

Role of Extraversion and Meta-Cognitive Worry in Psychological Immunity of Young Adults



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CERTIFICATE

It is certified that M.Sc. Research Report on **Role of Extraversion and Meta-Cognitive Worry in Psychological Immunity of Young Adults** by Fareeha Kainat has been approved for submission to Quaid-i-Azam University, Islamabad.

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Supervisor

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Dedicated to my supervisor Ma'am Aisha, my beloved family and my one and only Mentor who always support me, leads me through the valley of darkness with light of hope and motivate me throughout my journey of this thesis. They not only enlightened me with academic knowledge but also gave me valuable advice whenever I needed it the most.

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Abstract

The present study was aimed to examine the role of extraversion and meta-cognitive worry in psychological immunity of young adults. Moreover, it also focused to determine the role of demographics (gender, education of participants, parental marital status, family system and parental education) across the study variables. Sample ($N = 300$) consisted of men and women from colleges and universities of Rawalpindi and Islamabad with the age range of 19 to 25 years. The major constructs of the study were assessed with an Extraversion Subscale (Shrivastava, 1994), Meta-Cognitive Belief Questionnaire (Wells & Cartwright, 2004) and Psychological-Immunity Scale (Chochoom, 2013). Findings indicated that extraversion was negatively associated with meta cognitive worry and positively related with psychological immunity. Results showed that meta-cognitive worry was negatively associated with psychological immunity. Significant group differences were also found on gender, family system, education of participants, parental marital status, and parental education. Results showed that men expressed more extraversion traits, low meta-cognitive worry, and better psychological immunity as compared to women. Participants with higher education level expressed more extraversion traits, less meta-cognitive worry, and better psychological immunity than those who had low education level. It was also found that students enrolled in government institutes reflect lesser extraversion traits, more meta-cognitive worry, and poor psychological immunity as compared to the students enrolled in private institutes. Study also showed that respondents whose parents were living together had more extraversion traits, lesser meta-cognitive worry and better psychological immunity as compared to those who were living with single parents. Results showed that the respondents living in nuclear family setup showed lesser extraversion traits, more meta-cognitive worry, and poor psychological immunity as compared to those who were living in joint family system. It was found that participants whose parents were highly educated reflected more extraversion, less meta-cognitive worry, and better psychological immunity. Practical implications of the study were discussed and suggestions for further research were made.

INTRODUCTION

Introduction

Extraversion is frequently thought to provide benefits for stress management and better health outcomes. According to some study, these assumptions may be justified. Numerous studies have looked at the links between personality traits and a variety of cognitive, emotional, psychological, and behavioral outcomes, and many of them have found a link between extraversion and stress. Extraversion has an impact on stress outcomes, happiness, and psychological immunity. Extraversion tendencies are linked to adaptive coping in the face of stress. Positive affect may make one less vulnerable to recognizing a stressor in the first place, and sociability and warmth signal that one may have a large and supportive social support system in place that responds to a call to action when a stressor occurs. There is a link between extraversion and stress, as well as a link between extraversion and coping, according to research. Extraverts have been found to have more positive stressful life situations, selectively attend to positive parts of stressors, and seek out more social support and help when confronted with stressors.

Early adulthood is a life-threatening stage of life as people have new life experiences and transitions, due to which personality shows changes throughout this phase and at the same time shows consistency in some events (Lodi & Roberts, 2007; Roberts, Walton, & Viechtbauer, 2006). Taking personal responsibilities and making self-sufficient decisions are the main characteristics of developing adulthood (Amett, 2011). In many cultures this phase marks the beginning of many allowed responsibilities and authorities for example, voting, jurisdiction, and consents (Lumberson, & Reczek, 2010). Also, during the phase of young adulthood affective constancy of the individuals' changes (Lehnart, Neyer, & Eccles, 2010). Attitudes are seen as product that develops from general, stable personal dispositions. Further, situational events, connections with others, and formal education shape attitudes throughout the lifetime, but personal factors, especially personality dimensions play role to the greater extent than social influence that can be observed (Roberts et al., 2006). Therefore, stable organization of all bodily, intellectual, and divine characteristics of an individual shape up general attitudes and determines individual's

behavior. The correlation between personality and attitudes is meaningfully high and attitudes of the individuals are largely shaped up by personality dimensions (Dutt, 2015). Anderson and Bushman (2012) posit that several personality dispositions intertwine to form aggressive personality through several learned outcomes, for example, attitudes, beliefs, and related emotions. Along with individual's own personality, also the support from significant others matters because social support plays a role of essential protective factor in individual's life (Robbins, Judge, & Sanghi, 2019). Although support from others is a significant entity, but not every person perceives or obtains the equal degrees of social support from their significant relations (Branje, Lieshout, & Aken, 2014). Support from social relationships shape attitudes by different means and can create social standards, as well as provide assets that affect behavior (Umberson & Karas, 2010). One of the reasons for the difference in perception and reception of support from others possibly be variation of personality and diverse combinations of personality dimensions. Through researches it has been found that personality contributes in the size as well as in the formation of social association of individuals.

Therefore, the present study is designed to determine the predictor role of extraversion and meta-cognitive worry in psychological immunity of young adults. In the following section, description of predictor variable that is extraversion is given below.

Extraversion

The Big Five personality theory lists extraversion as one of the five personality qualities (Allport as cited in Wilson & Gulliver, 2020 as cited in Wilson & Gulliver, 2020). Extraversion describes how outgoing and social a person is, and how much they love being among others, participating in social gatherings, and being active. A person with a low level of extraversion is less outgoing and prefers to work alone (Rousseau, 2008). Warmth, positivism, gregariousness, and a need for excitement describe extroverts. Extraverts are generally described as talkative, gregarious, action-oriented, eager, friendly, and outgoing on the positive side. On the negative side, they are sometimes characterised as attention-seekers, easily distracted, and unable to spend alone time (Locke, 2004). Extraverts are also more likely to

participate in dangerous behaviors, such as those that are harmful to their health. Extraversion is vital for physical mobility, according to a growing body of studies (Allen, Magee, Vella, & Laborde, 2017; Sutin et al., 2016) and psychological change (Allen, Walter, & McDermott, 2017; Burnett et al., 2018). Extraversion is one of the five-factor model's characteristics, but it has also been a part of many other personality theories (Peterson, 2007).

Extraversion is a crucial higher-order personality component that appears in all major attribute personality conceptualizations (Cattell, 1965; Eysenck, 1947; Lee & Ashton, 2004; McCrae & John, 1992). Extraversion differs across languages and values (Allik et al., 2017), and it has a significant hereditary component (Berg et al., 2016; Vukasovi & Bratko, 2015). Parents report an extraversion component in children as young as three years old, and temperamental pioneers to extraversion appear early in infancy (Soto & John, 2014).

Characteristics of extraversion. Extraversion has at least three basic traits that make it valuable in general.

Firstly, extraversion has emerged as one of the most important aspects of personality (Eysenck & Himmelfeit, 1947). As a result, extraversion can explain the covariation of a wide range of behaviors, which is one of the field's main objectives (Funder, 2001).

Secondly, Extraversion predicts effective functioning and well-being in a range of domains (Ozer & Martinez, 2006), ranging from cognitive performance (Matthews, 1992) and social efforts (Eaton & Funder, 2003) to social economic position (Ozer & Martinez, 2006; Goldberg, 2007).

Thirdly, extraversion affects psychopathology risk and resistance in different ways (Trull & Sher, 1994; Widiger, 2005). Extrovertist has been linked to leadership behavior, according to studies. Extroverts are more prone to assert themselves in groups, so it's no surprise that they frequently assume leadership responsibilities while collaborating with others.

Sub-traits of extraversion. Each of the Big Five personality traits has six sub-characteristics (Colin, 2007). In a personality test, these can be evaluated independently of the attribute to which they belong. Friendliness, assertiveness, gregariousness, activity level, cheerfulness, and excitement seeking are sub-characteristics of the extraversion domain.

Personality traits. Personality is a collection of individual's thinking, actions, interests, and feelings inside an individual hence labeled as something inside (Kasschau, 2000). It is a combination of overt as well as covert features of an individual and development of a whole psychological arrangement that may affect the actions of an individual. (Robbins, Judge, & Sanghi, 2009). Trait as a steady way of feeling, behaving, and thinking influences important life outcomes of an individual (Soto, 2018). Estos. dispositions can be used to predict some external phenomena of interest and to describe and classify individuals (Poropat, 2009). Narrow personality traits are those related to specific tendencies or tangible behaviors such as talkativeness and broad traits relate to a more general tendencies and highly abstracted behavior (Anglim & Connor, 2019). According to Freeman, Stone, and Martin (2005), trait is a distinctive extent of stability to counter or act eagerly and generally to the similar situations. Traits are also a rapidity of feelings or actions in a similar manner in response to different events.

Personality also fluctuates because of experiences, social prospects, and the demands of altering roles (Specht, Egloff, & Schmukle, 2011). Fajkowska (2018) assumed that personality dispositions are composite, hierarchic associations and further appear in the form of overt reactions. Moreover, genetic, physiological, behavioral are the different levels of the expression of personality traits. Kreitler (2018) proposed traits a particular place at emotional and psychological level. Traits as meaning assignment tendencies hold special place which effects and manifest all domains cognitions, emotions, attitudes, and behavior. Fajkowska (2018) portrayed personality as a three-level organization, where mechanisms and processes such as competences and abilities constitute lowest level. Structure such as patterns of forms the middle level, while conducts and actions such as strategies and tendencies indicate the upper level. Traits express typical ways of actions and consistent patterns of behavior, thought, emotion and cognition (Mischel, Shoda, & Smith, 2004).

Theoretical Framework of Personality

Various trait theories have been given by different authors for categorizing and presenting the dispositions that people possess (Novikova, 2013). However, there is a general concord on big five personality model which is a comprehensive and vigorous personality model consisting of five dimensions. Extraversion, conscientiousness, agreeableness, neuroticism, and openness to experience are examples of personality traits (Wortman, Lucas, & Donnellan, 2012).

