Universitat Autònoma de Barcelona

Gifted vs Nongifted Adolescents: Differences in Mental Health and Personality

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Doctoral Thesis

PhD in Clinical and Health Psychology

Department of Clinical and Health Psychology

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Dedicated to my father, who supported me in the first steps of schooling and would be happy that I am completing my studies, if now he were alive.

For my mother, brothers, and sister, who supported me and believed in me.

For my wife, who is happy for this success and even happier about the fact that I will have more time to spend with her.

For Blin and Bleta, who are the motive of my life.

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I also give many thanks to the Institute ATOMI, where I worked for 8 years and which inspired me to work with gifted adolescents.

Many thanks go to my colleagues, friends, and especially my family.

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ABBREVIATIONS

ADHD: Attention Deficit Hyperactivity Disorder

ADM: Assessment Data Manager

ASEBA: Achenbach System of Empirically Based Assessments

ASK: Kosovo Agency of Statistics

BPS: BioPsychoSocial model

CBCL: Child Behaviour Checklist

CBCL-TRF: Child Behaviour Checklist—Teacher's Report Form

CHC: Cattell–Horn–Carroll

DSM: Diagnostic and Statistical Manual

E: Introversion–Extraversion

FSIQ: Fill Scale Intelligence Quotation

G: General Factor

Ga: Auditory Processing Skills

Gc: Crystalized Intelligence

Gf: Fluid Intelligence

Glr: Long-Term Memory

Gq: Quantitative Skills

Gs: Speed of Reasoning

Gv: Processing

Gw: Writing Skills

ICD: International Classification of Diseases

IQ: Intelligence Quotient

Leiter 3: Leiter International Performance Scale—Third Edition

MEST: Ministry of Education, Science, and Technology

N: Neuroticism

NEO-PI: Neuroticism, Extraversion, Openness Personality Inventory

P: Psychoticism

PCA: Principal Component Analysis

Phm: Photographic Memory

Ptsd: Posttraumatic Stress Disorder

R-Cmas: Revised-Children's Manifest Anxiety Scale

Sem: Structural Equation Model

SPM+: Raven Standard Progressive Matrices Plus

WAIS: Wechsler Adult Intelligence Scale

WHO: World Health Organization

WISC: Wechsler Intelligence Scale for Children

YSR: Youth Self-Report

ZKPQ: Zuckerman–Kuhlman Personality Questionnaire

Abstract

This study is aimed at contributing to defining the personality profile and associated mental health problems of gifted and nongifted adolescents. The main objectives are to describe the mental health and personality profiles of gifted and nongifted adolescents so that family, schools, and society can respond to the specific needs of gifted adolescents. In so doing, society, the education system, and mental health institutions will be able to plan early interventions based on evidence. For this purpose, we conducted a nationwide study in Kosovo and used the following battery of instruments to collect data: the SPM+, the Leiter-3, the YSR and the 6PF49. The final total sample consisted of 270 adolescents (n = 140 gifted and n = 130 nongifted). From the results obtained, we can conclude that being gifted is not a predictor of emotional and behavioural problems nor total mental health problems. Contrarily, personality factors as neuroticism, impulsivity and aggression-hostility significantly predict emotional, behavioural, and total mental health problems. The conclusions of this study are important because they noted that scoring high on intelligence is not a risk factor of mental health problems but being a male adolescent and scoring high on neuroticism, impulsivity and aggression-hostility are risk factors.

Keywords: Intelligence, Personality, Giftedness, Mental Health, Gender

INTRODUCTION

Introduction to the Thesis's Concepts

In the next few pages, I introduce the readers to the main concepts used in this doctoral dissertation.

Giftedness. Gifted profile is directly connected with adolescents' personality, which means that the profiles of gifted adolescents have a personality pattern (Michael et al., 2004). People have different capacities for reasoning, understanding, and learning, which introduce variability among individuals. Wechsler (1944, p. 3) defined intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment". A lot of definitions for giftedness are mentioned. Lewis Terman during 1920s, a lot of authors and theorists have been traditionally searched for profound general intelligence or as it is known intelligence quotient (IQ), measured by psychometric instruments which was standardized, as the principal instrument, measuring the profile of giftedness (Mrazik & Dombrowski, 2010; Sternberg et al., 2011; Terman, 1925). Mathiassen et al. (2012) studied the associations between mental health and Intelligence Quotation in a sample of children and sample of adolescents. Despite the many years of published studies on the interaction between personality and intelligence, both concepts are more practical and are applied to the context; thus, these concepts should be contextualized in their use because they can a cause and an effect over time (Kretzschmar et al., 2018). Understanding both concepts and how they interact gives important information about human functioning, job performance, and mental health.

Furthermore, dealing with their relationship helps with explaining humanity's functionality better. The early views of Lombroso (1891) was that giftedness was associated with mental health problems or with the ability to adjust problems faced in everyday life. Grigorenko and Klinteberg (2010) mentioned that the professional literature defines twice-exceptional students as those who have exhibited gifted behaviours in conjunction with disabilities (Nielsen et al., 1993). Mathiassen et al. (2012) used the Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA) and children's mental health problems, as measured by the Children's Global Assessment Scale (CGAS), as their measurement tools and dependent variables, and they used other demographics and the WISC 3 intelligence test as independent variables in a hierarchical regression model, which predicted 25% of the variance. Authors such as Delisle (1982) identified factors like social isolation and fear of failing as predictors of suicide among gifted adolescents, with both factors being connected to emotional instability.

Profound gifted adolescents are recognized by a rich inward life; an inclination to handle data and sensations inside prior to introducing them to the rest of the world; and a grasp of scholarly movement, feelings, sensations, and idea arrangement. The personality traits among profoundly gifted youths incorporate a solid connection with psychological introversion (Jackson, 1995; Silverman 1992, 1993). Introverts are not the dominant, and their calmer volume and less dynamic open style may add to social disengagement (Dauber and Benbow, 1990). Gifted young people have no limit in developing towards individual self-autonomy and a perplexing employable profound quality alongside overexcitability. When adolescents develop further than is conventional and past others' expectations, such as from family, peers, society, and teachers, gifted adolescents may confront a feeling of inner disequilibrium and of being unsynchronized with others' expectations and with the environment (Jackson & Peterson, 2003). Mental well-being

issues, for example, Anxiety, Mood disorders, dietary problems, and OCD can show up among these youths because of an absence of suitable and expert help from experts and society (Dabrowski, 1967; Jackson, 1995). Clinicians should know about the impacts of having a complex psychological and emotional self-framework on mind-set and behaviour and having a pattern of gifted young people is the most ideal approach to know and work with them. Clinical proof shows that low mood can be important factor and fatal to the lives of profound intelligent individuals (Barkett, 2002; Jackson, 1998; Tolan, 1998). Different forms of clinical depression exist, and evidence shows that numerous exceptionally gifted and capable people, as evidenced through clinical experience, suffer from different types of clinical mood disorders (Dabrowski, 1967, 1972; Jamison, 1993, 1995; Styron, 1990).

Many researchers have studied and given attention to social isolation and weak interactions with society in daily life, especially among profound gifted youth (Gross & Feldhusen, 1990; Little, 2002; Roedell, 1984). Given that gifted adolescents exhibit depression, Jackson and Peterson (2003) concluded that highly gifted adolescents who could not experience meaningful relationships, spiritually, intellectually, and emotionally, within their family, in school and social environments, or both, are at high risk of experiencing a depressive and emotional state, compared to others who have had opposite experiences.

Findings of the studies are clearly oriented, profound intelligent is considering an protective factor in facing with challenges of everyday life and this is related to personal adjustment using a different resources of the person. The final conclusion is especially convincing because profound intelligent individuals are found to be less protective, less self-opposing, and less extraordinary in their reactions to self-reports. In his 1925–1954 longitudinal studies of 1,500 youngsters whose mean IQ according to Stanford-Binet IQ score the results of 150. Milgran and

Milgram (2012) speculated that gifted youngsters would show more significant levels of confidence and inner locus of control, lower levels of general tension, and still fewer levels of test anxiety than nongifted kids would. Investigations of the personality profiles based on traits and skills for emotional adaptation in a sample of gifted youth generally came to conclusions that profound gifted students are at the same level well emotionally adapted as most of the students wit the average level of development are (Cattell et al., 1972; Grossberg & Cornell, 1988; Janos & Robinson, 1985; Karnes & Wherry, 1981; Olszewski-Kubilius et al., 1988; Solano, 1983; Werner & Bachtold, 1969). However, profound gifted adolescents may be at a weakness; for example, adolescents with profound high intelligence are less well known and have more trouble with peer social interaction than their peers do (Austin & Draper, 1981; Feldman, 1986; Freeman, 1979; Gallagher, 1958; Ross & Parker, 1980). A higher possibility exists that being gifted makes it difficult for peers to create relationship with gifted people, both intellectually and comunity (Austin & Draper, 1981; Feldman, 1986; Hollingworth, 1942; Terman & Oden, 1947). The main interest for doing this cross-sectional research on the age group 13 to 18 is the prevention proposes over mental illness. Establishing emotional and behavioural problem profiles of gifted and nongifted adolescents will provide clear ideas for prevention and treating planning, and early prevention will help adolescents to have healthier and happier lives.

Personality. One's personality refers to what makes that person unique. However, individual differences in personality are developed as dynamic system (Mroczek & Little, 2006). According to Allport (1961), "Personality is the dynamic organization within the individual of those psychophysical systems that determine his characteristic behaviour and thought" (p. 28). The dynamics of the interaction between personality profiles based on traits and behaviour refer to how

one's behaviour can be explained and predicted according to personality traits. However, personality psychology authors agree on the need for similar definitions with which to define personality. Cervone and Pervin (2009) define personality as "psychological qualities that contribute to an individual's enduring and distinctive patterns of thinking, feeling and behaving" (p. 8).

1. FROM INTELLIGENCE TO GIFTEDNESS

1.1 Definition of Intelligence

Intelligence consists of mental functioning, which comprises the skills to adapt and act properly in new situations, linked with fluid intelligence; learn from experiences, which is linked with crystalized intelligence; understand abstract concepts; react in proper ways to address requests; and use learned knowledge in different situations to create commodity of functioning. These concepts are based on Cattell's fluid and crystallized theory (1941). From the theoretical perspective of Spearman's two-factor theory developed in 1904, the main important concept is general ability (g) and specific ability (s). General ability predicts success in life, and specific factor is affected greatly by the environment.

Different definitions of intelligence exist from different authors, researchers, perspectives, and theories. For example, American psychologists Terman and Thorndike (1921) had different perspectives about the definition of IQ. Terman stressed the ability to think abstractly, whereas Thorndike (1921) stressed that learning can affect one's ability to respond to questions in a proper way. Another perspective of intelligence it Gardner's theory of multiple intelligence, through which he argued that all are born to develop a multiple intelligence (Gardner, 1983).

All of these definitions share a hierarchical perspective, and there has been little advancement in the definition of intelligence, except that each author has added some values in years to the perspective and theory based on the definition of intelligence. Different definitions are presented below, not all of them but the most well-known:

1. It seems to us that in intelligence there is a fundamental faculty, the alteration or the lack of which, is of the utmost importance for practical life. This faculty is judgement, otherwise

called good sense, practical sense, initiative, the faculty of adapting one's self to circumstances. A person may be a moron or an imbecile if he is lacking in judgment; but with good judgment he can never be either. Indeed, the rest of the intellectual faculties seem of little importance in comparison with judgment. (Binet & Simon, 1916, pp. 42–43)

2. Intelligence, considered as a mental trait, is the capacity to make impulses focal at their early, unfinished stage of formation. Intelligence is therefore the capacity for abstraction, which is an inhibitory process. (Thurstone, 1924, p. 159)
3. Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment. (Wechsler, 1944, p. 3)
4. . . . in its lowest terms intelligence is present where the individual animal, or human being, is aware, however dimly, of the relevance of his behaviour to an objective. Many definitions of what is indefinable have been attempted by psychologists, of which the least unsatisfactory are: 1. the capacity to meet novel situations, or to learn to do so, by new adaptive responses and 2. the ability to perform tests or tasks, involving the grasping of relationships, the degree of intelligence being proportional to the complexity, or the abstractness, or both, of the relationship. (Drever, 1952, as cited in Goertzel & Wang, 2007, p. 19).
5. Intelligence is assimilation to the extent that it incorporates all the given data of experience within its framework. . . . There can be no doubt either that mental life is also accommodation to the environment. Assimilation can never be pure because by incorporating new elements into its earlier schemata the intelligence constantly modifies the latter to adjust them to new elements. (Piaget, 1963, pp. 6–7)

