bir nesneye dokunmakta zorlanırım.	0	1	2	3	4
4.	Çöpe veya kirli şeylere dokunmakta zorlanırım.	0	1	2	3	4
5.	Mikrop kapmaktan ve hastalıklardan korktuğum için umumi tuvaletleri kullanmaktan kaçınırım.	0	1	2	3	4
6.	Bulaşıcı hastalıktan korktuğum için halka açık telefonları kullanmaktan kaçınırım.	0	1	2	3	4
7.	Ellerimi gereğinden daha sık ve uzun süre yıkarım.	0	1	2	3	4
8.	Bazen sadece kirlendiğim ya da mikrop kaptığımı düşünerek derhal yıkanır veya temizlenirim.	0	1	2	3	4
9.	Bir şeye dokunduğumda "mikrop kaptığımı" düşünerek, derhal yıkanır veya temizlenirim.	0	1	2	3	4
10.	Bir hayvanın bana dokunması halinde, kendimi kirli hisseder ve derhal veya üstümdeki giysileri değiştirmem gerekir.	0	1	2	3	4
11.	Kaygılar ve üzüntüler aklıma geldiğinde, onlar hakkında güvenebileceğim birisiyle konuşmadan rahat edemem.	0	1	2	3	4
12.	Giyinirken, soyunurken ve yıkanırken, özel bir sırayı takip etme zorunluluğu hissederim.	0	1	2	3	4
13.	Yatmadan önce belirli şeyleri belirli bir sırayla yapmak zorundayım.	0	1	2	3	4
14.	Yatmadan önce giysilerimi özel bir şekilde asmak veya katlamak zorundayım.	0	1	2	3	4

15.	Belirli sayıları nedensiz yere tekrarlama zorunluluğu hissederim.	0	1	2	3	4
16.	Bir şeyleri doğru olarak yapıldığından emin olana kadar, birkaç kez tekrarlamak zorundayım.	0	1	2	3	4
17.	Bir şeyleri gereğinden daha sık kontrol etme eğilimindeyim.	0	1	2	3	4
18.	Ocağı, muslukları ve elektrik düğmelerini kapattıktan sonra tekrar tekrar kontrol ederim	0	1	2	3	4
19.	Tam olarak kapalı olduğundan emin olmak için, kapıları, pencereleri, çekmeceleri kontrol etmek uğruna eve geri dönerim.	0	1	2	3	4
20.	Doğru bir şekilde doldurduğumdan emin olmak için formların, evrakların veya çeklerin ayrıntılarını sürekli kontrol ederim.	0	1	2	3	4
21.	Sigara, kibrit gibi yanan cisimlerin tam olarak söndüğünden emin olana kadar geri dönüp bakarım.	0	1	2	3	4
22.	Elime para aldığım zaman üst üste birkaç kez sayarım.	0	1	2	3	4
23.	Mektupları postalamadan önce pek çok kez dikkatle kontrol ederim.	0	1	2	3	4
24.	Önemsiz meselelerde bile, karar vermeyi zor bulurum.	0	1	2	3	4
25.	Özellikle benimle ilgili önemli konular konuşulurken, bir şeyleri hiçbir zaman tam olarak ifade edemeyeceğim izlenimine kapılırım.	0	1	2	3	4
26.	Bir şeyleri özenli bir şekilde yapsam bile, hala yaptığım işi kötü yaptığım veya eksik bıraktığım izlenimine kapılırım.	0	1	2	3	4
27.	Yaptığım şeylerin pek çoğuna ilişkin kaygılar ve problemler üretirim.	0	1	2	3	4
28.	Belirli şeyler üzerinde düşünmeye başladığımda, onlara takılıp kalırım.	0	1	2	3	4
29.	Kendi isteğim dışında, hoşa gitmeyen düşünceler aklıma gelir ve onlardan kurtulamam.	0	1	2	3	4
30.	Beynim sürekli olarak kendi bildiğini yapıyor ve ben çevremde olup bitene ayak uydurmakta güçlük çekiyorum.	0	1	2	3	4
31.	Dalgınlığımın veya yaptığım küçük hataların felaket sonuçlar doğuracağını düşünürüm.	0	1	2	3	4
32.	Bazen hiç nedeni yokken nesneleri saymaya başlarım.	0	1	2	3	4