Allport's trait theory. Allport showed way in the field of trait theories of personality and distinguished three personality dimensions and coined the term dispositions for personality traits. The first are the cardinal dispositions which are the most important and well-established traits in the person's life. The second category is the central dispositions which are not much prominent but exist to some extent in every person and play role in one's life. And the last one is secondary dispositions which are only seen situations as they are less apparent and less constant individual traits (Allport & Odbert as cited in Allik, 2018). According to this theory most people are depicted by their central dispositions and common dispositions prevail among the members of a culture or nation. This approach intended to identify the unique dispositions of each person and endorsed an idiographic method for understanding personality (Allport as cited in Novikova, 2013).

Cattell's sixteen personality factor theory. Further factor analysis led to the advancement of trait theory. This approach gave rise to the development of the Sixteen Personality Factor Model consisting of sixteen personality traits and Sixteen Personality Factor Questionnaire was proposed (Cattell as cited in Allik, 2018). According to this model different and unique combinations of these traits determine individuality. By the combination of 16 primary traits five global factors were also discovered. The term syntality was used in this theory to indicate not only individual's characteristics, but also social group behaviors as well (Cattell as cited in Anglim & Connor, 2019).

Eysenck three dimensions of personality. Another important theory known as hierarchical model of personality was proposed by Eysenck. This model consists of three factors which are extraversion / introversion, neuroticism / stability, and

psychoticism / socialization. This model also used factor analysis which further guided to the formation of the Eysenck Personality Inventory and Eysenck Personality Questionnaire. The Eysenck Personality Profiler divides different aspects of each trait to form further categories. Eysenck recommended that genetics take part in the determination of person's dispositions (Eysenck as cited in Maltby, Day, & Macaskill, 2010).

Big five theory. It is a most dominant approach in personality depiction. The Big Five dimensions originate mostly from lexical approach to trait (Digman, 1990). Depending on the significance of lexical approach for personality description that is all facet of human personality has previously coded in the shape of language, the five-factor model depends upon the factor analytic procedure for explanation of human traits (Fajkowska, 2015).

Inductive approach is used in the Big Five approach, which means that the theory derives from the research data. So, this approach is not based theory rather it is research based (Melville, 2004). In Big Five approach the same dimensions are applied across individuals which means that it is based upon nomothetic analyzes (Friedman & Schustack, 2003). It is a widespread hierarchical depiction of personality which shows one level of breadth but not discrepancy in personality traits (Anglim & Connor, 2019). Big Five model bipolar trait dimensions represent the most extensively used model of personality (Soto, 2018). The five most essential dimensions of personality are used to predict a variety of important outcomes such as counterproductive work behavior, wellbeing, and mortality as well as unethical, manipulative, and deceiving behavior (Jonason & Connor, 2017). Following is the description of five dimensions of Big Five model.

Extraversion. Extraversion characterizes individual changes in socialization, sentiments, and energy level. Extremely extraverted persons are more expressive and perform better in social situation. Extraverts tend to experience greater subjective well-being than introverts who tend to be socially and emotionally reserved (Soto, 2018). Extraverts interpret events as pleasant due to the experience of positive emotions and as a result they do not identify the occurrence of misconduct or violence (Milam, Spitzmueller, & Penney, 2009). Introverts are more attentive to deceptive behaviors as they are more internally aware and insightful (Nielsen, Glaso, &

Einarsen, 2017). Extraverts are known as individuals with traits such as outgoing, talkative, self-confident, determined, and energetic with abundant of positive feelings (Shahjehan, Qureshi, Zeb, & Saifullah, 2012). Cavanaugh and Blanchard (2011) have specified that extravert individuals prefer to be in an active environment rather than the passive environment.

Conscientiousness. Highly conscientious individuals are realistic towards their work; prefer sequence and order, responsibilities, and rules (Kim & Glomb, 2014). They tend to perform better in life and whereas less conscientious individuals are less provoked to complete tasks. Highly conscientious individuals involve more in healthy behaviors. They avoid risky the control of and tend to live longer (Soto, 2018). Conscientiousness associates to impulse control and is negatively linked with deviance and harassment (Berry, Ones, & Sackett, 2007). Individuals high on this dimension have a strong internal locus of control and are also known as trustworthy, punctual, self-control, neat and competent (Maltby, 2010). Conscientiousness individuals can control their impulsivity and prefer delayed gratification (Joshnloo, Rastegar, & Bakhshi, 2012).

Agreeableness. Agreeableness is associated with empathy, respectfulness, and recognition of others as well as prosocial outcomes. Highly agreeable individuals tend to have more stable and satisfying relationship with others and are better liked by others. Highly agreeable individuals hold positive beliefs about others, treat others with regard, and are also less likely to involve in criminal behavior (Kreitler, 2018). People high on this dimension tend to have positive affectivity and more trust towards others; while people low in agreeableness are distrustful and suspicious, According to Milfont and Sibley (2012), individuals whose score high in agreeableness are compliant, pleasant, sympathetic, and cooperative. They also tend to trust rather and do not have negative emotion as compared with individuals with low agreeableness.

Neuroticism. Neuroticism indicates differences in the intensity and experience of emotions. Highly neurotic individuals experience anxiety, more mood swings and have lower level of overall life satisfaction whereas emotionally stable individuals stay calm easily in difficult situations and have high mental health (Berry, Ones, & Sackett, 2007). People high on this dimension recognize themselves as well as everything in the world surrounding them in by and large in pessimistic way and

involve more in interpersonal and organizational deviance. According to Gohary and Hanzaee (2014), neuroticism is a trait of individuals that are prone to experience psychological distress, always feel insecure and have emotional instability. Individuals high on neuroticism tend to do things in excess such as same behaviors and actions repetitively and prone to get panic (Cavanaugh & Blanchard, 2011).

Openness to experience. It characterizes differences in intellectual interests in addition to imagination. Individuals high on this dimension enjoy positive activities such as thinking and learning new things and score higher on tests of creativity and intelligence. They are also insightful to art and beauty and tend to practice scientific and artistic occupations. On the other hand, close-minded individuals tend to have a low imagination, creativity, and intellect (Allik, 2018). Openness to experience is also moderately links with contentment, cheerfulness, positive affectivity, and new experiences. According to Gohary and Hanzaee (2014), the individual that possesses this trait have great intellect power and are imaginative.

Stability of Personality Traits

Personality traits are generally conceptualized as unchangeable spots of leopards (Matthews, 2018). Also, literature has significant support that through lifetime personality characters fluctuates (Ferguson, 2010; Wortman, Lucas, & Donnellan, 2012; Wrzus & Roberts, 2016). Literature similarly supports the stability of personality traits (Strelau, 2008; Kreitler, 2018). However, Bleidorn, Hopwood, and Lucas (2018) asserted no influential support that dispositions change following important events of life. Hampson and Edmonds (2018) confirmed changing aspects of Big Five dimensions as well as their medium constancy over time. Roberts (2018) suggested the revision of conventional genetic model of personality characters. and supported evolutionary explanation of personality. Fajkowska (2018) provided another viewpoint and asserted that the constancy and alteration of dispositions in emerging adulthood is based on the situation and circumstances and in response to functional processing of stimulus.

Causes of extraversion. The specific explanation for people's tendency to be more extraverted or introverted has been the topic of much debate and research in psychology. The question seems to reduce to two primary components, as it does in many such discussions: nurture vs. nature.

Genetics. There is no doubt that extraversion has a major genetic component. Genetics is thought to account for between 40% and 60% of the diversity in extroversion and introversion, according to twin studies.

Environment. Individual experiences have more weight than shared experiences in families, according to sibling studies published in 2011. This trait's variability could be linked to changes in cortical arousal. According to some psychologists, extroverts require more external stimulation, whereas introverts are easily stimulated.

Extraversion is studied as a first part of five factor model. Extraversion, like many other qualities, has varied emphases in different assessments. It is built on aggressiveness at times, and spontaneity and enthusiasm at other times. It's sometimes based on power, confidence, and control (Depue & Collins, 2009) sometimes in a tendency toward happiness. Extraversion is frequently associated with sociability (Ashton et al., 2004). Extraversion is said to have two facets: a sense of agency and a sense of sociability, according to others (Depue & Morrone, 2011). Others suggest that sociability is a by-product of extraversion's other characteristics (Lucas et al., 2011). Extraversion has also been linked to the approach temperament; some now believe that extraversion reflects the overall approach system's relative sensitivity (Depue & Collins, 1999, Caspi & Shiner, 2006, Caspi et al., 2005, Elliott & Thrash, 2002, Evans & Rothbart, 2007).

Cognitive and Affective Outcomes of Extraversion

Many cancer patients suffer from significant levels of emotional distress, including symptoms such as anxiety, stress, and despair, which can impair their physical and psychological immunity (Castelli et al., 2015; Seib et al., 2018). Given that the disease process is linked to a deterioration in self-care, it's important to look into their mental health (Hoerger et al., 2016). In fact, cancer diagnosis and the

disease process itself can be painful events that jeopardize one's well-being and health. As a result, recognizing psychological symptoms may assist in identifying difficulties that need to be supported and addressed (Silva et al., 2012). Individual distinctions in cognitive processes, behavioral habits, and emotional reactions are referred to as personality. The impact of personality on cancer incidence and prognosis has received a lot of attention (Jokela et al., 2014). Emotional control and the repression of negative emotions have also been linked to an increased risk of cancer (Lemogne et al., 2013).

Acceptance of harmful health habits, such as burning, not attending cancer screenings, or even not adhering to oncologic and other medical treatments, may be linked to personality (Aschwanden et al., 2019; Jokela et al., 2014). Some personality traits, such as extraversion, can lead to optimistic expectations and trust in the advantages of cancer tests (Neeme et al., 2015).

In the next section, description of second predictor variable that is meta-cognitive worry is given below.

Meta-Cognitive Worry

According to the metacognitive model of emotional illness, a cognitive style in which one responds to one's own thoughts with perseverative handling causes and maintains worry, as well as a variety of psychiatric issues (Ryum, 2017). Metacognition is simply thinking about thinking, and it refers to any data or cognitive activity that is used to evaluate, observe, or control cognition (Barlow, 2004). As a result, metacognition refers to a thorough comprehension of one's own cognitive system and the factors that influence it, as well as regulation and awareness of one's current state of cognition and evaluation of one's own thoughts and ideas (Wells, 2009).