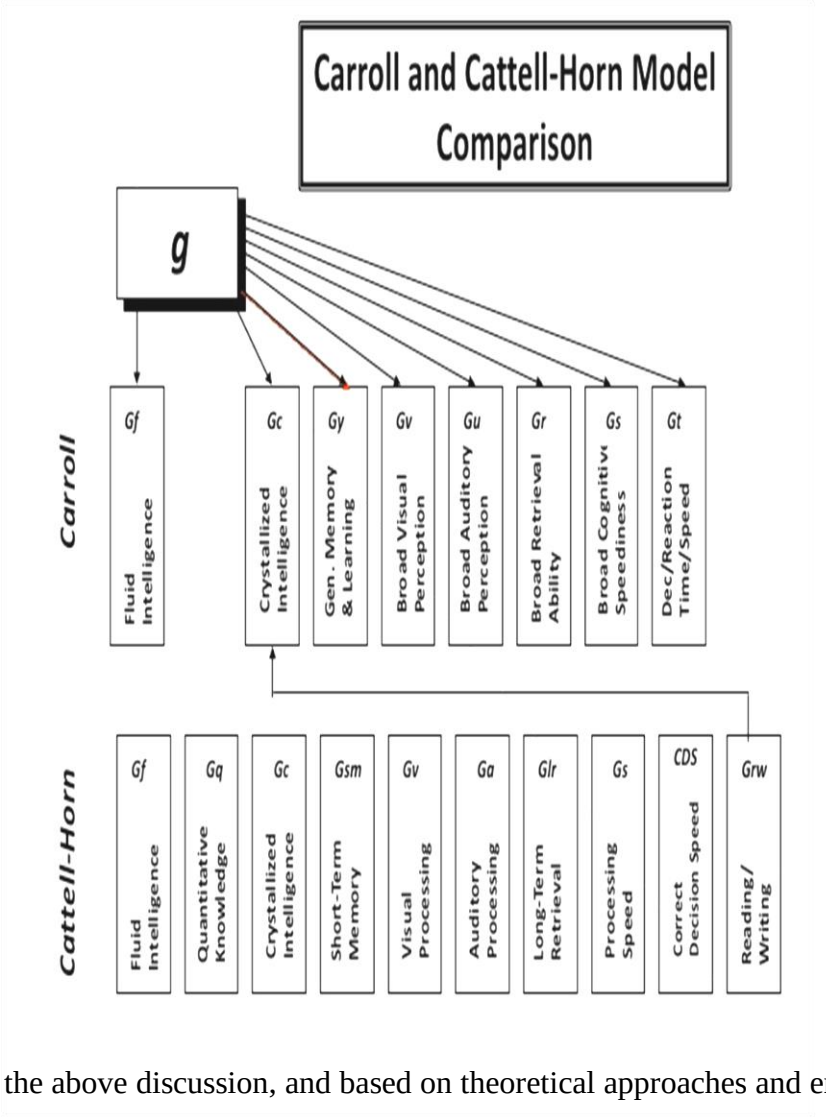
6. An intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings or the proper meaning of "testing" them. (Gardner, 1983. p. xxviii)
7. Intelligence A: the biological substrate of mental ability, the brains' neuroanatomy and physiology; Intelligence B: the manifestation of intelligence A, and everything that influences its expression in real life behaviour; Intelligence C: the level of performance on psychometric tests of cognitive ability. (Eysenck, 1979, as cited in Goertzel & Wang, 2007, p. 19)
8. . . . I prefer to refer to it as "successful intelligence." And the reason is that the emphasis is on the use of your intelligence to achieve success in your life. So I define it as your skill in achieving whatever it is you want to attain in your life within your sociocultural context—meaning that people have different goals for themselves, and for some it is to get very good grades in school and to do well on tests, and for others it might be to become a very good basketball player or actress or musician. (Sternberg, 1985; as cited in Goertzel & Wang, 2007, p. 20)

Since the first definition in 1916 by Binet and Simon, different authors and theoretical perspectives have updated the definition of intelligence, but there is an understating and common pattern among most of them about the definition of intelligence, different from the authors who contributed to the definition of giftedness.

Carroll (2003) proposed an important model with significant impacts in psychometrics. Carroll (1993) published a book entitled *Human Cognitive Abilities: A Survey of Factor-Analytic Studies*, in which he introduced intellectual capacities theory called the three-stratum theory, which

comprises three strata of intellectual capacity and cognition: narrow abilities (S I), broad abilities (S II), and general abilities (S III).

Figure 1. *Cattell–Horn and Carroll's Theories.*



From the above discussion, and based on theoretical approaches and empirical results, the measurement of intelligence has a decisive role in the planning process and in actively involving people. Empirical data show sufficient evidence on the reliability and validity of intelligence measurement. Thus, it is well known that different categories exist when measuring intelligence level. One of the concepts that comes from such measurement is very superior intelligence, known as giftedness.

1.2 Measuring Intelligence

William Stern (1912) introduced for the first-time concept of *intelligence quotient*. The French government proposed developing tests to measure intelligence in 1904. It asked psychologist Alfred Binet to find a way to identify schoolchildren who will have good results and those who will have difficulties in school. Alfred Binet (1904) and his partner Theodore Simon constructed a test with items aimed at measuring abilities such as problem solving, attention, and memory—tasks that children were not challenged with yet in school or did not have the chance to learn to use at school.

The first scale created by Binet and Simon, was not by default a scale that measured Intelligence, but it was more appropriate for generating a classification and differentiation among children for specific and practical needs (Binet & Simon, 1980, pp. 40–41). They developed a test called the Binet–Simon scale, which became the first standardized IQ test used in France. Afterward, in 1916, Lewis Terman adapted this test to the American population and named it the Stanford–Binet test. Some years later, Robert Wechsler (1955) developed the Wechsler Adult Intelligence Scale (WAIS). Afterward, the same author developed several versions of this test for different ages, such as the Wechsler Intelligence Scale for Children (WISC) and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI).

In recent years, measurements of cognitive abilities mostly have been established on the Cattell–Horn-Carroll (CHC) theory and on interpretations of the intelligence tests' results (Alfonso et al. 2005). Cattell–Horn–Carroll proposed theory is one of the most accepted psychological theories on the measurement of cognitive capacities. The theory of Raymond B. Cattell, John L. Horn, and John B. Carroll is the highest-impact theory in explaining and exploring intelligence.

This theory was developed using the perspective of psychometrics, with the aim of measuring individual differences on functioning and applying statistical analysis like factor analysis to point out the structure of the tasks that create the construct of intelligence (Keith & Reynolds, 2010). This theory is a conglomerate of Cattell's (1941) and Horn's (1965) theories, based on fluid intelligence (Gf) and crystalized intelligence (Gc), as a functional model, along with added value from Carroll's (1993) three-strata theory, a hierarchical stratum intelligence model.

Nowadays, the CHC theory empirically is most well-known, inclusive theory focused on cognitive functioning and best explains the development of IQ within the field of measurement (Kaufmann, 2009. p. 91). The first precursor of the CHC theory, the R.B Cattell 1940s original theory of Gc, was focused on two branches of conceptualization of human cognition. Cattell's theory was built on previous statistics and results of factor-analysis done due research work by Thurstone during the 1930s. Cattell provided proof that fluid reasoning (Gf) consisted of inductive and deductive reasoning skills affected by different reasons and factors, such as biological and neuro-medical factors, and by ad hoc environmental relationships, which can affect learning with others. Cattell (1957, 1971) explained further that Gc denotes the accumulated knowledge and abilities from different experiences and learning environments that affect situations to an important extent, require a reaction, and offer a choice in different situations. Later on, Horn (1965) worked within dichotomous theory and added some important values in the Gf-Gc, model including four additional skills: processing (Gv), photographic memory (PhM), long-term memory (Glr), and speed of reasoning (Gs). Afterward, he added auditory processing skills (Ga) to the model and redefined (Horn & Stankov, 1982). In 1991, Horn added more factors to the model, which represent the individual's immediate reaction and decision speed, abbreviated as reaction time/speed decision (Gt). The final factors added to the model were quantitative skills (Gq) and

writing skills (Gw), based on the results on evidence-based research by Horn (e.g., 1991) and Woodcock (1994), respectively. Based on arguments brought through the evidence-based results of research utilizing Horn's fluid and crystalized intelligence, the theory was modified and turned into an eight-factor model known as Cattell–Horn Gf-Gc theory, which became one of the most well-known theories in the field (Horn, 1991).

One of the most well-known tests to assess IQ is Leiter 3. This tool was developed following the CHC model theory (Flanangan et al., 2013). The Leiter R Full IQ scale is positively correlated and with high level of correlation with WISC III FSIQ (r = .86). The correlation between Leiter 3 and WJ 3 according to CHC factors was between .77 and .92, with mean .85 (Roid et al., 2017).

The Raven SPM Plus is another nonverbal test for measuring reasoning. This test comprises 60 items in a multiple-choice form, and test administration takes about 45–50 min. The Raven SPM Plus measures the g factor, and the results measure an individual's capacity and abstract reasoning. This test comprises five scales—A, B, C, D, and E—each with 12 items, and the results are provided as raw scores after each scale is computed, from which a composite score is created to produce the full-scale IQ and percentile rank.

One issue must be considered regarding measuring intelligence in Kosovo. Psychologists working in schools, hospitals, or other services as clinical psychologists lack intelligence tests that have been developed, normed, and standardized in Kosovo. Many individual and group intelligence tests used in Kosovo are administered in foreign languages because, until now, no IQ tests in Albanian exist. Consequently, most of the IQ tests used in Kosovo are nonverbal tests because they have higher validity and reliability, are unbiased and culture free, and the results are compared with international norms, mostly those of the UK and USA.

1.3 Giftedness

Giftedness as a concept was known in the 20th century and was brought about because of social changes and the education system. Henry (1920) mentioned that schools started to use the construct of gifted children to differentiate children's academic performance. Longitudinal studies of gifted children in the education system using scientific methodology and huge samples started in 1921, with Terman's studies of the gifted (Terman, 1926; Terman et al., 1925). Terman started to follow the functioning of more than 1,500 gifted children. The sample comprised Californian children aged 11 years old who scored above 135 on the Stanford–Binet IQ test.

Table 1 shows the categories of intelligence according to the Stanford–Binet classification. Scores above 130 are in the gifted or very advanced category.

Table 1. *Stanford–Binet Classification*

IQ range ("deviation IQ")	**IQ classification**
➢ 145–160	➢ Very gifted or highly advanced
➢ 130–144	➢ Gifted or very advanced
➢ 120–129	➢ Superior
➢ 110–119	➢ High average
➢ 90–109	➢ Average
➢ 80–89	➢ Low average
➢ 70–79	➢ Borderline impaired or delayed
➢ 55–69	➢ Mildly impaired or delayed
➢ 40–54	➢ Moderately impaired or delayed

Note. Adapted from Kaufman (2009, p. 112).

Authors in the field have not reached a consensus about the definition of giftedness. In the next few paragraphs, I will present some of the most recognized definitions:

1. Giftedness is an asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counselling in order for them to develop optimally. (The Columbus Group, 1991, as cited in Tolan & Piechowski, 2012, p. 21)
2. Giftedness in this sense implies an advanced ability to construct meaning in the context of experience, including the enhanced capacity to think abstractly and to respond emotionally to abstract concepts used in the interpretation of experiential phenomena. Importantly, giftedness pervades the whole of one's intellectual, social and emotional reality. (Morelock, 1996, p. 3)
3. Gifted behaviour consists of behaviours that reflect an interaction among three basic clusters of human traits—above average ability, high levels of task commitment, and high levels of creativity. Individuals capable of developing gifted behaviour are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. Persons who manifest or can develop an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs. (Renzulli & Reis, 1997, p. 8)

Several years later, Subotnik et al. (2011) "proposed a new definition of giftedness that considered several aspects not included in the previous definitions. This approach:

- reflects the values of society,
- typically is manifested in actual, especially in adulthood,
- is specific to domains of ventures,
- is the result of the encompassing of biopsychosocial and pedagogical factors, and
- is the difference between ordinary and extraordinary, in terms of the ability to be revolutionary in the field of interest besides having ability in related fields" (p. 3).

According to different studies and concepts, it is evident that giftedness must be explored further and that knowledge of this concept must be advanced according to the functionality of the gifted people. The most well-known and largest longitudinal study about giftedness in the last 20 years was the Munich study (Heller, 1991, 2001; Heller & Hany, 1986; Perleth & Heller, 1994). The aim of this study was to classify and identify the factors that may explain giftedness. The authors considered models involving different constructs for predicting giftedness, such as ability, performance, motivation, personality profile based on traits, and environmental factors. All of the constructs show an important role in explaining giftedness. According to the Munich model, which has been nationally and internationally validated (Heller 1991, 2001; Perleth et al., 1993), giftedness should be understood as a construct that comprises a given number of abilities within a schema of noncognitive and social moderators (Sternberg & Davidson, 2005).

2. MENTAL HEALTH PROBLEMS

The World Health Organization (WHO; 2004) defines psychological health as a disposition of well-being where people realize their own skills, are able to cope with the everyday worries of life, can perform effectively and with good results in work, and can be active parts of society and contribute within the community. The WHO (2004) also mentions that mental health is not just the absence of disorder but also wellbeing according to the biopsychosocial model of health. According to the WHO definition, mental health problems are defined as the opposite of the presence of mental wellbeing. People have mental problems when they cannot be functional enough and fail to activate mechanisms that protect themselves when they face daily pressures, events, and stressors. Mental health problems here refers to the possibility of displaying mental disorders or mental illness.

In 1948, the World Health Organization defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (p. 100). Importantly, the definitions of wellbeing and disorder/illness were changed from the mid-20th century to now, an innovative and modern time. In a way, the implemented changes were also a paradigm shift because the focus changed from diagnosing to focusing on the person and personal needs based on the biopsychosocial model. Based on the biopsychosocial model, the definition of mental disorders shifted from searching for an "absence of disease" pattern to pointing out positive factors in one's social and psychological mental health functioning (Manderscheid et al., 2010).