33.	Önemsiz sayıları tamamıyla hatırlamam gerektiği hissine kapılırım.	0	1	2	3	4
34.	Bir düşünce veya şüphe aklıma takıldığı zaman, onu bütün yönleriyle gözden geçirmem gerekir ve bu şekilde yapana kadar rahat edemem.	0	1	2	3	4
35.	Belirli durumlarda, kontrolümü kaybetmekten ve utanç verici şeyler yapmaktan korkarım.	0	1	2	3	4
36.	Bir köprüden veya yüksek bir pencereden aşağıya baktığım zaman, kendimi boşluğa bırakacakmış gibi hissederim.	0	1	2	3	4
37.	Yaklaşan bir tren gördüğüm zaman, bazen kendimi onun altına atabileceğimi düşünürüm.	0	1	2	3	4
38.	Araba sürerken bazen içimden bir his arabayı birilerinin üstüne veya bir şeylere doğru sürmeye zorlar.	0	1	2	3	4
39.	Silahlara bakmak beni heyecanlandırır ve şiddet içeren düşüncelere sürükler.	0	1	2	3	4
40.	Bıçakların, kamaların ve diğer kesici aletlerin keskin tarafından rahatsız olurum.	0	1	2	3	4
41.	Bazen sebepsiz yere bir şeyleri kırmak veya hasar vermek ihtiyacı hissederim.	0	1	2	3	4

Appendix E. Metacognition Questionnaire-30

ÜSTBİLİŞLER ÖLÇEĞİ-30 (METACOGNITION QUESTIONNAIRE – 30)

Bu anket kişilerin kendi düşüncelerine ilişkin inançlarını incelemektedir. Aşağıda bireyler tarafından ifade edilmiş bazı inanç maddeleri listelenmiştir. Lütfen her bir maddeyi okuyarak her birine ne kadar katıldığınızı uygun rakamı işaretleyerek belirtiniz (1: kesinlikle katılmıyorum; 2: kısmen katılmıyorum; 3 kısmen katılıyorum; 4: kesinlikle katılıyorum). Lütfen tüm maddeleri cevaplandırınız. Bu ankette doğru ya da yanlış cevap bulunmamaktadır.

		Kesinlikle katılmıyorum	Kısmen katılmıyorum	Kısmen katılıyorum	Kesinlikle katılıyorum
1.	Endişelenmek gelecekteki problemlerden kaçınmama yardımcı olur.	1	2	3	4
2.	Endişelenmem benim için tehlikelidir.	1	2	3	4
3.	Aklımdan geçenlerle çok uğraşırım.	1	2	3	4
4.	Endişe ede ede kendimi hasta edebilirim.	1	2	3	4
5.	Bir problem üzerinde düşünürken zihnimin nasıl çalıştığının farkındayımdır.	1	2	3	4
6.	Eğer beni endişelendiren bir düşünceyi kontrol edemezsem ve bu gerçekleşirse, benim hatam olur.	1	2	3	4
7.	Düzenliliğimi sürdürebilmem için endişe etmeye ihtiyacım var.	1	2	3	4
8.	Kelimeler ve isimler konusunda belleğime pek güvenim yoktur.	1	2	3	4
9.	Ne kadar engellemeye çalışırsam çalışayım, endişe verici düşüncelerim devam eder.	1	2	3	4
10.	Endişelenmek kafamdaki düşünceleri düzene sokmama yardım eder.	1	2	3	4
11.	Endişe verici düşünceler aklıma geldiğinde onları	1	2	3	4