According to the metacognitive model of emotional disorders, the development and maintenance of anxiety, as well as a variety of mental illnesses, is caused by a cognitive style in which one reacts to one's own thoughts with perseverative processing (Yilmaz, 2011). Worry and rumination, a focus on false

threats, and the use of maladaptive coping methods are all symptoms of continuous mental processing. Fundamentally, this paradigm says that psychological discomfort such as concern is caused by the way people think rather than the content of their ideas (Wells, 2011). The driving force behind anxiety is the metacognitive ideas that give birth to persistent negative thinking, such as worry (Thielsch et al., 2015).

Metacognitive beliefs were found to predict anxiety over a three-month period after controlling for age, gender, and baseline symptoms (Hjemdal et al., 2010). (2013). Although negative metacognitive beliefs mediated the link between stress and anxiety, metacognitive beliefs were not found to be independent predictors of anxiety over a three-month period (Cejudo & Salguero, 2017). Excessive worry has been connected to a variety of unhealthy behaviors and outcomes. Among them are insomnia, alcohol and substance misuse, depressive symptoms, post-traumatic stress, prolonged grief, eating disorders, decreased working memory, increased somatic complaints, and persecutory delusions (Davies et al., 2016; Eisma et al., 2017; Sala & Levinson, 2016; Verkuil et al., 2012).

There's a lot of evidence suggesting there's a correlation between worry beliefs and over-worrying. Excessive worry is frequently related with views about worry's uncontrollability/danger, rather than ideas about worry's utility (Fergus & Wheless, 2018; Ramos-Cejudo & Salguero, 2017; Ryum et al., 2017; Thielsch et al., 2015; Wells et al., 2010). Metacognitive therapy appears to be a highly successful treatment for worry-related disorders, with results that are substantially larger than active comparator treatments (Normann et al., 2014).

Role of Metacognition in Worry

Metacognition is defined as the cognitive processes, techniques, and knowledge involved in the regulation and evaluation of one's own thinking. Worry is sustained by metacognitive ideas about the advantages and drawbacks of worrying (Wells, 2014). Worry is initially started as a coping response to an unwanted thought, and it is usually focused on a variety of situations such as physical health, social, or financial concerns (Ferguson, 2009). The effectiveness of anxiety as a coping mechanism is linked to positive metacognitive views. The activation of negative

attitudes about worry, specifically the uncontrollability and danger of worry, distinguishes people with generalized anxiety disorder. The activation of these beliefs contributes to negative worry evaluations, such as worrying over worrying (Warwick, 2001). Meta-worry-related negative emotions, such as heightened anxiety, make it more difficult for the individual to understand when it is safe to cease worrying. These spikes in anxiety might manifest as a panic attack, reinforcing negative ideas about worry and the urge to keep worrying (Hadjistavropoulos et al., 2012).

The pathological concern and generalized anxiety disorder metacognitive model distinguish between two forms of worry and explains negative thinking's persistence and uncontrollability because of unique metacognitions (Wells, 2010). The development of anxiety is based on a negative assessment of worry (meta-worry) and negative perceptions about worry. Furthermore, generalized anxiety is linked to mental control paradoxes, such as using extended thinking to minimize thinking. The evidence that supports the model's major tenets is examined. Metacognitive therapy is a specific treatment that focuses on changing metacognitive beliefs and decreasing the usage of anxiety to cope with thoughts. The model's empirical status is examined, and data from recent trials of this treatment is provided. The treatment appears to be effective, and early trials indicate that it is associated with higher degrees of recovery than treatments based on applied relaxation or cognitive-behavioral treatment for uncertainty intolerance.

According to the metacognitive model of generalized anxiety (Wells, 1995), pathological concern is the outcome of negative thoughts regarding anxiety and ill-advised mental control attempts. Metacognition is the part of perception that oversees evaluating, monitoring, and controlling one's own thoughts. (Flavell, 2013). It contains data and opinions on rationality, the implementation of mental regulatory methods, and mental state assessments and judgments. It influences and controls the selection and execution of evaluations, as well as attention and memory. Anxiety and depression symptoms are common in a number of chronic medical conditions, negatively impacting patients' quality of life (Catalano et al., Fantinelli et al., 2019; Lenzo et al., 2019; Marchetti et al., 2017; Marchini et al., 2018; Martino et al., 2019; Quattropani et al., 2018). Dysfunctional metacognitive beliefs may have a

role in the formation of negative emotions, as well as in the adherence to medical treatments. Considering this viewpoint, chronic patients and their careers metacognitive views may be a key component in the development of distress. This topic has piqued the interest of certain researchers. Metacognition, for example, can be a useful therapeutic tool for people with multiple sclerosis who have a defective metacognitive strategy. (Pöttgen et al., 2015).

Components of metacognition. It is characterized as a basic examination of cognitions, or basically thinking about thinking or cognition about cognition (Anderson, 2008; Livingston, 1997; Wellman, 2010). It also refers to focusing on any aspect of thinking, even give attention to metacognition itself (Dunlosky, 2015; Nelson & Narens, 2014). According to Hout-Wolters, Bernadette, and Afflerbach (2006) these are a complex class operators ignoring and representing thinking structure, whereas at the same time being part of it, Metacognition is divided into three categories.

Metacognitive knowledge. Metacognitive knowledge is anything people identify about themselves as mental processors, about diverse learning, and problem-solving methodologies, and about the demands of a specific learning activity (Wenden, 1998). When it comes to metacognitive information, there are at least three main types of metacognition awareness.

Declarative knowledge. It relates to understanding oneself as a learner and the things that can affect one's performance. Declarative knowledge, often known as world knowledge, is a type of declarative knowledge (Kump, 2015).

Procedural knowledge. It's about knowing how to do things. Heuristics and tactics are examples of this type of knowledge. Individuals with a high level of procedural expertise can also do tasks more automatically. This is accomplished by employing a wide range of tactics that may be accessed more quickly (Synder, 2016).

Conditional knowledge. It refers to understanding when and why declarative and procedural knowledge should be used. When using tactics, it allows students to

allocate their resources. As a result, the techniques can become more effective (Bradely, 2013).

Metacognitive regulation. It is the cognitive regulation and learning experiences gained via a series of activities that enable people to exert control over their learning. Metacognitive regulation is the process of controlling our thoughts to improve our learning. Metacognitive control, like metacognitive knowledge, has three skills that are required (Stanton, 2015).

Planning. It relates to the proper selection of methods and resource allocation, both of which have an impact on task performance (Michael, 2010).

Monitoring. It refers to one's cognition and task performance awareness (Stadler, 2008).

Evaluating. It refers to evaluating a task's ultimate output as well as the efficiency with which it was completed. This may entail re-evaluating previous strategies (Cauley, 2005).

Metacognitive experiences. These are the encounters that have something to do with the current cognitive project. Metacognitive experiences refer to a person's knowledge and sentiments aroused in a problem-solving situation, and metacognitive skills are thought to play a role in a wide range of cognitive activities, including spoken communication, reading comprehension, attention, and memory (Schwarz, 2008).

Evidence for the Metacognitive Model

The examination of the metacognitive model is centered on four areas of empirical inquiry (Koriat, 2020). The first is concerned with the potential negative effects of pondering emotional and cognitive self-control (Parrott, 2015). The second theory proposes that the assessment of worry and related negative metacognitive thinking affects the transition to generalized anxiety states (Muijs, 2020). The third idea is that concern is linked to good metacognitive thoughts (Chick, 2011). Fourth,

the model suggests that people who have negative thoughts have dysfunctional mind control behaviors (Kroth, 2011).

Consequences of worrying. Worrying has been shown to have deleterious impacts on self-control of emotions and thoughts. In early work Borkovec, Robinson, Pruzinsky, and DePree (1983) demonstrated that high worriers had higher anxiety, despair, and negative thoughts than low worriers after only a few minutes of worrying. York, Borkovec, Vasey, and Stern (2009) verified that high worriers have higher anxiety, despair, and negative thoughts than low worriers after only a few minutes of worrying. Worry has been found to have negative consequences in different circumstances, such as public anxiety and the comparable process of meditation. In high socially anxious respondents, post-event worry/rumination predicted memory of negative self-relevant information, negative self-judgments, and anxiety symptoms on anticipation of a following social contact (Mellings & Alden, 2000). According to a large body of evidence, ruminating in a bad mood is predictively and positively connected with negative emotional outcomes (Nolen-Hoeksema, 2000). Furthermore, it appears that induced rumination prolongs dysphoria (Lyubomirsky & Tkach, 2004). On the other hand, the metacognitive approach predicts a more convoluted relationship between worry and emotional outcomes. Emotion appears to play a role in worrying

Importance of negative metacognitions. The importance of these in the development of pathological worry is a key concept. This claim has been investigated in several research. Wells and Carter (1999) measured worry and demonstrated that according to the study, the former had a larger positive correlation with pathological worry levels than the latter. A second study that focused solely on worry about the dangers of worry distinguished those who met the generalized anxiety threshold from those labelled as having somatic anxiety (Huntley, 2016). This effect could not be attributable to differences in general worry frequency because the effect was still there when worry frequency was statistically controlled.

Relationship between positive metacognitions and worry. Although the model emphasizes negative metacognitions in the production of negative ideas, it also predicts that positive attitudes toward worrying, particularly pathological forms,

should be positively associated with worry. This assumption is supported by data from interviews and questionnaires (Davey, Tallis, & Capuzzo, 1996; Hatton & Wells, 1997; Wells & Papageorgiou, 1998). Individuals with negative thoughts and those without do not show significant differences in the endorsement of positive meta-beliefs about worrying (Hatton & Wells, 1997; Wells, 2005) demonstrating that despite the presence of higher harmful thoughts, positive opinions are retained in generalized anxiety.