Worldwide, anxiety and depression are with the highest prevalence of mental disorders during childhood and adolescence, also it is important to mention that are most diagnosed in clinical settings (Bor et al., 2014; Polanczyk et al., 2015). In 2018, European statistics indicated

that mental health disorders, including mood disorders, anxiety, and substance abuse for example alcohol and drug disorders, were highly prevalent, with more than one of every six persons. According to the WHO, one of every five children and adolescents in the world are affected by mental disorders, with depression being the most prevalent. The largest percentage of young people affected with mental health disorders are people under the age of 14 years old.

In Kosovo, 28% of the population is under the age of 14 (ASK, 2018),[1] which is important because it affects not only the well-being of the Kosovar population but also the European Union budget for mental health.

2.1 Mental Health Problems of Adolescents

Adolescence is one of the most important periods of human development, during which changes are very present and most visible. These changes in physical, psychological, emotional, and social aspects affect adolescents' wellbeing. Kessler et al. (2007) reported that around 10%–20% of adolescents have experienced mental health conditions, although many likely are underdiagnosed and undertreated.

Children and adolescents' mental health problems are one of the most researched topics in the field and have received significant interest for decades (Achenbach et al., 2012; Insel, 2014; Knudsen et al., 2006; Whiteford et al., 2013). According to the published data, predominant mental health problems start far under the age of 25, frequently at ages 11 to 18 (Kessler et al., 2005). Many mental health problems among children are just transient emotional states that do not persist

[1] https://askdata.rks-gov.net/PXWeb/pxweb/sq/askdata/

into adulthood, most of them last for a short time period and do not exhibit persistent symptoms, and their influences do not endure (Copeland et al., 2011).

In Europe, 15% to 20% of adolescents have at least one mental health problem that developed in this period of life, which can be a risk factor for it becoming chronic (WHO, 2005). Research conducted in European countries assessing adolescents' mental health problems with the Youth Self-Report (YSR; Achenbach & Rescorla, 2001) has shown that the prevalence of mental health problems in Finland was 11% (Helstela & Sourandar, 2001), ranged from 10% to 18% in Germany (Barkmann & Schulte-Markwort, 2005), and was 18.9% in Austria (Phillip et al., 2014). Kovess-Masfety (2016) provided evidence' in specific countries about the prevalence of mental health problems reported from teachers and parents according to Strength and Difficulties Questionnaires scores. In this study including adolescents from different countries, the overall prevalence of having a probable a mental health problem was 12.8% for the total sample, with different rates by country, ranging from 5.5% in Lithuania to 7.8% in Italy (Kovess-Masfety, 2016). The most predominant mental health problem was conduct disorder (8.4%), followed by emotional problems (3.8%) and hyperactivity/inattention (2.0%).

In developed countries with established mental health services, empirical evidence mostly influences the implementation of primary mental health care for children and adolescents by detecting problems as soon as they start. Prevalence data indicated that these measures had a considerable effect on the mental health of adolescents specifically because intervention plans also began immediately after detection (Corm, 2015; McGorry et al., 2013). Some researchers claimed that the number of detected cases has increased because of improvements in diagnosis, treatment, and clear diagnosis criteria; however, others claimed that overdiagnosis or overtreatment could also affect the data (Visser et al., 2013). In addition, a systematic review and meta-analysis of RCT

concluded that early detection and intervention has impact a minimal to moderate in lowering the symptoms in short term period, and no significant effect if this is after 12 months of follow-up the clients (Stockings et al., 2016).

The lifestyles of adolescents in society are linked with various components that affect their lives. Personality characteristics also have a huge effect on adolescents' functionality, as they influence several mental health problems such as anxiety, depression, stress, and somatic complaints (Rios et al., 2011). The Youth Self-Report Questionnaire (YSR) is often used to identify and track such symptoms and mental health problems in research and clinical settings. This questionnaire is one of the most familiar instruments for screening emotional and behavioural problems in adolescents. It was developed by the Achenbach System of Empirically Based Assessments (ASEBA), and it is used for self-reporting about mental health assessment (Achenbach, 1999).

The YSR is among the best-known and most valid instruments in Kosovo for measuring psychopathology in adolescents. This questionnaire was validated by Shahini et al. (2015), and it is used by researchers and in clinical settings. I describe this instrument, which measures emotional and behavioural problems, in further detail in the section below. In a study conducted in Kosovo, Shahini et al. found that the mean score of the mental health problems was higher than expected compared to international norms and that the prevalence of psychopathology among adolescents was 25%–40 % for mental health problems.

2.2 Emotional and Behavioural Problems in Adolescents

Emotional and behavioural problems are characterized by the following emotional disabilities: (a) difficulty building or maintaining sustainable interpersonal interaction with family members, friend, and educators; (b) learning difficulties that cannot be adequately explained by intellectual disability or different factors that can be considered organic factor; (c) persistent or chronic inappropriate behaviour or emotions under normal situations and conditions; and (d) pervasive negative mood or depression.

According to the Achenbach YSR scale, Internalizing and Externalizing problems among adolescents consist of the following: anxiety/depression, withdrawal/depression, somatic complaints, social problems, thought problems, attention problems, rule breaking behaviour, and aggressive behaviour. I discuss the YSR in further detail below.

Anxiety is among the most prevalent problems. Through the stages of life from infancy and childhood to adolescence, various stimuli affect the fear of change, and these changes influence developments in social, emotional, and cognitive functioning and concerns (Morris & Kratchowill, 1991; Ollendick et al., 1994). According to Anderson (1994), the prevalence of anxiety in a sample of children and teenagers is roughly 2%–9%, and it is well known that anxiety is often comorbid with disorders such as conduct disorders, attention deficit hyperactivity disorder (ADHD), and depression. Achenbach (1991) suggested that when results are above the cut-off point, intervention is recommended. The YSR and Child Behaviour Checklist (CBCL) identify serious symptoms of anxiety and are based on the Diagnostic and Statistical Manual (DSM). Both the DSM and the International Classification of Diseases (ICD) contain well-defined criteria for

differentiating between anxiety, phobia, posttraumatic stress disorder **(**PTSD), separation anxiety, general anxiety, and so on.

Depression is another scale of the YSR. Emotional disorders are considered highly important in adolescence because of their high prevalence at those ages. Depression appears more frequently in adolescents than in children. In children, its prevalence is 0.5%–2.5%, and in adolescents, it is 2%–8%, with a comorbidity rare that ranges from 15% to 28%. According to Harrington (1993), Kovacs (1997), and Reynolds and Johnson (1994), the most important features of depression are linked to suffering from loss, such as the loss of an important person or relationship or the loss of the hope for further plans. In addition, criteria based on the DSM and ICD are low mood, negative cognitive set, isolation, disturbance in sleeping and appetite, and poor social life (Carr, 2002).

Somatic Problems, as a YSR scale, explains the symptoms of children who create concepts of illness based on cognition, maturity, and experience, as well as the perception of exposure to illness and to explained illness (Bibace & Walsh, 1979; McGrath, 1995). Children understand the concept of illness based on their level of development, as explained by Piaget's theory. In the early life, illness is linked directly with a single symptom and its cure (Carr, 2002). At 5 to 7 years old, children can better define symptoms and the level and intensity of pain (Bieri et al., 1990). They do not develop a way of explaining and conceptualizing pain and illness until adolescence. The Somatization scale of the YRS refers to the expression of psychological distress through somatic symptoms (Campo & Fritch, 1994; Garralda, 1992, 1996). Many studies based on the CBCL identified somatic complaints as a narrow factor linked with behavioural problems (Achenbach, 1991). The prevalence of somatic problems is 2%–10%, and comorbidity rates are 23–32%, with anxiety and depression being the most comorbid.

The YSR's DSM oriented scales also include ADHD and Attention Deficit Disorder. These two terms describe a syndrome characterized by persistent activity, impulsivity, and difficulty maintaining attention (Barkley, 1990; Hinshaw, 1994). Diagnostic manuals use different names to address ADHD, especially in the DSM-5, ICD-10, and Achenbach (1991). The CBCL system uses different terms for the syndrome of inattention, overactivity, and impulsivity. Achenbach included different symptoms based on both manuals, as well as some more specific ones based on the questionnaire's aim. The main and most important clinical features of ADHD are cognition, affect, behaviour, physical condition, and interpersonal adjustment. In addition to ADHD, children and adolescents sometimes also have another emotional disorder that is comorbid, and they have been found to have learning and cognitive problems.

The YSR also includes the Conduct Problems scale, which encompass rule breaking behaviour and aggressive behaviour. Conduct problems include one-third to half of all clinical referrals (Farrington, 1995; Kazdin, 1995; Patterson et al., 1992). According to statistics, boys are more at risk, and it is important to mention that children with conduct disorders might engaged in criminal behaviour as adults and develop antisocial personality disorder, alcohol abuse, and other psychological difficulties. The prevalence rate for conduct problems ranges from 4% to 14% (Cohen et al., 1993a, 1993b), the ratio of boys to girls is 4:1, and the highest comorbidity is with ADHD and emotional problems, just as with anxiety and depression.

It is very important to have a well-established public system of mental health services, as well as supportive schools, families, and society, to help adolescents face this period of development. Growing in a healthy society and family will help adolescents be resilient when facing life's challenges, which often are precipitating factors of mental health problems.

3. PERSONALITY

The domain of personality deals mostly with three main issues: (a) human universals, (b) individual differences between people, and (c) the uniqueness of people (Cervone & Pervin, 2013). It is a common understanding of personality scientists about the qualifiers of the personality which derive to personality definition, and all qualifiers are oriented in consistence of emotion, cognition and behaviour. One of the core structural concepts in the field of personality is the trait. A personality trait denotes consistency and stability of feelings and behaviours in facing various situations that have something in common.

> The persona is . . . a functional complex that comes into existence for reasons of adaptation or personal convenience but is by no means identical with the individuality. The persona is exclusively concerned with the relation to objects [i.e., the outer world of people and things]. (Jung 192, p. 465)

Another important concept in the study of personality is temperament:

> Temperament refers to basic, relatively stable, personality traits expressed mainly in the formal (energetic and temporal) characteristics of reactions and behaviour. These traits are present from early childhood and they have their counterpart in animals. Primarily determined by inborn biological mechanisms, temperament is subject to changes caused by maturation and individual-specific genotype-environment interplay. (Strelau 1998, p. 165)

Temperament and personality distinctions are not always easy to define. Strelau (1983, 1998) defined the simplest distinctions as follows:

- Recognized by essential, generally stable characteristics

- Communicated in the fiery and fleeting
- Present from youth
- Known to have social parallels in other populations
- Essentially controlled by inalienable (hereditary) organic systems
- Subject to changes brought about by development and the cooperation of the genotype with explicit educational encounters

3.1 Personality Theories

There are many theories of personality, but I focus on dispositional theories based on traits. For the most part, I concentrate on biologically rooted theories from Eysenck and Zuckerman. Different systems assign different names to personality traits, even though their meaning is the same. Items included in most questionnaires measuring personality were, with small modifications, from the original studies by Cattell (1957) and Guilford and Zimmerman (1956).

Zuckerman et al. (1993) described and compared three structural models: Eysenck's Big Three, Costa and McCrae's Big Five, and Zuckerman and Kuhlman's Alternative Five. Eysenck's (1947) model of personality was among the most influential during the 20th century. Eysenck (1947) proposed three factors for assessing personality: introversion–extraversion, neuroticism, and psychoticism. During the process of defining the model, psychoticism was not part of the questionnaire measuring personality traits, but it was included much later (Eysenck & Eysenck, 1976). The specification of the dimensions or factors included in the model derive from research conducted up to 1985. The traits are described in detail below:

1) Neuroticism includes anxiety, withdrawal, feelings of guilt, low self-esteem, irrational thoughts, moodiness, and emotionality.
2) Extraversion includes sociability, activity, assertiveness, sensation seeking, carefree behaviour, dominant behaviour, and readiness to explore.
3) Psychoticism includes aggression, toughness, orientation towards self, impersonal behaviour, impulsivity, antisocial behaviour, low empathy, creativity, and stubbornness.

Later studies using a different methodology, have shown that five factors can also describe personality. This is often called the Big Five Factor (BFF) model of personality, which was proposed by Costa and McCrae (1978). In addition, those were original NEO Personality Inventory, later was revised and advanced (McCrae & Costa, 1990, 2005, 2010). The big five model consists of the following traits: extraversion, neuroticism, openness to experience, conscientiousness, and agreeableness.

3.2 Personality Theories Based on Traits

Personality traits explain people's consistent emotional, behavioural, and cognitive characteristics. For example, calling a person aggressive means that they are constantly aggressive in different situations, and aggression is a key word that describes them. It is important to point out that traits refer to dispositions, so personality traits indicate a person's disposition to act, behave, and feel according to their predominant traits (McCrae & Costa, 1999, 2008). For example, the main specification for someone scoring high on neuroticism is a disposition towards negative emotions such as anxiety, withdrawal, depression, feelings of guilt, and even low self-esteem. The dimension of neuroticism is a significant predictor of affective and mood disorders (Zuckerman, 1999).