	görmezden gelemiyorum.				
12.	Düşüncelerimi izlerim.	1	2	3	4
13.	Düşüncelerimi her zaman kontrol altında tutmalıyım.	1	2	3	4
14.	Belleğim zaman zaman beni yanıltır.	1	2	3	4
15.	Belirli düşüncelerimi kontrol etmediğim için cezalandırılacağım.	1	2	3	4
16.	Endişelerim beni delirtebilir.	1	2	3	4
17.	Düşündüğümün her an farkındayımdır.	1	2	3	4
18.	Zayıf bir belleğim vardır.	1	2	3	4
19.	Dikkatim zihnimin nasıl çalıştığıyla meşguldür.	1	2	3	4
20.	Endişelenmek bir şeylerin üstesinden gelmeme yardım eder.	1	2	3	4
21.	Düşüncelerimi kontrol edememek bir zayıflık işaretidir.	1	2	3	4
22.	Endişelenmeye başladığımda zaman zaman kendimi durduramam.	1	2	3	4
23.	Endişelenmek problemleri çözmede bana yardımcı olur.	1	2	3	4
24.	Bir yerleri hatırlama konusunda belleğime pek güvenmem.	1	2	3	4
25.	Belirli şeyleri düşünmek kötüdür.	1	2	3	4
26.	Belleğime güvenmem.	1	2	3	4
27.	Eğer düşüncelerimi kontrol edemezsem işlerimi sürdüremem.	1	2	3	4
28.	İyi çalışabilmek için endişelenmeye ihtiyacım vardır.	1	2	3	4
29.	Olayları hatırlama konusunda belleğime güvenmem.	1	2	3	4
30.	Düşüncelerimi sürekli gözden geçiririm.	1	2	3	4

Appendix F. Locus of Control Scale

KONTROL ODAĞI ÖLÇEĞİ (LOCUS OF CONTROL SCALE)

Bu anket, insanların yaşama ilişkin bazı düşüncelerini belirlemeyi amaçlamaktadır. Sizden, bu maddelerde yansıtılan düşüncelere ne ölçüde katıldığınızı ifade etmeniz istenmektedir. Bunun için, her maddeyi dikkatle okuyunuz ve o maddede ifade edilen düşüncenin sizin düşüncelerinize uygunluk derecesini belirtiniz. Bunun için de her ifadenin karşısındaki seçeneklerden sizin görüşünüzü yansıtan kutucuğu işaretlemeniz yeterlidir. "Doğru" ya da "yanlış" cevap diye bir şey söz konusu değildir.

No		Hiç uyygun değil	Pek uygun değil	Uygun	Oldukça uygun	Tamamen uygun
1.	İnsanın yaşamındaki mutsuzlukların çoğu, biraz da şanssızlığa bağlıdır.					
2.	İnsan ne yaparsa yapsın üşütüp hasta olmanın önüne geçemez.					
3.	Bir şeyin olacağı varsa eninde sonunda mutlaka olur.					
4.	İnsan ne kadar çabalarsa çabalasın, ne yazık ki değeri genelde anlaşılmaz.					
5.	İnsanlar savaşları önlemek için ne kadar çaba gösterirse göstersinler, savaşlar daima olacaktır.					
6.	Bazı insanlar doğuştan şanslıdır.					
7.	İnsan ilerlemek için güç sahibi kişilerin gönlünü hoş tutmak durumundadır.					
8.	İnsan ne yaparsa yapsın, hiçbir şey istediği gibi sonuçlanmaz.					
9.	Bir çok insan, rastlantıların yaşamlarını ne derece etkilediğinin farkında değildir.					
10.	Bir insanın halen ciddi bir hastalığa yakalanmamış olması					