Metacognitive beliefs. Metacognitive beliefs can be portrayed as an arrangement of beliefs which administer how a man reacts to and understands insights at the object level. An illustration of an unhelpful metacognitive beliefs could be ruminating about my (perceptions identified with my) wellbeing will help me to comprehend it (a positive metacognitive belief) or it's difficult to quit agonizing over my insights identified with my wellbeing a negative metacognitive belief (Lenzo, 2020). Positive beliefs bolster the gathered convenience of rehashed examination of sickness cognition (stress and rumination) and negative belief bolsters the assumed uncontrollability and damage brought about by stress and rumination (Bright, 2018). Fundamentally, positive beliefs start the perseverative examination and disease practices, and negative beliefs keep a man from understanding that it is conceivable to quit contemplating and reacting to sickness perceptions as though something weren't right. Metacognitive beliefs might likewise represent attentional procedures to pay special mind to potential danger (risk observing) and methodologies, for example, keeping away from or attempting to smother wellbeing insights to attempt to diminish trouble (Capobianco, 2020). Metacognitive beliefs can likewise incorporate negative examinations around damage brought on by the procedure of stress and rumination itself, with convictions, for example, stress (about stress) can hurt my body found in patients with anxiety.

These beliefs might offer ascent to maladaptive metacognitive systems that can take the type of behavioral or cognitive endeavors to diminish negative receptions like unpleasant contemplations, sensations or feelings (Tajrishi, 2011). Support for the part of metacognitive beliefs in keeping up mental issue originates from investigations of obsessive-compulsive disorder where metacognitive beliefs demonstrated a more exact indicator of side effect lessening amid introduction and reaction counteractive

action treatment than comprehensions of obligation and perfectionism (Solem, Halland, Vogel, Hansen & Wells, 2009). The primary mental treatment model which expected to handle metacognitive beliefs straightforwardly was for anxiety. Metacognitive beliefs were linked to either perceived stress or unpleasant emotions in a substantial way (Spada et al., 2008b). Furthermore, in the context of stressful life events, faulty metacognitive beliefs predicted the onset of anxiety and depression symptoms (Yilmaz et al., 2011). Furthermore, the factor of negative beliefs was the best predictor of anxiety and sadness (Spada et al., 2008a).

In the last section, description of outcome variable that is psychological immunity is given below.

Psychological Immunity

Psychological immunity refers to a person's ability to safeguard and improve their mental health. The psychological immune system is a multi-dimensional model that incorporates aspects that affect mental health such as optimism, self-esteem, and emotional regulation (Abdurachman, 2018). It is made up of discrete defensive and proliferative resources that provide resistance to environmental stress. This template can be used to research relevant psychological phenomena such as resilience, as well as the cognitive and behavioral notions that go along with it (Pedrosa, 2020). It is the ability of the mind to resist mental illness, if your psychological immunity is strong, you also have mental strength, which is linked with steady concentration and having no memory loss with age (Sengupta, 2012).

The psychological immune system is characterized as an integrated system of cognitive, motivational, and behavioral personality factors that should provide stress immunity, promote healthy growth, and function as stress resistance resources or psychological antibodies in the face of stress (Dubey & Shahi, 2017). The combined resources enable the individual to tolerate stress and deal with risks in a way that does not undermine the individual's personality, but rather serves as a foundation for future growth and enrichment (Gembeck, 2016). This progress is a result of the knowledge, experience, and wisdom obtained via active participation in a particular issue or stressful situation, as well as the effective use of existing resources (Oláh, 2005). Self-

confidence, family compatibility, emotional maturity, psychological happiness, and pleasant memories are the four components of psychological immunity (Bhardwaj, 2012).

Psychological immunity refers to the wellness of individuals and feeling happy and working efficiently (Gupta, 2020). Psychological immunity does not mean that people are all the time happier but the painful experiences such as dissatisfaction, disaster, misery are usual occurring in life, and it is important to control these harmful, damaging, and bad feelings for wellness in long-terms (Kaur, 2020). An individual function in less effective way when these emotions are extreme and lasts for longer period (Huppert, 2009) psychological immunity is also described as how individuals appraise their lives.

The psychological immunity of a person is equivalent to one's power of interest, that is, how long one can sustain your interest on a mission or issue in an observant way, allowing it show to you what it is, not responding with your mind's conditioning, your personal opinions, or second-hand beliefs (Boggio, 2019). For psychological immunity, we need a thoughtful mind, which is nothing more unusual than feeling completely awake (Heidari, 2017). Besides deep peace and quiet, the thoughtful mind has a quality that continuously attracts our notice pleasure. If self-perception was like a blank sheet of paper, no one would seek it except as an escape from life's fluctuations. But pleasure is delightful, entertaining, and fascinating. Gilbert and Wilson (1998) believe that the unfamiliarity of the psychological immune system may reduce from several resources. For starters, they've discovered that people commonly overlook the possibility that the emotional impact of traumatic events may be mitigated by other, more positive ones. Second, people are extraordinarily adept at viewing events in their lives in a favorable perspective (Siri, 2001).

This health-protective element was used in the Psychological Immune System Theory (Oláh, 2009), which provided this positive psychology-based paradigm with the goal of integrating the above potentials into an integrated system. The Psychological Immune System is a multifaceted yet integrated unit of psychological resilience resources or adaptive capacities that provides immunity to injury and stress (Ryff, 2014)). Positive thinking, sense of coherence, and sense of self-growth, among other resources, enable an individual to bear stress and cope effectively with it

(Bhardwaj, 2014). Due to active and constructive engagement in the stressful situation, these potentials assist the individual in coping in a way that does not impair the personality in any way, but rather enhances its efficacy and developmental ability (Segerstrom, 2004). In the field of sport psychology, a number of these personality capacities, which are part of the psychological immune system, have already been studied, including in relation to high performance and subjective well-being. The ability to analyse their impacts, which may be simultaneous or mixed, on the two most significant outcomes of the sports experience: high performance and high satisfaction, is made possible by combining these resources under one theoretical umbrella (Agrawal, 2017; Baicker, 2020).

The Psychological Immune System idea was established based on the above-mentioned coping effectiveness resources, with the goal of integrating these disparate, but experimentally associated character strengths and personality resources into a single comprehensive system (Séleli, 2021). The approach is based on the positive psychology viewpoint, which emphasizes human strengths and potentials rather than personality defects and limitations (Oláh & Kapitány-Fövény, 2012).

Elements of psychological immunity. The major elements are elements of psychological immunity are.

Emotional strength. Emotional strength is defined as the ability to respond openly and vulnerable in the face of intense emotional experience, feeling one's way deeper into the emotion to gain access to the underlying functional processes that drive action (Barrett, 2017). Emotional strength is a technique of responding to emotion experience that is distinct from other affect-related concepts. Its main distinction is that it refers to feeling one's way further into an emotion during an emotion episode filled with a sensation of emotional vulnerability rather than being founded in attention or emotional cognitions (Capraro, 2021). Emotional strength can also be thought of in a dispositional sense, as a consistent proclivity towards this type of emotional response. Finally, emotional strength can serve as an organizing concept for practical activity in addition to designating a type of real response and response disposition (Schore, 2014).

Self-reliance. Self-reliance is the ability to rely on oneself for things rather than relying on others. People who are self-reliant are independent and autonomous, which means they look after themselves (Emerson, 2001).

Self-reliance is based on the principle of being true to oneself, making the most of one's own abilities, and trusting one's own intuition. Individuals who have been self-reliant and the hazards posed by uniformity are used to promote this concept (Odella, 2020).

Emotional truthfulness. The ability to feel the emotions that arise, without fear or rejection (Sousa & Morton, 2002). Emotions aren't just physiological disruptions; they're also learning experiences that help us understand ourselves and the world around us. Emotions encapsulate a level of understanding that we can only gain through affective experience (Bavel, 2013). Only through emotions can we perceive meaning in life, and only by feeling emotions are we capable of recognizing the value or significance of anything whatsoever. Our affective responses and dispositions therefore play a critical role in our apprehension of meaningful truth. Furthermore, their felt quality is intimately related to the awareness that they provide. In periods of such emotions as wrath, fear, and grief, the problem of truth is at stake (Furtak, 2018).

Detachment. Detachment which places a distance between your sense of self and the turmoil around you. Detachment or estrangement from others has also been identified as a traumatic event intrusion symptom, as well as a prevalent PTSD symptom (Brooks et al., 2020). It is a form of mental assertiveness in the second meaning that allows people to preserve their boundaries and psychic integrity when confronted with the emotional demands of another person or group of people (Mierswa, 2017).

Emotional intelligence. The capacity to anticipate how emotions will work out in each condition. One of the most basic aspects of emotional intelligence is the ability to deliberately analyse, manipulate, regulate, and modulate emotional responses to match situational needs (Barrett & Gross, 2001; MacCann, Joseph, Newman, & Roberts, 2014). Emotional intelligence is a significant resource for developing emotional management skills. To put it another way, people with high

emotional intelligence are better at manipulating and managing their emotions in a variety of situations (Laborde, Lautenbach, Allen, Herbert, & Achtzehn, 2014).

Segments of psychological immunity. Three elements make up the Psychological Immune System. The Monitoring-Approaching Subsystem, the Creating-Executing Subsystem, and the Self-Regulation Subsystem actively interact with one another to promote the individual's adaptive adaptability and self-development (Cikara, 2016). The three subsystems interact in a dynamic way, continually regulating each other's operation in the coping process and guiding the individual to employ adaptable and self-developing coping mechanisms (Nagy, & Tóth, 2010).

The monitoring-approaching subsystem. The monitoring-approaching subsystem directs the individual's attention to his or her physical and social surroundings. It assists the individual in investigating, comprehending, and managing their surroundings while also directing their attention to beneficial outcomes. Positive thinking, sense of coherence, sense of control, sense of self-growth, change and challenge orientation, social monitoring, and goal orientation are all part of this subsystem (Gombor, 2009).

The creating-executing subsystem. This system combines potentials that can assist in changing the circumstances in a stressful scenario or generating possibilities in the surrounding environment. It denotes a person's ability to alter their internal or external surroundings to achieve their desired outcomes. This subsystem includes creative self-concept, problem solving, self-efficacy, social mobilizing capacity, and social producing capacity (Gombor, 2009).

Self-regulating. The self-regulating subsystem contains potentials that give control over cognitions, attention, emotions, and impulses that are frequently triggered by failure, disappointment, or loss (Cichocka, 2015). It contains synchronization, impulse control, irritation control, and emotional regulation, and it promotes the appropriate functioning of the other two subsystems by keeping the person's emotional life steady (Gombor, 2009).