During the model's development, various proposed analyses involved five strong factors rather than Cattell's proposed 16 postulates. Goldberg (1990) and Goldberg and Rosalack (1994) developed the five-factor model with the highest loading in the following factors: (a) extraversion, (b) agreeableness, (c) conscientiousness, (d) emotional stability, and (e) intellect or openness to experience. Personality traits are elementary factors that distinguish between people (Matthews et al., 2003). Referring to the studies of Allport and Odbert (1936), the dominant and accepted model that categorizes personality traits is known as the BFF or five-factor model (McCrae & Costa, 1987). Costa and McCrae (1985) expanded their original model by adding the conscientiousness and agreeableness domains, and in the three-factor model, NEO became NEOPR (Costa et al., 1980). Each of the factors has a six subtraits or facets. The Big Five personality traits are also known by the acronym OCEAN.

Following Eysenck's model of personality, Zuckerman introduced some advances and developed the Zuckerman-Kuhlman Personality Questionnaire, which also assesses five factors (Zuckerman et al., 1993). Zuckerman (1993) also developed a factor called impulsive sensation seeking (ImpSS), confirming the basic utility of this "marriage of traits made in biology".

In studies on the consistency of personality traits from childhood to adulthood the traits might not have been measured clearly. Longitudinal studies of children and adolescents who suffer from ADHD show that the main predictor of deficit of attention is poor impulse control if this is also continuous in adulthood (Gadow, 2001).

3.3 Personality in Adolescence

Adolescence is an important and sensitive developmental stage of life during which a person is mostly oriented to the self, and many changes are present because of various factors. During this developmental period, motivations and life goals begin to become a behavioural path (Ernst et al., 2011). Adolescents begin exploring, being creative, and trying to establish and consolidate their own identities, which will last for the rest of their lives.

Adolescence is a critical developmental period during which instability is the dominant perception, and adolescents shape their identities and position in the community (Pullmann et al., 2006). They also give meaning to their lives by creating identities built through the intense pursuit of goals and beliefs and the identification of personal values (Arnold, 2017). Moreover, adolescence when people consolidate their abstract thinking (Nakkula & Toshalis, 2006).

Furthermore, because multiple changes occur during this developmental stage, adolescents have less stable personality traits compared to people in other developmental stages of life. Adolescents who are controlled and not free to set their own goals and behave according to the needs express lower levels of conscientiousness, agreeableness, openness, and emotional stability (Hill & Edmonds, 2017; Oshio et al., 2018). In other words, adolescence is a crucial developmental stage of life during which personality traits are developed continually until adolescents mature (Hill & Edmonds, 2017).

When Zuckerman et al. (1993) discussed the basic factors related to personality traits, they agreed that there is too much discussion of 16 factors. The basic factors relate to the definition of temperament discussed above, which can change during development in childhood and adolescence compared to adulthood.

This refers to Sheldon's (1942) system of temperament types related to the body, Cattell's (1957) 16 personality factors postulates, and Eysenck's (1947) two or three personality dimensions. Digman and Takemoto-Chock (1981) reviewed six studies, some of which were the work of Fiske (1949) and presented a five-factor solution. Thus, the authors concluded that the five factor model proposed by Fiske (1949) and Tupes and Christal (1992) represented "an impressive theoretical structure. Regardless of whether teachers rate children, officer candidates rate one another, college students rate one another, or clinical staff members rate graduate trainees. The results are pretty much the same" (pp. 164–165). With these studies, Goldberg (1990) presented evidence that scores highly positive correlation with the five traits of the Neuroticism, Extraversion, Openness Personality Inventory; (Costa & McCrae, 1985), a five-factor model questionnaire.

It was different cases of continuum on personality traits but also found differences and changes: "The 30-year-old extravert is still likely to be an extravert at age 70, though not quite as active or keen on excitement" (McCrae & Costa, 2008, p. 167). According to Costa and McCrae (1994), older adults have significantly lower means in personality traits compared to adolescents.

A longitudinal examination study with an American sample ranging from late adolescence to adulthood found that the stability of the traits extraversion and neuroticism was low but statistically significant (Carmichael & McGue, 1994). Another study compared American and Belgian adolescents after a four-year follow up and found that extraversion, agreeableness, and conscientiousness were not label over time, but openness to experience scores higher for both groups of gender (McCrae et al., 2002).

In addition, the effect of age was confirmed by Zuckerman's own life on sensation seeking: When he was a college student, he "reached [his] full sensation-seeking potential through drinking, sex, and hitch-hiking around the country" (Zuckerman, 2004, p. 13). At age 74, he wrote,

> When I was a young sensation seeker, I imagined that after I retired I would do all kinds of adventurous things like hang gliding, parachute jumping, and learning to fly an airplane. But whereas thrill and adventure seeking, and disinhibition fall rapidly with age, experience seeking does not change. (Zuckerman, 2004, p. 21)

It is evident from all studies that adolescence is the most sensitive and crucial stage of life because many changes occur, it is a stage of life when identity and stability of personality are created, and the need for support through different resources is most important for creating opportunities and establishing the stability of life.

4. RELATIONSHIP AMONG GIFTEDNESS, MENTAL HEALTH PROBLEMS, AND PERSONALITY

Intelligence and personality, as very important constructs, are often considered domains that do not interact to each other (DeYoung, 2011). However, the literature has described the interaction between these two concepts for at least 105 years (Webb, 1915). There is evidence that both personality and intelligence explain academic achievement (Poropat, 2009; Richardson et al., 2012) and occupational performance (Barrick & Mount, 1991; Schmidt & Hunter, 1998). Cladellas et al. (2017) found that, average grades correlated negatively with the Sensation Seeking scales and subscales. When results were analysed separately in terms of gender, boys' average grades correlated significantly only with total sensation seeking scale. However, intelligence and personality are usually considered uncorrelated variables, so they were considered separately.

Costa and McCrae's (1992) BFF model, the predominant differential psychology model during the late twentieth century, was used mostly in research analysing the interaction between intelligence quotation and personality (Zeidner & Matthews, 2000). The BFF structure did not address the interaction between IQ and the Big Five directly. However, a different factor structure of personality, Eysenck's (1967) three-factor model, provides more of a link between personality traits and intelligence. According to Eysenck (1994), personality and intelligence are biologically based, and this explains the interaction between IQ and personality, particularly extroversion. Other studies of gifted adolescents found that a few personality traits and social emotional problems were the most important reasons gifted adolescents could not achieve their intellectual potential in everyday life.

The varied perspectives and thoughts on the definition of giftedness brought a huge challenge for community of scientists and researchers who study the relationship between

giftedness and mental health problems (Bracken & Brown, 2006). During the 1800s, the prevailing model considered giftedness as having a great impact to Externalizing and Internalizing problems. Consequently, few authors concluded that being gifted might be associated with madness (Gallagher, 1990; Neihart, 1999). Furthermore, evidence-based practice in past ten years showed that gifted youths might not be a risk factor for mental health problems as previously believed (Neihart et al., 2002), researchers and professionals still perceive gifted adolescents as sensitive to interpersonal relationships and more inclined to express stress compared to their peers because of their intellectual potential (Neihart, 1999). Other authors brought findings that argue that gifted adolescents are at less vulnerable for Externalizing and Internalizing problems (Neihart, 1999), and intellectual potential is often mentioned as a protective factor from various life threats (Fergusson & Lunskey, 1996; Garmezyet al., 1984; Kandel et al., 1988; Masten, 1988; Werner, 1989).

Terman et al.'s (1925–1959) original findings have been supported from different studies. Terman reported that adolescents with IQs of 140 or higher did not exhibit higher levels of emotional disturbance compared to the overall population; those findings were supported by Cornell et al. (1994) and Janos and Robinson (1985). Such results demonstrate the importance of breaking the stereotypes and showing up popular myths that gifted adolescents, especially the profoundly gifted, are likely to be at risk for psychosocial problems and lack the ability to adjust to psychosocial challenges (Oram et al., 1995). Gifted adolescents were less anxious, less likely to express problems in physical or cognitive sphere, and less likely to show behaviour and rule breaking problems.

Galluci (1988) tested a sample of 90 adolescents ages 12–16 years old using the CBCL and the CBCL Teacher's Report Form, the sample consists of adolescents with intelligence higher than

135. Compared to the normative population, the incidence was similar, and there were not significant differences in terms of behaviour problems according to DSM clinical cases. Only 9% of adolescents scored at level of clinical psychopathology. In another sample, the outcomes for children scoring in IQ higher than 150 didn't show any significant differences comparing to a sample with IQs 136 and 140 (Galluci, 1998).

In another research study using the CBCL, Janos (1983) found that children with high IQ which belong to gifted sample had a higher potential to adjust behavioural problems comparing to children that scored in the range of superior Intelligence.

Perhaps the most identified and diagnosed mental disorders in a sample of the children is ADHD. This disorder is differentiating through inattention, hyperactivity, and impulsiveness (National Institute of Mental Health, 2008a). Research on this topic identified that its prevalence among children ages 6–12 years is 4%–12% of the population; rates are also the same or similar among primary health care institutions (Brown et al., 2001). Bearing in mind that children with heigh intelligence are sometimes not challenged academically at school, they may exhibit symptoms of ADHD. Professionals raised a question about the validity of diagnosing gifted children with ADHD, because many factors can affect the diagnosis, and they can indicate their behaviour rather than clinical symptoms of ADHD (Baum et al., 1998; Tucker & Hafenstein, 1997; Webb & Latimer, 1993). Evidence based studies from the Massachusetts General Hospital Family Studies of ADHD concluded that ADHD is a valid diagnosis, as it can be used for populations such as gifted children and youth when the criteria are met (Antshel et al., 2008). Based on a meta-analysis by Martin et al. (2010) regarding the limited number of studies on this topic gifted youths showed significantly lower scored on anxiety comparing to the samples of nongifted peers (effect size = −0.72).

Many studies have concluded that intelligence level has a positive impact on resilience. There were found also one study that consider giftedness as a risk factor (Luthar, 1991), but most professionals argue high intelligence as a factor that impact positively the mental health and protect mental health (Doll & Lyon, 1998; Tiet et al., 1998; Werner, 2000). Findings may change depending on the topic under investigation, such as psychological adjustment, academic achievement, dropout, delinquent behaviour, measurement methods such as psychiatric diagnoses, and teacher ratings.

Colangelo (2002) thought that adolescents with high IQs would be solid emotionally, for sure they might be vulnerable in some circumstances, primarily those linked with the school settings and relationships with peers, resulting with depressive symptoms, anxiety symptoms, or isolation. Furthermore, no significant differences have been identified in comparisons of gifted and nongifted groups in terms depression levels (Bartell & Reynolds, 1986; Brody & Benbow, 1986). On the other hand, Lange-Eichbaum (1950) in his study involved a sample of 800 persons, with profoundly high intelligence and found that substance abuse like alcohol and drug problems were more prevalent in this sample. Longitudinal studies also indicate that the social problems of gifted adolescents might have a positive impact on psychopathology (Beveridge & Yorston, 1999).

Hankin et al. (1998) found that gifted females scored higher than did gifted male. Due to the importance of personality traits to people's functioning, some studies investigated the personality profile of gifted individuals; high openness, low agreeableness, and high extraversion were the main results (Feist, 1999). Gifted adolescents like to take a risks that are connected with their future, and they are more impulsive, more emotional, and more sensation seeking (Feist, 1999; James & Asmus, 2001; Lee, 2005).

Depression, according to diagnostic manuals, is characterized by various persistent symptoms that reflect sadness, loss of interest in previous activities, and loss of enjoyment of daily activities or achievements (Baker, 1995; Kendall et al., 1989). Many studies show the scores in the borer or under the mean the scores of depressions in a sample of gifted people (Berndt et al., 1982; Kaiser & Berndt, 1985).

Children with high intelligence are potentially vulnerable to socioemotional problems, and there can be peer relationships that do not reflect the predicted relationship between peers, anxiety, depression, and isolation (Delisle, 1980; Manaster & Powell, 1983; Plucker & Levy, 2001; Silverman, 1993; Wellisch & Brown, 2012). Numerous researchers have found that being a gifted adolescent is not a risk factor; instead, it is a protective factor for mental health problems compared to their typically developing peers (Eklund et al., 2015; Kelly & Colangelo, 1984; Neihart, 1999; Neihart et al., 2002; Pontes de França-Freitas et al., 2014). Giftedness in adolescents is a protective factor from emotional problems such as anxiety disorder and PTSD (Fergusson & Lynskey, 1996; Kandel et al., 1988; Koenen et al., 2007; Martin et al., 2007).

Guénolé et al. (2013) found that referred high intelligent children, are with high prevalence on behavioural problems compared to a normative sample. Messier and Ward (1998) in their study reported that gifted adolescent delinquents in prohibition centres might be more in risk to depression compared to a sample of individuals with average IQs.

A systematic review of 12–18 studies revealed that intellectually gifted adolescents exhibited less anxiety compared to an intellectually nongifted sample (Czeschlik & Rost, 1994; Feldhusen & Klausmeier, 1962; Kramer, 1987; Milgram & Milgram, 1976; Rost & Czeschlik, 1994) and approximately the same number of behavioural disorders (Czeschlik & Rost, 1994; Gallucci et al., 1999; Ludwig & Cullinan, 1984; Rost & Czeschlik, 1994; Rosanna et al., 2016). In

addition, gifted adolescents had higher interpersonal abilities (Lehman & Erdwins, 1981; Ludwig & Cullinan, 1984; Merrell & Gill, 1994; Riaz et al., 2013). Four from 18 reviewed research reported different findings of a relation of giftedness and mental health problems (Merrell & Gill, 1994; Mueller, 2009; Shaywitz et al., 2001; Rosanna et al., 2016) also compound association between high IQ, anxiety, and perfectionism (Guignard et al., 2012).