	sadece bir şans meselesidir.					
11.	Dört yapraklı yonca bulmak insana şans getirir.					
12.	İnsanın burcu hangi hastalıklara daha yatkın olacağını belirler.					
13.	Bir sonucu elde etmede insanın neleri bildiği değil, kimleri tanıdığı önemlidir.					
14.	İnsanın bir günü iyi başladıysa iyi, kötü başladıysa kötü gider.					
15.	Başarılı olmak çok çalışmaya bağlıdır; şansın bunda payı ya hiç yoktur ya da çok azdır.					
16.	Aslında şans diye bir şey yoktur.					
17.	Hastalıklar çoğunlukla insanların dikkatsizliklerinden kaynaklanır.					
18.	Talihsizlik olarak nitelenen durumların çoğu, yetenek eksikliğinin, ihmalin, tembelliğin vb. nedenlerin sonucudur.					
19.	İnsan, yaşamında olabilecek şeyleri kendi kontrolü altında tutabilir.					
20.	Çoğu durumda yazı-tura atarak da isabetli kararlar verilebilir.					
21.	İnsanın ne yapacağı konusunda kararlı olması, kadere güvenmesinden daima iyidir.					
22.	İnsan fazla bir çaba harcamasa da, karşılaştığı sorunlar kendiliğinden çözülür.					
23.	Çok uzun vadeli planlar yapmak her zaman akıllıca olmayabilir, çünkü bir çok şey zaten					

	iyi ya da kötü şansa bağlıdır.					
24.	Bir çok hastalık insanı yakalar ve bunu önlemek mümkün değildir.					
25.	İnsan ne yaparsa yapsın, olabilecek kötü şeylerin önüne geçemez.					
26.	İnsanın istediğini elde etmesinin talihle bir ilgisi yoktur.					
27.	İnsan kendisini ilgilendiren birçok konuda kendi başına doğru kararlar alabilir.					
28.	Bir insanın başına gelenler temelde kendi yaptıklarının sonucudur.					
29.	Halk yeterli çabayı gösterse siyasal yolsuzlukları ortadan kaldırabilir.					
30.	Şans ya da talih hayatta önemli bir rol oynamaz.					
31.	Sağlıklı olup olmamayı belirleyen esas şey insanların kendi yaptıkları ve alışkanlıklarıdır.					
32.	İnsan kendi yaşamına temelde kendisi yön verir.					
33.	İnsanların talihsizlikleri yaptıkları hataların sonucudur.					
34.	İnsanlarla yakın ilişkiler kurmak tesadüflere değil, çaba göstermeye bağlıdır.					
35.	İnsanın hastalanacağı varsa hastalanır; bunu önlemek mümkün değildir.					
36.	İnsan bugün yaptıklarıyla gelecekte olabilecekleri değiştirebilir.					
37.	Kazalar doğrudan doğruya hataların sonucudur.					
38.	Bu dünya güç sahibi birkaç kişi tarafından					

	yönetilmektedir ve sade vatandaşın bu konuda yapabileceği fazla bir şey yoktur.					
39.	İnsanın dini inancının olması, hayatta karşılaşacağı bir çok zorluğu daha kolay aşmasına yardım eder.					
40.	Bir insan istediği kadar akıllı olsun, bir işe başladığında şansı yaver gitmezse başarılı olamaz.					
41.	İnsan kendine iyi baktığı sürece hastalıklardan kaçınabilir.					
42.	Kaderin insan yaşamı üzerinde çok büyük rolü vardır.					
43.	Kararlılık bir insanın istediği sonuçları almasında en önemli etkendir.					
44.	İnsanlara doğru şeyi yaptırmak bir yetenek işidir; şansın bunda payı ya hiç yoktur ya da çok azdır.					
45.	İnsan kendi kilosunu, yiyeceklerini ayarlayarak kontrol altında tutabilir.					
46.	İnsanın yaşamının alacağı yönü, çevresindeki güç sahibi kişiler belirler.					
47.	Büyük ideallere ancak çalışıp çabalayarak ulaşılabilir.					