The three subsystems interact in a dynamic way, continually regulating each other's functioning in the coping process and guiding the individual to utilize adaptable, self-developing coping mechanisms (Oláh, 2005; Oláh, Szabó, Mészáros & Pápai, 2012). To put it another way, the psychological immune system establishes a balance between the individual and their environment to achieve higher levels of adaptive strength (Gombor, 2009).

Psychological antibodies and the psychological immune system. Oláh presented the psychological immune system to bring together the disparate but analytically related character powers and stress-resilient personality resources into a single, all-encompassing system (Jaiswal, 2020). Psychological immunity, also known as psychological antibodies, is a varied yet coherent component of human resilience resources and adaptive characteristics that provides immunity in the face of harm, stress, and traumatic events (Dudek, 2020). Each of the three subsystems of the psychological immune system has its own collection of psychological antibodies. These subsystems interact and influence one another's functioning during the coping process, guiding the person to employ flexible and self-developing coping methods (Tushar, 2019).

Counter to COVID-19-related psychopathology. Psychological immunity defensive abilities (psychological antibodies) have shown promise in high-stress occupations such as emergency nurses, medical professionals, and military soldiers. Psychological immunity has a strong positive relationship with life satisfaction and well-being aspects (ecological command, life purpose, personal progress, self-acceptance, positive relationships, and independence) and a strong negative relationship with stress (Xing, 2020). Antibodies, self-control, self-growth, synchrony, desire, emotion, and irritation control are all strongly linked to mental and physical health. The psychological adjustment is mediated by positive thinking and a sense of self-growth. In cases of acute psychopathology, there is a mental health relationship (Hayek, 2020). In gymnasts, the psychological immune system's personality resources strongly predict their level of enjoyment. The monitoring–creating–executing subsystem and the approach–belief subsystem both positively correlate with the hope of achieving goals, and the overall psychological immune system adversely correlates with despair. In addition, there is a substantial link

between psychological immunity and longevity. Psychological immunity, as well as the psychological antibodies found within it, can help people cope with stress and protect them against psychopathology.

Psychological health during the COVID-19 pandemic. Depression and psychological stress, even a few days before or after the vaccine, have been proven to be a significant and robust predictor of the immune system's innate and adaptive responses. Unfortunately, distress is central to the COVID-19 pandemic; in fact, even after controlling for sociodemographic factors and other psychological susceptibility factors like neuroticism, the fear of COVID-19 itself, dubbed corona phobia, triggered depression and generalized anxiety in one U.S. sample (Lee et al., 2020). Those with higher COVID-19 fearfulness had a higher chance of clinically severe depressive symptoms in another large representative U.S. sample (Fitzpatrick et al., 2020). Ironically, a vaccine's potential to impart protection against COVID-19 may be harmed by dread of the virus

The prevalence of psychological symptoms and clinical diagnoses has increased during the global pandemic. According to the US Census Bureau, persons in April and May 2020 had three times the risk of screening positive for either a depressive disorder, anxiety disorder, or both, compared to adults questioned in early 2019. During the pandemic, one in every three adults in the United States tested positive for one or both disorders (Twenge & Joiner, 2020). Between April and May 2020, anxiety levels decreased, while melancholy levels increased (Twenge & Joiner, 2020). In a large representative U.S. sample, the average depressive symptom score was approximately one point higher than the cut score used to detect clinically severe depression symptoms, implying widespread sorrow (Fitzpatrick et al., 2020). Furthermore, individuals who reported food insecurity were particularly vulnerable (Fitzpatrick et al., 2020), which is significant given that COVID-19 severity is linked to socioeconomic level (Raifman & Raifman, 2020). Similarly, during the COVID-19 outbreak in China in February 2020, an online poll found that 35% of the population had clinically significant generalized anxiety symptoms, 20% had depressive symptoms, and 18% had poor sleep quality, according to the results (Huang & Zhao, 2020).

It implies that worry, melancholy, and anxiety are more common during the COVID-19 pandemic, and that specific demographics, such as those who are more afraid of COVID-19 or those with lower socioeconomic status, are more likely to suffer these symptoms—as well as reduced vaccine efficacy. It also reveals that the frequency and intensity of vaccine-related side effects are influenced by state and trait psychological variables. For example, experiencing a stressful situation soon after immunization may worsen negative effects (Brydon, Walker, Wawrzyniak, Whitehead, et al., 2009). The possibility of SARS-CoV-2 vaccine-related side effects is one factor influencing adults' willingness to be immunized in the United States (Reiter et al., 2020). To the degree possible, reducing stress exposure around the time of vaccination may help to reduce the risk of bothersome side effects (Brydon, Walker, Wawrzyniak, Whitehead, et al., 2009).

Medical professionals who have more mental health issues also have a negative self-perception of their physical health. Admittance to psychological aid (ingredients/resources) is, on the other hand, inversely connected to the proportion of people who have mental health problems (Zastrow, 2020). Considering this, experts suggest that consistent showing and appropriate treatment of psychological well-being difficulties in health-care employees, ideally using psychotherapy means, is required. Because psychotherapy therapies can alter psychological immunity, establishing evidence-based, graded, and customized psychological immunity enhancing interventions will support safeguard the guards from becoming victims of the epidemic (Montemurro, 2020).

Extraversion, Meta-Cognitive Worry and Psychological Immunity: Empirical Evidences

Numerous studies provide indirect evidence of possible relationship among study constructs. Details of relative literature are given below.

Extraversion and meta-cognitive worry. Personality qualities are frequently thought to be rather stable throughout time and in different contexts (Terracciano, McCrae, & Costa, 2010). However, studies have shown that personality traits alter throughout time (Costa & McCrae, 2006; Roberts, Walton, & Viechtbauer, 2006;

Specht, Egloff, & Schmukle, 2011; Terracciano et al., 2010). Personality qualities can be both relatively stable and subject to change over time, depending on how stability and change in personality are operationalized, while personality changes are generally moderate across most research. People became more emotionally stable, conscientious, and socially confident with age, according to a meta-analysis of 92 longitudinal research (Roberts et al., 2006). Individual change, on the other hand, does not always follow mean-level development, as some people become less emotionally stable over time (Roberts, Caspi, & Moffitt, 2001). Although personality traits change over time, the reasons for this are still up for debate.

The reputation of exploring the links among usual disposition and abnormal psychology stems from the notion that disposition variables may suggest an early and permanent risk of psychopathology development (Krueger, Caspi, Moffitt, Silva, & McGee, 1996; Markon, Krueger, & Watson, 2005). Experiments on the relationship between extraversion and various forms of psychopathology have reignited interest in the linkages between normal and abnormal personality (Widiger, 2021).

Mental health and personality have a strong relationship. Neuroticism is a personality trait that predicts depression and anxiety disorder in the future (Jylhä & Isometsä, 2006). Generalized anxiety disorder is one psychological illness that is strongly associated to Neuroticism (Servaas, Riese, Ormel, & Aleman, 2014). Generalized anxiety is a common worry condition marked by increased and individually seen overwhelming fear over a wide range of issues that impairs the patient's overall performance (American Psychiatric Association, 2013). The presence of pathology was linked to greater neuroticism and decreased extraversion in a major Dutch investigation on the state effects of depression and anxiety disorders on NEO Personality Inventory variables (Karsten et al., 2012).

Extraversion and psychological immunity. The study of how biological, psychological, and social variables interact to influence health is gaining popularity. Physiological, dispositional, and community features all play a role in health, according to the biopsychosocial model (Hammack, 2003). Personality and individual differences are examples of psychological elements, while social aspects include those related to social support. Only a few researches have investigated the function

of community support in understanding the personality-health link. Despite long-standing recommendations for further research into the mediating connections between personality traits and mental health, this vacuum in the literature persists (Williams, 2009) and proposals of possible models to explain the relationship.

Extraversion and emotional stability have an especially strong link to psychological immunity (Ozer & Benet-Martínez, 2006). These connections are since, as Ozer and Benet-Martínez point out, persons who score high on these dimensions are less influenced by negative feedback, evaluate events more favorably, and are less concerned about unattainable prospects. The relationship between extraversion/emotional stability and psychological immunity is not only strong in character, but it is also causal in nature. These behavioral tendencies have an impact on mental health levels in the future and in the present (Costa & McCrae, 1999).

Meta-cognitive worry and psychological immunity. The adoption of specific tactics to manage emotions is based on metacognitions, according to metacognitive therapy (Wells, 2009). Metacognition was first characterized as knowledge or beliefs about thinking, as well as tactics for regulating and controlling thought processes (Flavell, 2016). For the development and maintenance of psychological diseases, metacognitions are critical (Wells, 2011). Positive and negative metacognitive beliefs are the two types of metacognitive beliefs that are targeted in treatment. Worry, ruminations, and threat monitoring are all examples of positive metacognitive beliefs. Negative metacognitive beliefs are concerned with the inability to control one's thoughts and their danger.

On the other hand, patients with breast cancer suffer from metacognitive beliefs that threaten their mental health due to the pain of the disease challenge. Metacognitive beliefs cause disorders that affect a person's thinking style and adaptation (Hoffart et al., 2018). Metacognitive beliefs make people anxious and worried. Patients often resort to metacognitive beliefs to relieve anxiety. Metacognitive beliefs, unwanted or disturbing thoughts are a major problem for people with special diseases because the feeling of threat and negative emotions have become permanent in them. From the point of view of psychologists, this type of

coping style is inefficient and inconsistent coping because it does not help to solve problems and worsens a person's psycho-mood (Hoffart et al., 2018).

Rationale

In Pakistan there is deficit for research in the context of extraversion, meta-cognitive worry, and psychological immunity. There are many researches on personal disposition but lack of studies to determine role of personality in cognition. The purpose of the current study is to find out the role of extraversion and meta-cognitive worry in psychological immunity of young adults. The study intends to provide deeper understanding in reference to the role of extraversion to explain psychological immunity that support one accomplish well in the family role and to cope meta-cognitive worry.