Mueller (2009) identified several significant predictive factors of depression in a sample of intellectually gifted and nongifted individuals, including age and gender. Along with their asynchronicity, gifted adolescents are more sensitive, are sometimes perfectionists, have a need for reflective thinking, and are affected differently by moral compared to others. They also learn complex tasks more quickly, think more abstractly, and relay on others less than typical adolescents, so education does not challenge them sufficiently (Coleman & Cross, 2001; VanTassel-Baska, 1998). Dabrowski's theory of emotional development (Dabrowski & Piechowski, 1977) is an endeavour to explain the intensities of high IQ students and to develop an comprehension of the five "over excitabilities" as energy oriented towards the self that helps gifted adolescents become and achieve their best (Silverman, 1993).

Colangelo (2002) hypothesized that high IQ adolescents are consistent in the feelings, but they can be vulnerable in different circumstances. Adolescents are more active and can overcome different situations, but giftedness can be perceived as a disadvantage among school peers, resulting in emotional problems such as depression, anxiety, or withdrawal. During working days, a sample of intellectually gifted adolescents had high stress, anxiety, and social problem levels than did a nongifted sample (Chan, 2003; Neihart, 1999).

No significant differences in depression levels were identified between a group of intellectually gifted and nongifted individuals (Bartell & Reynolds, 1986; Brody & Benbow,

1986). However, important differences were found between females and males (Brugha et al., 1990; Slavin & Rainer, 1990). Just as in the general population, gifted females exhibited more emotional problems than did gifted males (Hankin et al., 1998; Landman-Peeters et al., 2005), though some researchers have reported conflicting results (Desantis, 2006; Karatzias et al., 2002; Huebner et al., 2000).

Longitudinal research conducted by Beveridge and Yorston (1999) found that social problems of high intelligent students might be a risk factor for psychopathological problems such as schizophrenia and bipolar disorder (Kyaga et al., 2011). Gifted adolescents have resilience higher comparing to nongifted, and their learning strategies differ from those of their peers (Preuss & Dubow, 2004). Concerning the interaction between self-regulation skills and learning in the context of this study's results, in addition to other factors, task executing, critical thinking, time management, and self-efficacy assumed a vital part in the scholarly accomplishment and state of mind change of understudies, including gifted adolescents (Reis & McCoach, 2000; Ruban & Reis, 2006).

Researchers who study giftedness, especially gifted adolescents, traditionally advanced such theories but often lacked data to support the claim that a relationship exists between intellectual or creative high intelligent adolescents and emotional problems. The data, which were examined according to the actual scientific information and understanding of association between emotional disorders and intellectual giftedness, supports the relationship between creativity and mood disorders, and indicates an interaction between giftedness and bipolar disorder, but not between giftedness and depression (Missett, 2013).

5. AIM OF THE STUDY

5. AIM OF THE STUDY

In this study, I expect to obtain empirical evidence that sheds light on the interaction between the three main concepts included in this study (i.e., intelligence, mental health, and personality), emphasizing the relationship between giftedness and psychopathology. This knowledge will contribute to the creation of a framework to help and support gifted adolescents with emotional and behavioural problems.

The study is aimed at contributing to defining the personality profile and associated mental health problems of gifted and nongifted adolescents as assessed by the YSR through empirical results.

My long-term objectives are to describe the mental health and personality profiles of gifted and nongifted adolescents so that family members, schools, and society can respond to the needs of gifted adolescents. In so doing, society, the education system, and mental health institutions will be able to plan early interventions based on evidence. These results will be useful when providing recommendations and guides to society, parents, schools, and clinicians about how to manage these adolescents to meet their needs more effectively.

6. OBJECTIVES AND HYPOTHESES

Following our previous discussions, this doctoral dissertation has the following objectives:

1. Determine if giftedness associates with mental health problems during adolescence
2. Determine via the YSR if gifted and nongifted adolescents differ on emotional and behavioural problems
3. Determine if gifted and nongifted adolescents differ on personality traits
4. Determine the predictors (intelligence, personality, and sociodemographic factors) of emotional and behavioural problems
5. Determine if the mediation of personality scales will explain more emotional and behavioural problems

These objectives yield these hypotheses:

H1: Gifted adolescents will face more emotional problems compared with nongifted adolescents.

H2: Gifted adolescents will face more behavioural problems compared with nongifted adolescents.

H3: Gifted adolescents will score higher in neuroticism, impulsivity, and aggression.

H4: Intelligence will be a significant predictor of mental health problems.

7. METHOD

7. METHOD

This cross-sectional quantitative study is descriptive, correlational, and inferential.

7.1 Participants

In this nationwide study, over 90% of Kosovo's municipalities participated. The inclusion criteria included adolescents 13 to 18 years old attending school in Kosovo without any physical or mental handicaps that could interfere with testing (deafness, blindness, etc.).

The initial sample comprised 575 Kosovar adolescents (M = 14.96 years; SD = 1.34), and 51.8% were female. Regarding ages, 13.9% were 13 years old, 27% were 14, 26.4 % were 15, 17.5% were 16, 12.1% were 17, and 3.1% were 18. Regarding geographical distribution, participants came from 24 of the 38 municipalities. In our sample, 68.2% of the adolescents came from urban areas and 31.8 % came from rural areas. This distribution parallels the distribution of Kosovo's population (Kosovo Agency of Statistics, 2013). Most participants attended public schools (88.9%), which represents the Kosovar education system's majority of public schools. Participants had various education levels (from Class 9 to Class 12). The largest group (29.7%) was from Class 9 (the last class before high school), and the smallest group (8%) was from Class 12 (pre–university education or high school). Adolescents answered questions about their health and any physical impairments to fulfil the inclusion criteria. Four adolescents had a physical impairment, but it did not affect their participation in the study.

From this initial sample (n = 575), we set two groups: one designated as gifted (an IQ equal to or above 131) and one designated as nongifted (an IQ from 90 to 109). To measure IQ scores, we administered standard progressive matrices (Raven test SPM+) to the whole sample. In the IQ

distribution, 140 participants had IQs from 90 to 109 (the nongifted group), and 262 participants had IQs scores above or equal to 130. To verify those with IQs equal to or above 130 pertain specifically to the gifted group, we used the Leiter 3 international performance scale to cross-test them. From these 262 participants, only 130 participants obtained IQ scores above or equal to 131 (the gifted group). The final total sample comprised 270 participants (46.7% female), with a mean age of 14.86 (*SD* = 1.31).

7.2 Instruments

We used a battery of instruments to collect data from participants.

7.2.1 Measuring Intelligence

To measure intelligence, we used a nonverbal intelligence test: Raven's Standard Progressive Matrices SPM+ (Raven, 2008). This non-culturally biased IQ test measures general ability. Raven's Standard Progressive Matrices can be administred in individual and group settings, and they apply to individuals from age seven to 18. This matrix comprise 60 multiple-choice items, with only one correct answer for each (Kaplan & Saccuzzo, 2009). The 50-min duration guarantees equality for all participants, and we administered the matrix in groups following the test's standard rules. Results were obtained following the scoring manual of the SPM+ while considering the participant's age.

This matrix test examines inductive reasoning, the ability to notice relations between different figures, and the ability to find meaning in abstract figures (Raven, 2008). It requires examining geometric or matrix figures and finding a rule that applies to the specific matrix or geometric figure (Blair, 2006; Horn & McArdle, 2007). This measure constitutes one of the most

valid available measures of Spearman's g, the general factor underlying all cognitive abilities (Court, 1983). Regarding its psychometric properties, Raven's matrix shows an internal consistency of .85 (Murphy & Davidshofer, 2005).

To assess giftedness, we administered the Leiter International Performance Scale: Leiter 3 (Roid et al., 2017). This individually administered test assesses high abilities more precisely, specifically in gifted subjects. As a non-verbal IQ test which shows to be reliable, Leiter International Performance Scale- Leiter 3, full IQ score is not biased by the examinee's value, language abilities, or other factors that can influence significantly results like education, or family experience. The Leiter 3 is designed to test cognitive ability, attention, and memory at different ages, including for children, adolescents, and adults from 3 to over 75 years old. Because we measured only cognitive ability, we specifically administered the five subtests measuring nonverbal intellectual ability including visualization and reasoning. Only four of these subtests (Figure Ground, Classification Analogies, Sequential Order, and Form Completion) are needed to measure IQ, and they take around 45 min total. Subtests have different number of items, and each subtest has a different starting age, ranging from 3 to 7 and 11 years old. All subtests should be administered by professional psychologists. The students answer true or false, and then total scores are computed for each scale. In addition to a full IQ results, the Leiter 3 offers subtest scores and a total composite score or full IQ score. The subtest scores comprise scaled scores, percentile rank scores, and age equivalents. The scaled scores computed from the cognitive battery yield a full-scale IQ (M = 100; SD = 15).

Leiter 3 was standardized in a sample of 1600 subjects. Standardizing and norming Leiter 3 included a sample of groups of people with different developmental issues. A subsample of gifted people was also included, which make the results more reliable. The Leiter 3's alpha coefficient

for the cognitive abilities IQ ranged from .94 to .98. The median alpha coefficients for the nonverbal IQ battery subtests ranged from .78 to .95. Data from American norms (Roid et al., 2013) indicate an acceptable internal consistency, with an alpha of .78 for visual patterns. The highest internal consistency appeared for sequential order (.95) and for nonverbal IQ (.98).

7.2.2 Measuring Personality

To assess normal personalities in adolescents, we administrated the 6PF49 questionnaire (Gomà-i-Freixanet, personal communication, 11.01.2017. This questionnaire uses Zuckerman's theory and the ZKPQ test. It contains 49 items (seven per scale), uses a true/false format, and takes around 15 min to complete.

This scale measures six factors (Neuroticism, Activity, Sociability, Impulsivity, Sensation Seeking, and Aggression-Hostility) and contains the Infrequency scale to ensure the data's quality. The Neuroticism–Anxiety scale's items assess emotional distress, worries, low self-confidence, and low thresholds for criticism. The Activity scale's items assess the active involvement in general activity and being an energetic person. The Sociability scale's items concern openness and socialization with friends and a desire to not be alone. The Sensation Seeking items assess a tendency for excitement and risk. The Impulsivity items assess an inability to plan and acting without thinking. The Aggression–Hostility items assess aggressive reactions and low patience towards situations that need a reaction. The 6PF49 questionnaire has also an Infrequency scale with seven items that detect inattention to the task as a validity measure for the test-taker. This scale is usually skewed, with scores around 0 or 1 (Gomà-i-Freixanet et al., 2004).

One crucial concept is measuring normal personality in a sample of adolescents. In Kosovo, we have no specific questionnaire to measure personality. Thus, we used the 6PF49 questionnaire

from Gomà-i-Freixanet (2017, personal communication). Translation and back translation were done following the standards of the International Test Commission (Hambelton, 1994; van de Vijer & Hambelton, 1996). Text was translated forward and backward (Hambleton et al., 2005) to create a Kosovar version. For our sample, we found Cronbach's alphas for the 6PF49 scales of Neuroticism–Anxiety (α = .79), Activity (α = .70), Sociability (α = .77), Impulsivity (α = .64), Sensation Seeking (α = .58), and Aggression–Hostility (α = .69).

7.2.3 Measuring Mental Health Problems

To measure mental health problems, we administered the YSR (Achenbach & Rescorla, 2001) questionnaire with 112 items using a Likert scale. We assessed three broadband "scales (Internalizing, Externalizing, and Total Problems), eight empirically based syndromes (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-breaking Behaviour, and Aggressive Behaviour); six DSM-oriented scales (Depressive Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems), other problems concerning obsessive-compulsiveness or stress, and a Positive Qualities scale" (Shahini et al., 2015. p.127).

The Youth Self Report was translated according to the procedures into Albanian and validated in Kosovo by Shahini et al. (2015). Kosovar norms were set on by comparing the results found in Kosovo sample with those from other results found in the other societies in the Youth Self Report multicultural norming sample (Achenbach & Rescorla, 2007). Validating the YSR in Kosovo revealed the largest alphas for the Internalizing (.87), Externalizing (.85), and Total

Problems (.95) scales. Alphas for the narrow-band scales ranged from .56 to .83 (Shahini et al., 2015).

The Youth Outcome Questionnaire Self-Report (Y-OQ-SR) was examined in a sample of 206 adolescents (ages 12–18; *M* = 15). We evaluated the psychometric properties of the Y-OQ-SR for alpha, test–retest reliability, and validity using the Behaviour Assessment System for Children, the adolescent version of the Self-Report of Personality, and the Child Behaviour Checklist from the YSR. Analyses show good Alpha for Internalizing (α = .87), Externalizing (α = .85), and Total Problems (α = .95). Test–retest reliability had good internal consistency (narrow-band scales range from .56 to .83), and the self-report of personality and YSR showed moderate to good concurrent validity. The Y-OQ-SR appears valid and reliable as a self-report measure of social problems (Ridge et al., 2009), with a good test–retest reliability for the YSR (*r* = .87) for Total Problems. The alphas for the YSR ranged from .72 to .97 (Achenbach & Rescorla, 2000). Those results appeared in a sample of 723 respondents.