According to the findings, research participants who reported an introverted personality had much higher degrees of communication anxiety in public settings than extraverts (Opt & Loffredo, 2000). Communication apprehension was found to be inversely connected to extraversion but positively related to neuroticism in another study (Neuliep et al, 2000). According to another study (MacIntyre & Thivierge, 1995), low public speaking anxiety revealed a strong link between intelligence, emotional stability, and extraversion. Extraversion is studies as a part of big five personality factors but there is lack of research on extraversion in relation to the study variables.

Studies showed that positive thinking training has a significant effect on reducing self-determination and death anxiety in women with breast cancer. It is determined that positive thinking training is effective in reducing the perception of stress and anxiety in women with breast cancer. It is found that positivity training has a significant effect on depression and happiness in breast in women with breast cancer. It is showed in a study that receiving positive thinking training intervention is effective on the psychological well-being of breast cancer patients. Studies carried out on meta-cognitive worry are primarily focus on pathologies such as generalized anxiety disorder but there is scarcity in non-clinical population. The present study is

aimed that exploring the meta-cognitive worry as a predictor of psychological immunity.

Recent research on the moderating influence of synchronized lifestyle alteration in the link between insomnia, psychological immunity, and psychological well-being will be presented at COVID-19. According to studies, a synchronized lifestyle modification programme is associated with a significant negative link with sleeplessness but a significant good relationship with psychological immunity and well-being (Abe, 2019). In addition, research has discovered that insomnia has a negative association with psychological immunity and well-being, and that this relationship will be weakened if a high-synchronized lifestyle modification programme is used (Anne, Jennifer & Thomas, 2020). There is lack of research on psychological immunity in relation to extraversion and meta-cognitive worry. The present study aimed at filling the inconsistencies of research finding related to psychological immunity. The construct of psychological immunity is under research.

Sample of young adults taken as they are at developmental and grooming phase, and they are more prone to the risk factors. So, to assess the psychological immunity among adult is necessary to understand the risk factors and minimize the worry thoughts among them. They face different types of worry at this stage of life.

METHOD

Chapter II

Method

The following chapter of the present study represents the details regarding objectives, hypotheses, operational definition, sample, instruments, and procedure which further carries information about demographic sheet, consent form and confidentiality related concerns were discussed in detail.

Objectives

1. To examine the role of extraversion and meta-cognitive worry in psychological immunity of young adults.
2. To determine the role of various demographics (gender, family system, education of participants, parental marital status, and parental education) in relation to study variables.

Hypotheses

1. Extraversion is negatively related with meta-cognitive worry and positively related to psychological immunity.
2. Meta-cognitive worry is negatively related with psychological immunity.
3. Men are inclined to express more extraversion, less meta-cognitive worry and better psychological immunity as compared to women.
4. Highly educated respondents would exhibit more extraversion, lesser meta-cognitive worry and better psychological immunity as compared to their counterparts.
5. Students enrolled in government institutes reflect lesser extraversion traits, more meta-cognitive worry and poor psychological immunity as compared to the students enrolled in private institutes.
6. Respondent whose parents are living together tend to reflect more extraversion traits, lesser meta-cognitive worry and better psychological immunity as compared to those who living with single parents.

Operational Definitions of Variables

The study construct has been operationalized as follows

Extraversion. People's varying proclivities for spontaneity and outgoing behavior, particularly in novel social situations (Hoskin, 2019). A dispositional trait manifested in term of better interpersonal skills, pro-social behavior, and better social adjustment tendencies (Brogaard, 2020). In the present study, extraversion was assessed with Extraversion Subscale (Shrivastava, 1994) and high score attained on this scale reflect more extraversion traits.

Meta-Cognitive Worry. Persistent worry about one's own thoughts and cognitive processes (Adrian, 2014). A negative metacognitive process in which one worries about one's own worrying and about its potentially harmful effects on oneself (Bailey, 2015). In this study, meta cognitive worry was assessed with Meta-Cognitive Belief Questionnaire (Wells & Cartwright, 2004) and high score attained on this scale reflect more meta-cognitive worry.

Psychological Immunity. Positive characteristics of psychological immunity are related to each other and influence positive psychological functioning (Smoski, 2014). A psychological construct that describes the ability to handle adversity and consistent of five dimensions, namely resilience, mindfulness, coping, hope and self-reliance (Choochom, 2013). In present study, psychological immunity was assessed with Psychological-Immunity Scale (Choochom, 2013) and high score attained on this scale reflect better psychological immunity.

Sample

A non-probability convenient sample of the present study comprised of ($N=300$) students, including both men ($n = 150$) and women ($n =150$) of different colleges and universities of Rawalpindi and Islamabad. Age range of the respondents varied from 19 to 25 years. Educational level of the respondents included under graduation ($n = 152$) and graduation ($n = 148$). Participants selected belonged from nuclear ($n =159$) and joint ($n = 141$) families with parents living together ($n = 194$) and separated/divorced ($n = 106$). Participants were acquired from private ($n = 119$)

and public ($n = 181$) sector colleges and universities. Further details of the sample have been given in the Table.

Table 1

Demographic Details of the sample (N=300)

Demographic Variables	<i>f</i>	%
Gender		
Men	150	50.0
Women	150	50.0
Type of University		
Private	181	59.5
Government	119	40.5
Family System		
Nuclear	159	53.0
Joint	141	47.0
Education of Respondent		
Under Graduation	152	51.5
Graduation	148	48.5
Parental Marital Status		
Living Together	194	69.5
Separated	106	30.5
Father Education		
Matric	150	50.5
Intermediate	80	26.0
Graduation	70	23.0
Mother Education		
Matric	118	39.30
Intermediate	95	31.60
Graduation	87	35.0

Table 1 represents the distribution of the sample based on gender, age, marital status, education of respondents, type of institute and family system as of its demographic representation. It illustrates the various demographics obtained from the sample ($N = 300$). The age range was found to be in between 19 to 25 from which 50% men and 50% women. The data shown that 69.5% were married and 30.5% were unmarried. Furthermore, 40.5% were from govt. institutes and 59.5 from private institute.

Instruments

Following instruments were used in the present study.

Extraversion subscale. Extraversion subscale was a self-report measure consisting of 8 items developed by Shrivastava (1994). Participants respond in the form of agreement or disagreement ranging from 1 (*strongly disagree*) and 4 (*strongly agree*). High scores indicate high extraversion and vice versa. Alpha reliability of the scale was .81 (Zumbo, 1993).

Meta-Cognitive Belief Questionnaire. The Meta-Cognitive Belief Questionnaire was 20-items self-report measures developed by Meta-Cognitive Belief Questionnaire. All items were rated on 4-Likert point scale where responses ranges from 1 (*Strongly disagree*) to 4 (*Strongly agree*). High scores indicate high meta-worry. The alpha reliability of overall scale was .80 (Wang, 2003).

Psychological-Immunity Scale. Psychological immunity is measured by using the Psychological-Immunity Scale developed by Choochom (2013) comprising of fifteen items. The scale was a 4- point Likert type rating scale on which the responses of items ranged from 1(*Never*) to 5 (*Always*). High scores indicate high psychological immunity. The reliability of scale was .87 (Kantathanawat, 2020).

Demographic Sheet. A comprehensive demographic sheet was being formulated to understand their corresponding relationship with the descriptive of the study. Demographic sheet provides inclusive information about gender, education of participants, parental marital status, family system and parental education.

Procedure

Convenient sampling was used to collect data from the sample. Appropriate informed consent was taken. Questionnaires were processed through online Google forms and through conventional hand to hand method. They were given proper guidelines. Confidentiality of their responses was ensured. It was also told that they have right to leave if they felt uncomfortable to give their information at any time. Guidelines were given in both written and verbal form that helped the participants to fill questionnaire properly. They were appreciated for their time and cooperation at the end. After the data collection procedure, assessment was done with various statistical procedures.

RESULTS

Chapter III

Results

This section covers the outcomes of the study on role of extraversion and meta-cognitive worry in psychological immunity of young adults. This study is based on empirical data, so the results have been presented in the form of Tables given below. The statistical analysis consists of descriptive and inferential statistics while descriptive statistics includes means, standard deviation, skewness, range, and Cronbach's α whereas in inferential statistics Pearson product moment correlation, regression, and t -test were included. Furthermore, t -test is computed to calculate the mean differences among gender, education of participants, parental marital status, family system and parental education.

Reliability Estimates and Descriptive Statistics of Measures

To see the descriptive and psychometric properties of alpha reliability coefficients, mean standard deviation, range, skewness, and kurtosis of extraversion, meta-cognitive worry, and psychological immunity.

Table 2

Descriptive Statistics and Alpha Coefficients of Scales (N = 300)

Scales	No. of items	α	M	SD	Skew.	Kurt.	Range	
							Potential	Actual
Extraversion Subscale	8	.78	18.45	3.75	-.92	-.14	8-32	9-32
Meta-Cognitive Belief Ques.	20	.86	40.97	8.09	.33	.09	20-80	24-76
Psychological-Immunity Scale	15	.81	26.30	9.94	.14	.76	15-60	16-58

The Table 2 shows descriptive statistics of the scale. Results showed that alpha measures of internal consistency that is alpha co-efficient of all scales fall in the range of .80 to .85. All the values were above .70 (Field, 2018). The values of skewness and kurtosis also fall in range of -1 to +1 thereby showing normality of data.

Table 3*Correlation Matrix for all Study Variables (N = 300)*

Variables	1	2	3
1 Extraversion	-	-.41 ^{***}	.32 ^{***}
2 Meta Cognitive Worry		-	-.39 ^{**}
3 Psychological Immunity			-

Table 3 shows that the correlation matrix on the role of extraversion and meta-cognitive worry in psychological immunity of young adults. The results indicated extraversion is negatively related with meta-cognitive worry and positively related with psychological immunity. In addition, meta-cognitive worry is negatively related with psychological immunity.

Table 4*Simple Linear Regression Analysis for Predicting Psychological Immunity (N = 300)*

Variables	<i>B</i>	<i>S. E</i>	<i>p</i>	95% CL	
				<i>LL</i>	<i>UL</i>
Constant	45.05	2.26	.00	40.55	12.98
Extraversion	.56	.20	.00	1.43	6.15
Meta Cognitive Worry	.54	.06	.00	1.37	5.16
R^2	.26				
ΔR^2	.25				
<i>F</i>	40.67		.00		

Table 4 indicates multiple linear regression analysis with extraversion and meta-cognitive worry as predictor variable of psychological immunity in young adults. The Table shows that the study variable of extraversion and meta-cognitive worry both have significant effect ($p < .001$) upon psychological immunity. The Table suggests that 25% of the total variance explained in psychological immunity is significantly predicted by extraversion and meta-cognitive worry. It reveals that

extraversion and meta-cognitive worry will have an impact on psychological immunity.

Table 5

Gender Differences Across Study Variables (N = 300)

Variables	Men (n = 160)		Women (n = 140)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
	Extraversion	14.32	2.47	10.47			2.30	4.11	
Meta-Cognitive Worry	40.18	8.78	44.65	7.13	3.10	.01	2.80	5.66	.38
Psychological-Immunity	29.62	9.41	26.23	9.49	3.75	.01	1.93	4.70	.40

Table 5 shows mean scores, deviation and t-scores of men and women on extraversion, meta-cognitive worry, and psychological immunity. It clearly suggests that men reflected higher extraversion and psychological immunity while women express more meta-cognitive worry.

Table 6

Differences on Types of Institutes on Study Variables (N=300)

Variables	Private (n = 181)		Govt. (n = 119)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
	Extraversion	15.31	14.17	12.08			11.85	3.10	
Meta-Cognitive Worry	23.05	10.02	27.38	9.78	4.17	.00	4.21	6.49	.47
Psychological-Immunity	22.07	4.15	19.52	3.62	3.12	.01	1.67	4.56	.38

Table 6 shows differences based on type of institute across study variables. It is apparent from the results that students from private institute have more extraversion traits less meta-cognitive worry and better psychological immunity as compared to the students at governmental institutes. And students from government institutes express more meta cognitive worry.

Table 7*Differences on Type of Family System Across Study Variables (N=300)*

Variables	Nuclear (n = 159)		Joint (n = 141)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
	Extraversion	19.34	7.57	22.78			8.43	2.64	
Meta-Cognitive Worry	39.88	22.29	31.55	25.3	3.02	.00	-13.7	-2.90	.41
Psychological-Immunity	17.11	18.67	30.33	21.9	5.60	.00	2.09	11.35	.51

Table 7 illustrates mean differences on family system of respondents. Results exhibits that significant differences exhibited between nuclear and joint system in relation to extraversion, meta-cognitive worry, and psychological immunity. Findings suggested that students living in joint family system reflected higher inclinations of extraversion and psychological immunity than those living in nuclear family systems. On the other hand, students living in nuclear family setup expressed more meta-cognitive worry.

Table 8*Differences on Education Level of the Respondents (N = 300)*

Variables	Under graduation (n = 152)		Graduation (n = 148)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
	Extraversion	12.59	6.89	18.54			8.66	-4.35	
Meta-Cognitive Belief	32.89	20.55	29.49	26.00	4.59	.00	7.09	17.72	.52
Psychological-Immunity	19.84	21.48	22.05	27.84	-3.21	.01	-14.8	-3.56	.37

Table 8 demonstrates the mean differences on education level of the respondent. Results of t-test exhibit that significant differences exist on participant's

education in relation to extraversion, meta-cognitive worry, and psychological immunity. Findings indicates the students with high level of education reflected more extraversion and psychological immunity than those with low education level. Further, students with lower education level express more meta-cognitive worry.

Table 9

Differences on Parental Marital Status of the Respondents (N = 300)

Variables	Living Together (n = 194)		Separated (n = 106)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
	Extraversion	22.30	7.15	19.32			8.71	5.32	
Meta-Cognitive Worry	27.18	20.89	31.68	-8.12	-5.12	.00	-26.7	-16.2	.96
Psychological-Immunity	26.18	94.43	21.43	21.11	5.56	.01	8.53	17.8	.66

Table 9 shows mean differences on parental marital status in relation to the study variables. Results indicates that there are considerable disparities in parents' marital status in connection to extraversion, meta-cognitive worry, and psychological immunity. Participants whose parents are living together exhibit higher inclination of extraversion and better psychological immunity as compared to the participants having parents either separated or divorced. On the other hand, respondent whose parents are separated expressed more meta-cognitive worry.

Table 10*Differences on Education on Study Variables Among Parents (N=300)*

Variables	Matric (n = 150)		Intermediate (n = 80)		Graduation (n = 70)		95% CI			
Father's Education	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	<i>LL</i>	<i>UL</i>
Extraversion	19.45	1.51	22.12	1.31	24.21	.58	3.94	.00	1.96	4.74
Meta-Cognitive Worry	41.98	2.64	38.43	.87	35.57	.65	4.17	.00	2.77	6.38
Psychological-Immunity	27.32	1.22	29.67	8.09	32.86	3.21	7.91	.00	2.04	5.10
Mother's Education	Matric (n = 118)		Intermediate (n = 95)		Graduation (n = 87)					
Extraversion	16.67	1.41	19.75	1.86	22.12	0.38	3.23	.00	2.01	5.15
Meta-Cognitive Worry	29.83	2.43	26.92	1.38	23.37	1.51	2.21	.01	2.76	3.90
Psychological Immunity	29.00	1.25	33.75	2.59	38.89	1.45	5.11	.00	4.28	5.22
Parental Education	Matric (n = 268)		Intermediate (n = 175)		Graduation (n = 157)					
Extraversion	18.67	3.15	21.77	2.12	25.22	1.32	4.12	.01	1.43	2.34
Meta-Cognitive Worry	30.98	6.09	25.65	2.65	21.12	2.21	11.22	.00	2.46	4.34
Psychological Immunity	26.88	9.94	32.45	1.23	36.32	.34	9.54	.00	1.87	5.76

Table 10 shows that participants whose father have high education level indicated elevated level of extraversion, less meta-cognitive worry, and better psychological immunity than participants whose father have lowest education level. Table also indicates that participants with highest maternal education reflects arguments levels of extraversion, low meta-cognitive worry and better psychological immunity as compared to participants whose mother have lowest education level. Findings also revealed that participants with lowest parental education level expressed less traits of extraversion, more inclination of meta-cognitive worry and poor psychological immunity.

Table 11

Two-Way ANOVA Analysis for the Interaction Effect of Parental Marital Status and Gender on Study Variables (N = 300)

Variables	Gender	Parental Marital status	<i>M</i>	<i>SD</i>	<i>N</i>	<i>F</i>	<i>p</i>	η^2	95%CI	
									<i>LL</i>	<i>UB</i>
Ext.	Women	Living Together	69.96	13.75	53	8.06	.00	.03	7.69	9.43
		Separated	59.79	14.50	46				6.11	7.83
	Men	Living Together	75.97	13.62	56				6.16	7.75
		Separated	71.56	12.19	45				6.62	7.89
MCW	Men	Living Together	35.39	4.21	53	7.17	.04	.04	3.87	5.91
		Separated	40.19	6.31	46				5.61	8.49
	Women	Living Together	45.98	4.53	56				4.42	7.53
		Separated	50.69	6.43	45				5.11	8.27
Psy. Imm.	Men	Living Together	34.64	8.96	53	5.32	.02	.03	2.69	4.58
		Separated	31.40	6.18	46				3.59	5.21
	Women	Living Together	30.24	6.32	56				2.24	3.21
		Separated	27.26	6.84	45				3.45	5.07

Note. Ext. = Extraversion; MCW = Meta Cognitive Worry; Psy. Imm. = Psychological Immunity

Table 11 shows that interaction effect of gender and parental marital status is significant with all study variables. Findings shows that men who are living together reflect more extraversion, less meta-cognitive worry and better psychological immunity as compared to those men who are living in broken families. Girls who are living with single parents reflect low extraversion, high meta-cognitive worry and poor psychological immunity as compared to those girls who are living with both of parents.

DISCUSSION

Chapter IV

Discussion

The present study was designed to investigate the role of extraversion and meta-cognitive worry in psychological immunity of young adults. It is also supposed to determine the role of various demographics and their influence (gender, age, marital status, type of institute, family system, education level etc.) in relation to the role of extraversion and meta-cognitive worry in psychological immunity of young adults. The sample ($N = 300$) comprised of different adults taken from different institutes of different places. The main constructs of the study were assessed with extraversion subscale (Shrivastva, 1994), meta-cognitive belief questionnaire (Wells & Carewright Hatton, 2004), and psychological immunity scale (Choochom, 2013) are having adequate and satisfactory reliabilities. Psychometric estimates shows that all these instruments are dependable and reliable measures of the construct of this study. Descriptive of the data showed that the skewness is within the appropriate range of -1 to +1, the data is normally distributed, and a parametric test can be run. The psychometric features of the scale were determined by calculating reliability on the current sample. According to the pervious researches the reliability of total scores were reasonably reliable.

Findings of the study indicate that meta-cognitive worry is negatively related with extraversion and psychological immunity. Meta-cognitive worry is negative predictor of psychological immunity. People who cannot fulfill their basic needs has great tendency to comply meta-cognitive worry (Haseth, 2019). Meta-cognitive worry is a negative term. So, our hypothesis proves the previous research shows that metacognitions considered as potential predictors of anxiety and depression (Ryum, 2017). Furthermore, studies show that negative metacognitive beliefs focusing on the uncontrollability and danger of worry were consistently linked to both anxiety and depression. Immunity appears to be influenced by negative personality factors as well (Marsland, 2001).

Further study also shows that extraversion is positively linked with psychological immunity. People who are more extraverts tend to have more

psychological immunity. Positive traits seem to enhance person's psychological immunity (Jaffe, 2013). The immunity show appeared to be run by the personality attribute of friendliness. As a result, more sociable people have greater immune function at work (Cohn, 2006). Our results also prove the previous researches shows that extraversion can be an interpersonal resource for social relationships and well-being in mobile societies (Jaffe, 2013).