The data were coded and analysed via the Assessment Data Management (ADM) software (Achenbach, 2011) created to generate scores and reports for the YSR. Achenbach and his team from the University of Vermont strongly recommend using the ADM to score data from ASEBA forms.

7.2.4 Sociodemographic Data

Besides administering standard tests and questionnaires, we developed an ad hoc survey to gather sociodemographic data. We included the gender, age, place of residence, monthly income, parental education, family size, number of children, and impairments of the adolescents. All this information came from the application–nomination form. Regarding age, applicants declared their

birth date in writing. The residences fell into two categories: urban and rural. Participants also reported their municipality of residence. Five categories of education were provided for each parent, who were asked to indicate the highest level of education completed: (a) did not complete primary education, (b) completed primary education, (c) completed high school, (d) completed a BA degree, or (c) completed an MA, MS, or PhD degree. The information about family size and number of children came from questions about the number of family members and the number of total siblings in the family.

7.3 Procedure

First, we contacted the Kosovar Ministry of Education, Science, and Technology for permission to administer tests and questionnaires to adolescents at school. With official permission from the Ministry of Education, Science, and Technology, we approached the headmasters of 135 public and private schools (from the 1100 eligible schools in Kosovo) in various municipalities and in urban and rural areas to explain the research and to create a schedule. A total of 128 schools participated in the study (11.6% of the eligible schools in Kosovo).

We asked schools to nominate adolescents they thought could be intellectually gifted for participants in our study. Consequently, our study's sample was neither representative nor probable—it was an intentional sample. Nominated students collectively answered sociodemographic data, the YSR questionnaire, the 6PF49, and the SPM+ test. We assessed a total of 575 adolescents and, following sampling procedures, identified 262 gifted adolescents via their scores on the SPM+ test. We used this sampling procedure to guarantee a given number of participants for the Gifted group because only 2% of individuals in the general population fit this

category. A consensus considers those who score above 130, with a percentile rank of 98, to be gifted (Growth-Marnat & Wright, 2016, p. 208).

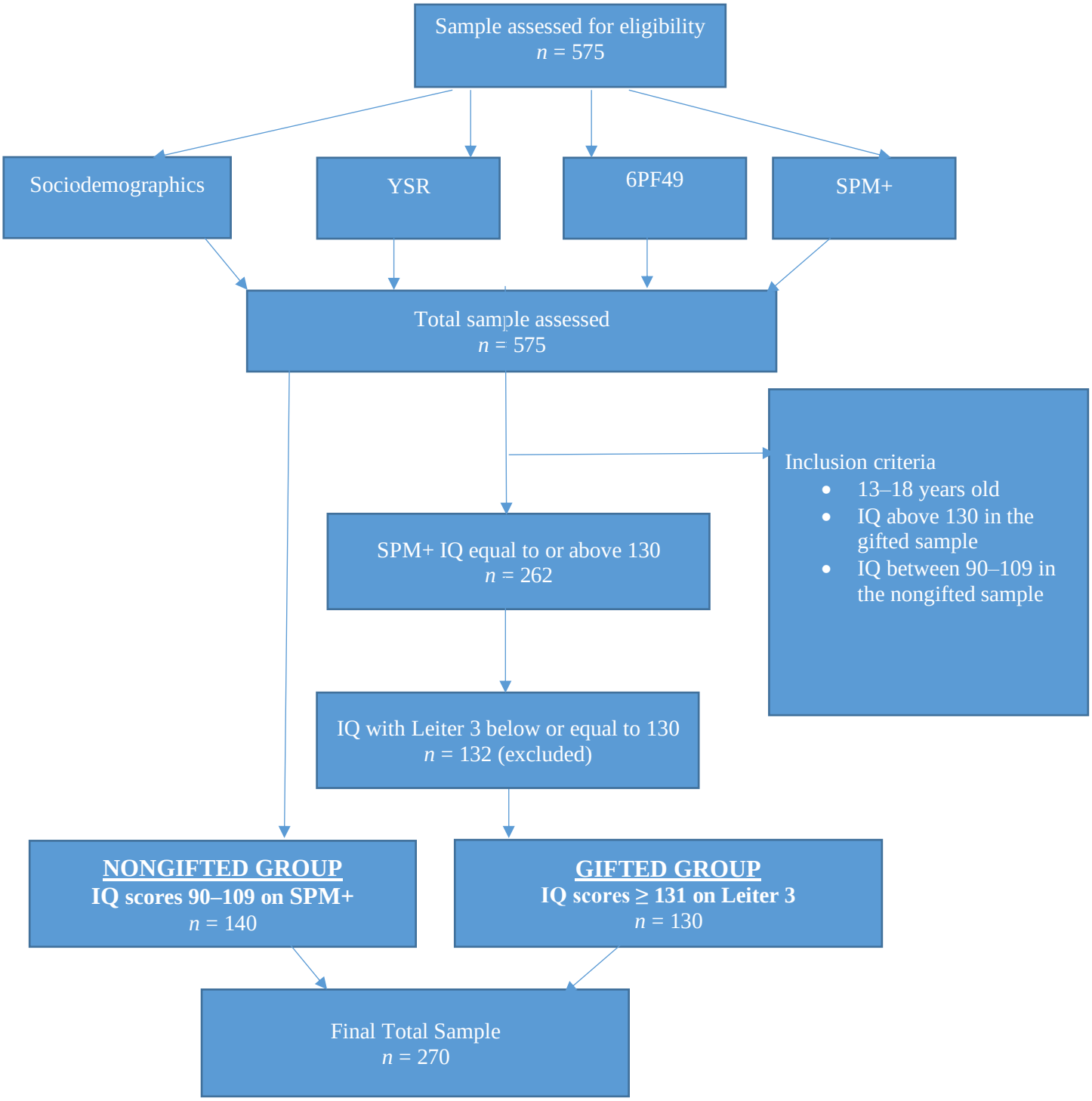
The assessment's second phase verifies those in the gifted group by including only adolescents who scored equal to or higher than 130 in SPM+ (n = 262). This group individually answered the Leiter 3 at their school. We cross-tested with the Leiter 3 was because the SPM+ is best for screening purposes and the Leiter 3 for differentiating between gifted and nongifted (Roid et al., 2013). Importantly, the nongifted group of adolescents was selected from the SPM+ results, and the gifted group was selected first with SPM+ and then with the Leiter 3.

Data were collected from September 2017 through May 2018. Collective testing occurred during weekends to avoid hindering adolescents' study process and ensure they would not miss classes. Furthermore, weekends provided better conditions for testing, including big empty classes, a silence, and hopefully well-rested minds. The tests were administered from 9 a.m. until 1 p.m. by qualified, licensed, and trained administrators. The first phase of the test administration took 4 weekends. Around 90 days later, we ran individual testing.

The IQ tests were administered in a professional environment because of the sensitivity of the results. Regarding collective administration, the number of individuals in a group (15 adolescents per group), classroom supervision, physical conditions, general instructions, administration time, and other relevant conditions aligned with standards for measuring intelligence (Raven, 1998). Individual testing followed the same procedure.

Our study fulfilled the ethical criteria of the Declaration of Helsinki and the guidelines of the World Medical Association (2013). Parents gave and signed informed consent for adolescents participating in our study who were under age 18.

Figure 2. *Flow Chart of the Selection Procedure.*



7.4 Statistical Analyses

This research included descriptive and inferential analyses to address the study's objectives and hypotheses. To test for a normal distribution of data, I used the Shapiro–Wilk normality test. Because the data were not normally distributed for comparing groups, I performed Mann–Whitney U test. We used one sample *t*-test to check the differences between gifted and nongifted adolescents regarding mental health problems and personality traits and to compare findings with those of similar studies. We also used the correlation coefficient to find the relationship between personality and mental health problems and regression to search for predictors of mental health problems in a sample of gifted versus nongifted adolescents. For building models, I used $p > .05$ and tested the models (see the Results section). We calculated the goodness of fit for several logistic regression models using the Hosmer–Lemeshow test. Effect size measures the strength of a relationship between two variables on a numeric scale. Finally, we used a structural equation model mediation analysis to see how personality predicts mediators of mental health problems, directly and with gender as a mediator.

To test the hypothesis, answer the research questions, and meet objectives I used the following:

- Descriptive data
- Shapiro–Wilk normality test
- Mann–Whitney *U* test
- One sample *t*-test
- Correlation

- A binary logistic regression
- A structural equation model
- A path analysis

I analysed the data using the SPSS v. 24. and AMOS 22 statistical packages.

8. RESULTS

8. RESULTS

In this section, I present the results to fulfil the objectives and to address the hypothesis.

8.1. Descriptive statistics

Here, I present the descriptive statistics of the sociodemographic variables for the two study groups (gifted and nongifted) and statistics from the YSR and 6PF49 questionnaire for the total sample.

Table 2 shows the descriptive statistics of sociodemographic variables from the gifted and nongifted groups. The results show the groups do not differ on age, living place, or type of school. They do differ on the remaining variables. Regarding gender distribution, the gifted group includes significantly more boys than girls. Regarding the education of either the father or the mother, results indicate that significantly more parents from the gifted group achieved higher education levels. Finally, regarding monthly family income, both groups significantly differed. However, the gifted group had higher incomes, with a difference of almost €200.

Table 2. *Descriptive statistics of the sociodemographic variables from the gifted and nongifted groups*

		n	*Frequencies*	*M*	*SD*	*Skewness*		*Kurtosis*		χ^2	*p*
						Stat.	*SE*	*Stat.*	*SE*		
Gender	*Gifted*	130	M: 79 F: 51							5.570	**.018**
	Nongifted	140	M: 65 F: 75								
Age	*Gifted*	130	13: 22 14: 40 15: 36 16: 21 17: 10 18: 1	14.69	1.20	0.39	0.21	-0.50	0.42	7.446	.190
	Nongifted	140	13: 23 14: 33 15: 31 16: 29 17: 19 18: 15	15.02	1.40	0.21	0.20	-0.89	0.40		
Living place	*Gifted*	130	Rural: 33 Urban: 97							2.947	.086
	Nongifted	140	Rural: 49 Urban: 91								
Type of school	*Gifted*	130	Public: 110 Private: 20							2.337	.126
	Nongifted	140	Public – 127 Private: 13								
Father's level of education	*Gifted*	122	Primary: 6 Secondary: 31 University: 32 Master – 53							28.653	**.001**
	Nongifted	135	Primary: 10 Secondary: 66 University: 39 Master: 20								
Mother's level of education	*Gifted*	123	Primary -18 Secondary: 33 University: 47 Master: 25							25.934	**.001**
	Nongifted	137	Primary: 42 Secondary: 56 University: 27 Master: 12								
Monthly income in euros	*Gifted*	120	-	965.4	661.8	2.23	0.22	6.91	0.43	2.082†	**.038**
	Nongifted	129		797.1	613.7	2.73	0.21	9.51	0.42		

Note. † Independent sample *t*-test.

Tables 3 and 4 display data from the YSR and 6PF49 questionnaires, respectively, regarding the normality of the total sample's distribution. The Shapiro–Wilk normality test's results indicate that scores from the scales of both questionnaires did not follow a normal distribution. Therefore, I performed a nonparametric analysis to analyse group differences.

Table 3. *Shapiro–Wilk normality test for the YSR domains* (*n* = 270)

	Shapiro–Wilk		
YSR scales	Statistic	*df*	*p*
Anxious/Depressed	.934	270	**.001**
Withdrawn/Depressed	.944	270	**.001**
Somatic Complaints	.842	270	**.001**
Social Problems	.920	270	**.001**
Thoughts Problems	.916	270	**.001**
Attention Problems	.936	270	**.001**
Rule Breaking-Behaviour	.812	270	**.001**
Aggressive Behaviour	.932	270	**.001**
Internalizing Problems	.937	270	**.001**
Externalizing Problems	.898	270	**.001**
Total Problems	.964	270	**.001**
DSM-oriented scales			
Affective Depressive Problems	.922	270	**.001**
Anxiety Problems	.946	270	**.001**
Somatic Problems	.780	270	**.001**
ADHD Problems	.932	270	**.001**
Oppositional Defiance Problems	.908	270	**.001**
Conduct Problems	.724	270	**.001**
Additional scales			
Obsessive-Compulsive Problems	.948	270	**.001**
Stress Problems	.970	270	**.001**
Positive Qualities	.912	270	**.001**

Table 4. *Shapiro–Wilk Normality Test for the 6PF49 scales (n = 209)*

	Shapiro–Wilk		
6PF49	Statistic	*df*	*p*
Neuroticism–Anxiety	.902	209	**.001**
Activity	.862	209	**.001**
Sociability	.874	209	**.001**
Impulsivity	.775	209	**.001**
Sensation Seeking	.917	209	**.001**
Aggression–Hostility	.925	209	**.001**
Infrequency	.934	209	**.001**

Table 5 displays the descriptive data and Cronbach alphas of the YSR scales for the total sample (n = 270). The obtained descriptions resemble those obtained from the Albanian general population, and the internal consistencies for the individual scales range from α = .66 to α = .88, with the Total Problems scale showing an internal consistency of α = .94.

Table 5. *Descriptive Data and Cronbach Alpha of the YSR for the Total Sample (n = 270)*

YSR scale	*n*	*M*	*SD*	*Skewness*	*Kurtosis*	*Min*	*Max*	*α*
	Valid							
Anxious/Depressed	270	5.51	3.79	0.87	0.35	0	19	.76
Withdrawn/Depressed	270	4.87	2.89	0.65	-0.26	0	13	.68
Somatic Complaints	270	2.73	2.82	1.53	2.87	0	15	.76
Social Problems	270	3.92	2.88	0.92	0.42	0	13	.66
Thoughts Problems	270	4.60	3.71	0.90	0.19	0	17	.75
Attention Problems	270	4.30	3.06	0.83	0.38	0	14	.69
Rule-breaking Behaviour	270	2.85	2.74	1.68	2.90	0	15	.72
Aggressive Behaviour	270	5.96	4.34	0.97	1.02	0	23	.87
Internalizing Problems	270	13.11	8.05	0.92	0.56	0	42	.88
Externalizing Problems	270	8.80	6.51	1.28	1.76	0	34	.85
Total Problems	270	38.47	21.06	0.64	-0.04	0	103	.94

Finally, Table 6 shows the descriptive data and Cronbach's alpha of the 6PF49 for the total sample. Internal consistencies range from α = .58 to α = .79, with a mean internal consistency of α = .69.

Table 6. *Descriptive Data and Cronbach Alpha of the 6PF49 for the Total Sample (n = 270)*

	n	*M*	*SD*	*Skewness*	*Kurtosis*	*Min*	*Max*	*α*
6PF49	Valid							
Neuroticism–Anxiety	256	2.64	2.11	0.56	-0.86	0	7	.79
Activity	248	5.09	1.85	-1.04	0.29	0	7	.70
Sociability	249	4.95	1.98	-0.99	0.04	0	7	.77
Impulsivity	263	1.19	1.51	1.35	1.01	0	6	.63
Sensation Seeking	258	4.79	1.71	-0.61	-0.23	0	7	.58
Aggression-Hostility	252	2.46	1.80	0.70	-0.14	0	7	.69
Infrequency	259	2.21	1.49	0.39	-0.46	0	6	--

Note. Some 6PF49 scales had missing data.

8.2 Statistical Analysis of the YSR

To see if the YSR scores in our sample behaved similarly to those obtained in the Kosovar national survey, thus establishing national norms (Shahini et al., 2015), we performed an independent-samples *t*-test comparing national norms to our study results (see Table 7). The results show all scales significantly differed among both groups, except for the Withdrawn/Depressed,

Attention Problems, and Total Problems scales. My sample had significantly lower means than those of the normative sample, except for the Thoughts Problems and Total Problems scales.

Table 7. *Independent Samples* t-*Test Comparisons Between the Total Sample and the Normative Sample on the YSR.*

	Total sample n = 270		Normative sample [1] n = 1351			
YSR scales	*M*	*SD*	*M*	*SD*	*t*	*p*
Anxious/Depressed	5.51	3.79	6.4	4.2	**–**3.86	**.001**
Withdrawn/Depressed	4.87	2.89	4.7	2.8	.947	.344
Somatic Complaints	2.73	2.82	3.6	3.3	**–**5.05	**.001**
Social Problems	3.92	2.88	4.7	3.2	–4.43	**.001**
Thoughts Problems	4.60	3.71	3.9	3.4	3.11	**.002**
Attention Problems	4.30	3.06	4.4	3.1	–.556	.579
Rule-breaking Behaviour	2.85	2.74	4.1	3.5	–7.49	**.001**
Aggressive Behaviour	5.96	4.34	6.9	5.3	–3.57	**.001**
Internalizing Problems	13.11	8.05	14.8	9.1	–3.45	**.001**
Externalizing Problems	8.80	6.52	10.9	8.2	–5.28	**.001**
Total Problems	38.47	21.06	36.3	21.9	1.69	.091

[1] Shahini et al. (2015) only provided data to one decimal.

Table 8 shows means and standard deviations from the gifted and nongifted groups and compares them with the normative sample (Shahini et al., 2015). It is worth mentioning that, contrarily to our sample that it was selected to score higher on IQ tests; in the normative sample conducted in Kosovo, the variable intelligence as assessed by IQ tests, was neither assessed nor controlled. Consequently, the IQ scores in this normative sample were expected to be evenly distributed, but this was not the case in the sample of our study.

Compared to the normative sample, the gifted group significantly differed on seven scales (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Thoughts Problems, Rule-breaking Behaviour, Aggressive Behaviour, and Externalizing Problems). Notably, the gifted group scored significantly lower on all scales except on the Withdrawn/Depressed and Thoughts Problems scales. Compared with normative data, the nongifted group significantly differed on all scales except the Withdrawn/Depressed and Thoughts Problems scales. In all these scales, the nongifted group scored significantly lower.

Table 8. *One sample t-test comparisons between gifted and nongifted groups and the normative sample on the YSR.*

YSR scale	Gifted *n = 130* *M*	*SD*	Nongifted *n* = 140 *M*	*SD*	Normative sample *n* = 1351 *M*	*SD*	*Gifted vs NS* *p*	*Nongifted vs NS* *p*
Anxious/Depressed	5.63	3.97	5.39	3.64	6.4	4.2	**.029**	**.001**
Withdrawn/Depressed	5.28	2.97	4.49	2.78	4.7	2.8	**.028**	.363
Somatic Complaints	2.81	2.96	2.66	2.69	3.6	3.3	**.003**	**.001**
Social Problems	4.31	3.07	3.56	2.66	4.7	3.2	.148	**.001**
Thoughts Problems	4.89	3.73	4.34	3.69	3.9	3.4	**.003**	.165
Attention Problems	4.80	3.09	3.83	2.98	4.4	3.1	.143	**.025**
Rule-breaking Behaviour	3.10	2.77	2.61	2.71	4.1	3.5	**.001**	**.001**
Aggressive Behaviour	6.09	3.82	5.83	4.78	6.9	5.3	**.017**	**.009**
Internalizing Problems	13.72	8.27	12.54	7.83	14.8	9.1	.137	**.001**
Externalizing Problems	9.19	5.84	8.44	7.09	10.9	8.2	**.001**	**.001**
Total Problems	4078	19.99	36.34	21.87	42.5	25.7	.327	**.001**

Note. NS = Normative sample.

Table 9 shows the Mann–Whitney U test for testing gender differences on the Emotional and Behavioural Problems scales from the YSR questionnaire and the effect size. Both groups differed significantly on Anxious/Depressed, Somatic Complaints, Rule-breaking Behaviour,

Internalizing Problems, and Externalizing Problems scales. Male adolescents scored significantly higher on Rule-breaking Behaviour and Externalizing Problems scales. Regarding the effect sizes, the Rule-breaking Behaviour Problems scale showed the highest effect size (n^2 = .072), followed by the Externalizing Problems (n^2 = .026) and Anxious Depressed (n^2 = .025) scales.

Table 9. *Mann–Whitney* U *Test Gender Differences in the YSR scales (n* = 270*)*

	Male (n = 144)	Female (n = 126)				
YSR scale	*Mean rank*	*Mean rank*	*Mann - Whitney U*	*z*	*p*	*Cohen's d/η2*
Anxious/Depressed	123.94	148.71	7407.0	–2.61	**.009**	.025
Withdrawn/Depressed	133..85	137.39	8834.0	–0.37	.708	.001
Somatic Complaints	125.93	146.44	7693.5	–2.18	**.029**	.017
Social Problems	134.31	136.86	8900.5	–0.27	.787	.001
Thoughts Problems	140.35	129.96	8373.5	–1.09	.273	.004
Attention Problems	136.89	133.91	8872.0	–0.31	.753	.001
Rule-Breaking Behaviour	154.69	113.56	6308.0	–4.40	**.001**	.072
Aggressive Behaviour	142.11	127.95	8120.5	–1.49	.136	.008
Internalizing Problems	125.75	146.64	7668.5	–2.19	**.028**	.017
Externalizing Problems	147.26	122.06	7379.0	–2.65	**.008**	.026
Total Problems	136.70	134.13	8899.0	–0.27	.787	.001

Note. The effect size was calculated with the formula $d/\eta^2 = Z^2 / N - 1$.

Table 10 shows differences between gifted and nongifted groups regarding the Emotional and Behavioural problems from the YSR questionnaire. Both groups differed significantly on the Withdrawn/Depressed, Attention Problems, Rule-breaking Behaviour, and Externalizing Problems scales, and on the Total Mental Health Problems scale. In all these scales, the gifted

group scored significantly higher. Regarding effect sizes, the Attention Problems scale showed the highest effect size (n^2 = .028), followed by the Withdrawn/Depressed Problems (n^2 = .018) and Rule-breaking Behaviour (n^2 = .016) scales. On the DSM-oriented scales, the gifted group scored significantly higher on the Affective Depressive Problems, ADHD Problems, and Conduct Problems scales. Both groups did not differ on the remaining scales. Regarding effect sizes, the ADHD Problems scale showed the highest effect size. Concerning additional scales, only the Stress Problems scale significantly differed between groups. The gifted group obtained higher scores on this scale.

Table 10. *Mann–Whitney U test differences between gifted and nongifted groups and the effect size in the YSR and on DSM-oriented scales.*

	Gifted (*n* = 130)	Nongifted (*n* = 140)				
YSR scale	*Mean rank*	*Mean rank*	*Mann - Whitney U*	*z*	*p*	*Cohen's d* η^2
Anxious/Depressed	136.56	134.51	8,962.0	–.21	.829	.001
Withdrawn/Depressed	146.33	125.44	7,692.0	–2.21	**.027**	.018
Somatic Complaints	135.76	135.26	9,066.5	–.053	.958	.001
Social Problems	144.35	127.28	7,949.0	–1.81	.070	.012
Thoughts Problems	142.22	129.26	8,226.0	–1.37	.171	.007
Attention Problems	149.15	122.83	7,326.0	–2.78	**.005**	.028
Rule-breaking Behaviour	145.53	126.19	7,796.5	–2.07	**.038**	.016
Aggressive Behaviour	141.95	129.51	8,262.0	–1.31	.190	.006
Internalizing Problems	140.68	130.69	8,427.0	–1.05	.293	.004
Externalizing Problems	145.00	126.68	7,865.5	–1.93	**.050**	.014
Total Problems	145.27	126.43	7,830.0	–1.98	**.048**	.014
DSM-oriented scale						
Affective Depressive Problems	145.78	125.96	7,764.0	–2.1	**.036**	.016
Anxiety Problems	131.03	139.65	8,519.0	–.91	.361	.003
Somatic Problems	134.98	135.98	9,033.5	–.19	.914	.001
ADHD Problems	147.02	124.81	7,603.0	–2.3	**.019**	.020
Oppositional Defiance Problems	139.53	131.76	8,576.0	–.83	.405	.002
Conduct Problems	145.64	126.08	7,781.5	–2.13	**.033**	.016
Additional scale						
Obsessive-compulsive Problems	140.28	131.06	8,478.5	–.98	.329	.003
Stress Problems	147.12	124.71	7,589.5	–2.36	**.018**	.020
Positive Qualities	134.10	136.80	8,918.5	–.28	.776	.001

Note. Effect size was calculated with the formula $n^2 = Z^2 / N - 1$

Table 11 shows means for genders on the YSR scales for the gifted and nongifted groups and for the total sample. Regarding the gifted group and the general YSR scales, both genders significantly differed on the Anxious/Depressed, Somatic Complaints, and Rule-breaking Behaviour scales. On the first two scales, female adolescents outscored male adolescents. For the

nongifted group, only the Rule-breaking Behaviour scale showed a significant difference, with males outscoring females. For the total sample, genders differed on five out of 11 scales (Anxious/Depressed, Somatic Complaints, Rule-breaking Behaviour, Externalizing Problems, and Total Mental Health Problems). In these scales, females obtained higher scores, except for the Rule-breaking Behaviour and Externalizing Problems scales. The only scale that significantly differed among the three groups was the Rule-breaking Behaviour scale, with males obtaining higher scores in the three samples. Concerning DSM-oriented scales for the gifted group, the genders significantly differed only on the Somatic and Conduct Problems scales, with males scoring lower on the Somatic scale and scoring higher for the Conduct Problems scale. As for the nongifted group, the genders only differed on the Conduct Problems scale, with males outscoring females. For the total sample, genders differed on three out of six scales (Anxiety Problems, Somatic Problems, and Conduct Problems). The only scale that significantly differed among the three groups was the Conduct Problems scale, with males obtaining higher scores in the three samples. The additional scales showed no gender differences on any of the three samples.