There are significant gender differences found in between men and women in reference to study variables. Findings duplicated that, men exhibited higher level of extraversion and psychological immunity while women high on meta-cognitive worry. Men highly score on assertiveness and sociability than women. According to previous studies, Men are more aggressive and central than women, and they have higher degrees of extraversion (Helgeson & Fritz, 1999). Women have higher levels of anxiety than men. According to previous research, women are more likely than men to suffer from anxiety disorders (Bahrami, 2011). They believe that worrying is beneficial since it aids in the prevention of future dangerous situations and keeps them alert to warning signals. In fact, men are more likely than women to employ distraction as a coping mechanism (Segerstrom, 2010). Men and women differ in their immune responses. Women have more depressive or sick behavior as compared to men due to low psychological immunity (Cohn, 2012). According to previous research, Women have higher rates of depression and anxiety disorders compared to men (Holden, 2005).

Findings shows differences based on type of institutes. Students at private institutes highly score on extraversion and psychological immunity. While student at government institutes got high score on meta-cognitive worry. Students at private institutes energized by sources such as extra curriculum activities and objects (Engert, 2021). According to a study there is significant relationship between introversion and academic performance of private institutes (Michael, 2015). Meta-cognitive worry has negative impact on academic performance. According to previous research, meta worry has negative influences upon education, it is necessary to reduce anxiety (Namlu & Ceyhan, 2002). The specialized private institutes Students outperform students at government institutes in numerous areas of psychological immunity, for

example, they have the highest source organizing ability, persistence, and self-respect (Lombroso, 1998).

Study also shows significant difference based on family system as people in joint family tend to be more extraverts and have high psychological immunity. On the other hand, people who belong to nuclear family system tend to be more meta-cognitive worry. Previous studies clear that the mean scores of subjects of extroversion belonging to joint families is more than the mean scores of subjects belonging to nuclear families (Carver, 2010). This reveals that the subjects belonging to joint families are characterized by extroversion as compared to subjects belonging to nuclear families. Thus, it can be interpreted that the subjects belonging to joint families possess extrovert type of personality (Nazir, 2008). People who grew up in a joint family structure had a higher level of psychological immunity than those who grew up in a nuclear family, according to research (Sahar, 2017). The findings reveal that those in a combined family arrangement are better adjusted than those in a nuclear family. The combined family structure provides a support system, peer contact, cooperation, and a challenge to put individual abilities to the test (Lodhi, 2021).

Results also revealed that those people who have high education level also have high psychological immunity and extraversion as compared to people have low level of education. Studies indicates that emotionally stable students were more likely to be concerned about their studies and they also had a good capability (Thomas, 2017). Students with higher education level have extravert traits and appear more likely to pursue performance goals (Morris, 2015). They are also highly emotionally stable. In the grouping of highly educated students and students with low education levels, the primary averages of psychological immunity differ from one another (Bredacs, 2016). Higher education level appears to have a defensive effect against meta worry which accumulates throughout life (Lorant, 2003). It is shown that children with high education level are more relaxed, outgoing, and seeking. They are focused on to approaching the world instead of avoiding it (Zimmer, 2017).

Findings suggests that people living with both parents happily have strong psychological immunity and have more traits of extraversion as compared to children

lives with single parent or broken families. The outcomes of the present study uncovered that all the subscales of family roles and all personality traits are significantly related (Cogswell, 2019). Previous studies shows that the stronger functioning of the family, stronger the psychological immunity of its members (Radmehr, 2020). The adults of broken families had high level of meta worry (Demir, 2017). It is found that adults of divorced or separated parents score higher than the adults from intact families in meta-cognitive worry. Adults of single parents experience some problems in their social, emotional, and educational functioning (Rappaport, 2015).

Our findings on parental education shows that it has influence in adults psychological and physical behavior. Findings revealed that adults with lowest parental education shows more inclination of meta worry as compared to the adults with highest parental education. In previous researches it is shown that The educational degree of the parents was linked to the child's personality. Parents with a higher education were more likely to have children who were more extraverted (Fradera, 2017). Educated parents set moral values and strong expectations. They use discipline based on appropriate logic and observe their children's behavior (Mathur, 2020). There is a substantial link between parental education and psychological immunity in children (Bray, 2020). When both parents had a high level of education, maternal education exhibited a larger correlation than paternal education (Simon, 2012).

Limitations and Suggestions

The current study contains several limitations that can be considered in future research on the same variables, as well as suggestions for incorporating the existing loopholes into future studies. Because of the quantitative study methodology and the covid-19 scenario, the study's principal weakness is the lower representation of the population and the limitedness of responses. Only a small portion of the population has been singled out. A big sample size should be included in the study to have a better knowledge of the phenomenon. In future studies, personality traits can be explored meta worry and mental health. Hence, other essential variables may also be

investigated and reported in further studies to get more information to enhance psychological immunity. Self-report measures have been used in the present study. So, there is a possibility of erroneous self-reporting, social significance bias and errors in self-observation. Some other measures which may overwhelm the short comings of self-report measures can also be used for in-depth investigation. Often people tend to reveal positive emotions but hide negative emotions such as anxiety and guilt which does not reveals actual information. Difference between the age and education of the participants was very small. In-depth information should have been acquired for more accurate results. Diverse age groups, education level and other demographic characteristics of participants will be helpful in finding meaningful differences between demographic variables. It may also be of benefit to conduct future research on beliefs about worry in anxious children and adolescents who have comorbid depression, to determine whether the metacognitive model can be applied to this population.

Future researches will find out the ways to boost emotions, to reduce metacognitive worry. Further they could also focus to decrease negative emotions and to increase positive emotions. To verify these results future studies, need more meaningful analysis of relationship between the variables. The next stage in the research could be to look at the link between negative metacognitions and the development of generalized anxiety disorder and pathological types of concern. More evaluations of the efficacy of metacognitive treatment are needed in the future. Furthermore, manipulating levels of metacognitive thoughts about risk and levels of meta-worry could reveal evidence of causal effects on distress.

Implications

The research will reveal the importance of psychological immunity and its vital roles in developing healthy personality. The results will raise awareness among people and educational societies that how well personality traits play important role in subjective psychological immunity. In addition, it will provide data for extra literature. There are many researches done on student psychological immunity and personality trait but in Pakistan researches, very little evidence is found on metacognitive worry. To fill this gap, the research will deliver fantastic material to add into

Pakistani literature. Students will also get advantage from this finding; they would know the value of their mental health and effect of personality traits on their performance. Present study might be useful for researchers to perform more researches on meta-cognitive worry. This study will be helpful in many fields of psychology like educational psychology, personality development, and clinical counseling.

Conclusion

The study discovered that meta worry is the actual health concern in Pakistan. Results indicated that family factors and education perform vital role in mental health and personality grooming. Findings of present study reveal that meta-cognitive worry effects the psychological immunity. It shown that there is positive relationship between extraversion and psychological immunity. These results are consistent with previous researches. Significant results are found because it supports all hypotheses.

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APPENDICES

Informed Consent

I am Fareeha Kainat, student of M.Sc. at National Institute of Psychology, Quaid-I-Azam University, Islamabad. I am conducting a research to explore the behavior of young adult.

As per research, I need to collect data from people in the relevant field, so I would request you to participate in it. It will take 10-15 minutes of your precious time.

You are requested to read each statement carefully and answer it as genuinely as possible. Your response will help us in understanding the phenomenon and lead to betterment of the student in the future.

I assure that all the information will be kept confidential and will be used for research purpose only. You have all the right to discontinue participation at any point without penalty and prejudice.

Please sign below if you read and agreed to the aforementioned items.

Regards

Fareeha Kainat

Participant

M.Sc (IV)

National Institute of Psychology

Quaid-I-Azam University, Islamabad

Signature of

Demographic Information Form

Please provide the following information

Age: _____ (Approximate Years)

Gender: Man _____ Woman _____

Education: Graduation _____ Post Graduation _____

Title of College\University: _____

Type of Institute: Private _____ Public _____

Family System: Joint _____ Nuclear _____

Number of Siblings: Total _____ Brothers _____ Sisters _____

Birth Order (From the Eldest): _____

Family Income: _____ (Approximate PKR)

Parental Status: Mother Alive _____ Deceased _____

Father Alive _____ Deceased _____

Parental Marital Status: Living together _____ Separated _____

Divorced _____

Mother Education: _____

Mother Occupation: _____

Father Education: _____

Father Occupation: _____

Scale 1

Read each statement carefully and chose which one of four possible responses best reflect you. There is no right or wrong answers. Please indicate the extent to which you agree or disagree with each of following statements.

No.	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
1.	Is talkative				
2.	Is reserved				
3.	Is full of energy				
4.	Tends to be quiet				
5.	Has an assertive personality				
6.	Is sometimes shy, inhibited				
7.	Is outgoing, sociable				
8.	Generates a lot of enthusiasm				

Scale 2

The following questions asks about your beliefs. For each of the following statement or questions, please tick the box on the scale that you feel is the most appropriate.

No.	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
1.	Worrying helps avoid future problems				
2.	Need to worry to remain organized				
3.	Worrying helps get things sorted out				
4.	Worrying helps me cope				
5.	Worrying helps solve problem				
6.	Worrying helps me work well				
7.	My worrying is dangerous				
8.	Worrying can make me sick				
9.	Worrying persists even when trying to stop				
10.	I cannot ignore my worrying thoughts				
11.	Worrying could make me go mad				
12.	I cannot stop worrying				
No.	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree

13.	My memory can mislead me				
14.	I have a poor memory				
15.	I do not trust my memory				
16.	Lack confidence in memory for my actions				
17.	I should Control my thoughts all the time				
18.	I will be punished for not controlling thoughts				
19.	I think a lot about my thoughts				
20.	I constantly examine my thoughts				

Scale 3

Read each statement carefully and chose which one of four possible responses best reflect you.

No.	Statement	Never	Sometime	Frequently	Always
1.	I am able to get through the difficult time.				
2.	I accept any changes if the change turn to be better.				
3.	I am discouraged to handle with obstacle.				
4.	When working with others, I tend to rely on their ideas more than my own.				
5.	I am confident in myself to get through difficult time.				
6.	I can control my own lives.				
7.	I energetically pursue my goals.				
8.	My life has meaning.				
9.	I can find a way to solve the problem.				
10.	I think about what I need to know to solve the problem.				
11.	I withdraw my problems because I cannot change anything.				
12.	I get upset when facing problems and let my emotions out.				
13.	I find myself doing something without paying attention.				

14.	I often lose my mind.				
15.	I find it is difficult to stay focused on what is happening in the present.				