Table 11. *Mann-Whitney U Test Gender Differences Between Gifted and Nongifted Groups on Emotional and Behavioural Problems, DSM-Oriented Scales and Additional Scales*

		Gifted (n = 130)			Nongifted (n = 140)			Total sample (n = 270)		
YSR scales		Mean rank	Mann - Whitney U	z	Mean rank	Mann - Whitney U	z	Mean rank	Mann - Whitney U	z
Anxious/ Depressed	**M**	59.3	1529.0	-2.32	65.2	2096.5	-1.432	123.9	7407.0	-2.612
	F	75.0			75.1			148.7		
			***p* = .020**			p = .152			***p* = .009**	
Withdrawn/Depressed	**M**	65.9	1982.0	–.156	66.4	2169.0	-1.131	133.8	8834.0	-–.374.
	F	64.7			74.1			137.4		
			p = .876			p = .258			p = .708	
Somatic Complaints	**M**	59.4	1536.5	-2.315	67.5	2244.0	–.820	125.9	7693.5	-2.183
	F	74.9			73.1			146.4		
			***p* = .021**			p = .412			***p* = .029**	
Social Problems	**M**	66.1	1963.5	–.245	66.8	2195.5	-1.020	134.3	8900.5	–.270
	F	64.5			73.7			136.9		
			p = .807			p = .308			p = .787	
Thoughts Problems	**M**	68.1	1806.0	–.999	71.5	2370.0	–.284	140.3	8373.5	-1.097
	F	61.4			69.6			129.9		
			p = .318			p = .777			p = .273	
Attention Problems	**M**	65.9	1976.5	–.182	69.2	2351.5	–.362	136.9	8872.0	–.314
	F	64.7			71.6			133.9		
			p = .855			p = .717			p = .753	
Rule-Breaking Behaviour	**M**	72.8	1434.5	-2.841	81.5	1720.5	-3.046	154.7	6308.0	-4.403
	F	54.1			60.1			113.6		
			***p* = .005**			***p* = .002**			***p* = .001**	
Aggressive Behaviour	**M**	68.2	1979.0	-1.041	72.9	2277.5	–.671	142.1	8120.5	-1.491
	F	61.2			68.4			127.9		
			p = .298			p = .502			p = .136	
Internalizing Problems	**M**	60.4	1614.5	-1.887	65.0	2082.5	-1.485	125.7	7668.5	-2.195
	F	73.3			75.2			146.6		
			p = .056			p = .138			***p* = .028**	
Externalizing Problems	**M**	70.5	1619.5	-1.887	75.5	2113.0	-1.359	147.3	7379.0	-2.650
	F	57.7			66.2			122.1		
			p = .059			p = .174			***p* = .008**	
Total Problems	**M**	65.5	2012.0	–.012	69.9	2401.0	–.153	136.7	8899.0	–.270
	F	65.4			71.0			134.1		
			p = .990			p = .879			p = .787	

Table 11. *Mann-Whitney U Test Gender Differences Between Gifted and Nongifted Groups on Emotional and Behavioural Problems, DSM-Oriented Scales and Additional Scales (Continued)*

		Gifted (n = 130)			Non-gifted (n = 140)			Total sample (n = 270)		
		Mean rank	Mann-Whitney U	z	Mean rank	Mann-Whitney U	z	Mean rank	Mann-Whitney U	z
DSM-Oriented Scales										
Affective Depressive Problems	**M**	63.8	1886.0	−.616	68.4	2304	−.559	133.5	8789.5	−.443
	F	68.0			72.7			137.7		
			p = .538			p = .576			p = .657	
Anxiety Problems	**M**	62.4	1773.0	-1.159	65.4	2107.5	-1.389	126.9	7828.0	-1.957
	F	70.2			75.0			145.4		
			p = .246			p = .165			***p* = .050**	
Somatic Problems	**M**	58.3	1446.5	-2.807	66.6	2183.0	-1.099	123.4	7337.0	-2.804
	F	76.6			73.9			149.3		
			***p* = .005**			p = .272			***p* = .005**	
ADHD Problems	**M**	66.7	1915.5	−.476	65.8	2131.0	-1.294	134.6	8946.0	−.199
	F	63.6			74.6			136.5		
			p = .634			p = .196			p = .843	
Oppositional Defiant Problems	**M**	65.9	1985.5	−.141	70.6	2430.5	−.030	136.7	8900.0	−.274
	F	64.9			70.4			134.1		
			p = .888			p = .976			p = .783	
Conduct Problems	**M**	72.4	1467.0	-2.674	79.6	1842.5	-2.630	152.9	6554.0	-4.076
	F	54.8			62.6			115.5		
			***p* = .008**			***p* = .009**			***p* = .001**	
Additional scales										
Obsessive-Compulsive Problems	**M**	63.3	1842.5	−.828	69.9	2403.0	−.145	133.5	8779.5	−.460
	F	68.9			70.9			137.8		
			p = .408			p = .885			p = .645	
Stress Problems	**M**	63.0	1814.5	−.957	68.7	2323.5	−.478	133.3	8749.5	−.505
	F	69.4			72.0			138.1		
			p = .339			p = .633			p = .613	
Positive Qualities	**M**	64.4	1929.0	−.409	68.8	2329	−.453	132.4	8628.0	−.696
	F	67.1			71.9			139.0		
			p = .683			p = .651			p = .487	

8.3. Statistical Analysis of the 6PF49.

In this section, I describe the results of the 6PF49 questionnaire. As mentioned in the instruments section, the questionnaire was used for the first time in Kosovo to measure personality traits in the adolescent population because up to then no personality questionnaire for this age group existed in the Albanian language.

The data obtained in the sample was first analysed through exploratory factor analysis using principal component analysis. The results provided empirical evidence regarding the factor structure for the 6PF49: the Kaiser–Meyer–Olkin sample adequacy was good and middling (KMO = .768) and the Bartlett's test of sphericity result was significant (p = .001). The analysis of the items of the 6PF49 for the total sample, excluding those pertaining to the Infrequency Scale, resulted in a six-factor solution. In Table 12, I only present the factor loadings higher than 0.30 after applying Varimax rotation. The six-factor solution explained 37.4% of the total variance. All the items reported significant high factor loadings for their specific factor (standardized coefficients were all above 0.30), and the internal consistency was in the range of good to very good (α = .58 and α = .79).

Table 12. *Principal Component Analysis with Varimax Rotation for the 6PF49 (Infrequency Scale Not Included)*

Items	A priori	I	II	III	IV	V	VI	h^2
1	+ N-Anxiety	.658						.440
8	+ N-Anxiety	.417						.429
15	+ N-Anxiety	.740						.526
22	+ N-Anxiety	.662						.522
29	+ N-Anxiety	.567						.447
36	+ N-Anxiety	.608						.591
43	+ N-Anxiety	.654						.525
2	+ Impulsivity		.396				.	.396
9	+ Impulsivity		.543					.437
16	+ Impulsivity		.465					.354
23	+ Impulsivity		.394					.443
30	+ Impulsivity		.679					.665
37	+ Impulsivity		.535					.370
44	+ Impulsivity		.561					.472
3	+ Activity			.385				.349
10	+ Activity			.445				.422
17	+ Activity			.465				.258
24	+ Activity			.541				.393
31	+ Activity			.712				.444
38	+ Activity			.608				.467
45	+ Activity			.607				.408
4	+ Sociability				.707			.622
11	+ Sociability				.488			.414
18	+ Sociability				.676			.603
25	+ Sociability				.486			.278
32	+ Sociability				.613			.486
39	+ Sociability				.640			.482
46	+ Sociability				.668			.427
5	+ Sensation Seeking					.314		.215
12	+ Sensation Seeking					.556		.494
19	+ Sensation Seeking					.600		.362
26	+ Sensation Seeking					.318		.092
33	+ Sensation Seeking					.372		.339
40	+ Sensation Seeking					.410		.297
47	+ Sensation Seeking					.565		.344
6	+ Aggression–Hostility						.495	.436
13	+ Aggression–Hostility						.497	.346
20	+ Aggression–Hostility						.710	.550
27	+ Aggression–Hostility						.659	.446
34	+ Aggression–Hostility						.602	.388
41	+ Aggression–Hostility						.466	.298
48	+ Aggression–Hostility						.544	.445
% variance explained		7.5	4.6	4.8	11.1	5.9	3.5	
Cronbach's alpha		α = .79	α = .64	α = .70	α = .77	α = .58	α = .69	

Note. I = neuroticism-anxiety, II = impulsivity, III = activity, IV = sociability, V = sensation seeking, VI = aggression–hostility.

Regarding gender differences on personality scores from the 6PF49, Table 13 indicates that neither gender differed on any of the scales except for the Neuroticism Scale in which females obtained significantly higher scores. Regarding effect sizes, the Neuroticism Scale showed the highest effect size (η^2 = .062), followed by Activity (η^2 = .014).

Table 13. *Mann-Whitney U Test Gender Differences for 6PF49 Scales*

		Male (n = 144)	Female (n = 126)	Mann-Whitney			
6PF49	n	Mean rank	Mean rank	U	z	p	Cohen's d η2
Neuroticism	256	111.96	148.46	585.0	-3.986	**.001**	.062
Activity	248	132.32	115.46	6607.5	-1.889	.059	.014
Sociability	249	130.06	119.47	7077.0	-1.185	.236	.006
Impulsivity	263	131.21	132.89	8508.0	−.189	.850	.001
Sensation seeking	258	134.16	124.14	7636.5	-1.094	.274	.004
Aggression-Hostility	252	126.27	126.76	7889.0	−.055	.957	.004

Note. Effect size was calculated using the formula $\eta^2 = Z^2/N - 1$.

Table 14 shows the Mann-Whitney U test for testing differences between gifted and nongifted groups on the personality traits from the 6PF49 questionnaire and the effect size. Both groups differed significantly on Sociability, Sensation Seeking, and Aggression–Hostility scales. The gifted group scored significantly higher on the Sensation Seeking scale and significantly lower on the Sociability and Aggression–Hostility scales. Regarding the effect sizes, the Sociability Scale showed the highest effect size (n^2 = .046), followed by the Sensation Seeking (n^2 = .022) and Aggression–Hostility scales (n^2 = .017).

Table 14. *Mann-Whitney U Test Differences Between Gifted and Nongifted Groups and Effect Size for the 6PF49 Scales*

	Gifted (n = 130)	Nongifted (n = 140)				
	Mean rank	Mean rank	Mann-Whitney U	z	p	Cohen's d $\eta 2$
Neuroticism	126.55	130.24	7932.0	-0.404	.686	.006
Activity	116.81	132.19	6735.0	-1.726	.084	.012
Sociability	109.50	139.89	5855.5	-3.403	**.001**	.046
Impulsivity	139.12	125.15	7725.0	-1.579	.114	.009
Sensation Seeking	140.96	118.89	6886.5	-2.413	**.016**	.022
Aggression-Hostility	116.49	135.60	6719.0	-2.113	**.035**	.017

Note. Effect size was calculated using the formula $n^2 = Z^2/N - 1$.

8.4 Correlation Between Mental Health (YSR) and Personality (6PF49).

Table 15 shows the coefficients of correlation between mental health problems and personality factors as assessed by the YSR and 6PF49.

Regarding the scales of the 6PF49, the Neuroticism Scale correlates positively and significantly with all YSR scales except for the Rule-Breaking Behaviour Scale. Activity correlates negatively and significantly with all YSR scales except for the Rule-Breaking Behaviour Scale, although the coefficients are lower than for the Neuroticism–Anxiety Scale. Sociability correlates negatively and significantly with all YSR scales except for the Rule-Breaking and Aggressive Behaviours and the Externalizing Problems scales. The Impulsivity Scale correlates positively and significantly with all YSR scales. Finally, the Sensation Seeking and Aggression–Hostility scales

show a similar pattern of correlations with positive and significant correlations mostly with Rule-Breaking and Aggressive Behaviours and Externalizing Problems scales.

From the perspective of the YSR, the Internalizing Problems scale correlates positively and significantly with the N-Anx and Impulsivity scales and negatively with Activity and Sociability scales. The Externalizing Problems scale positively and significantly correlated with all scales except Activity and Sociability. Finally, the Total Problem scale showed a significant correlation with all scales, except Aggression–Hostility scale.

Table 15. *Bivariate Correlations Between 6PF49 and YSR Scales for the Total Sample (n = 270)*

Scale	Anxious/ Depressed	Withdrawn/Depressed	Somatic Complaints	Social Problems	Thought Problems	Attention Problems	Rule-Breaking Behaviours	Aggressive Behaviours	Internalizing Problems	Externalizing Problems	Total Problems
Neuroticism	**.65****	**.42****	**.44****	**.49****	**.41****	**.49****	**.**13*	**.39****	**.62****	**.32****	**.58****
Activity	**−.**27**	−.**33****	−.28**	−.23**	−.25**	−.27**	−.07	−.18**	−.**34****	−.15*	−.**31****
Sociability	−.29**	−.**52****	−.17**	−.**34****	−.29**	−.25**	−.04	−.09	−.**38****	−.08	−.**31****
Impulsivity	.29**	.19**	.25**	.29**	**.31****	**.53****	**.35****	**.50****	.29**	**.48****	**.48****
Sensation Seeking	.08	.05	.07	.11	.18**	.17**	.23**	.23**	.08	.25**	.19**
Aggression–Hostility	.02	−.09	.01	−.08	.05	−.05	.17**	.28**	−.03	.26**	.07

Note: Correlations higher than .30 are in bold.
*$p < .05$ **$p < .01$.

8.5. Inferential Statistics: Regression

In this section, I test several models through regression analysis to find the best predictors of mental health problems, specifically emotional and behavioural problems, taking into consideration IQ, personality, gender, age, and socioeconomic variables. According to the manual of the YSR questionnaire, I converted the obtained quantitative scores into two categories

following DSM criteria: 0 = no case and 1 = case. With these two categories, I performed binary logistic regressions using the backwards stepwise method.

Regression Model for Internalizing Problems

In Table 16, I describe the best model obtained, including IQ (gifted and nongifted groups), gender, age (comparing 14-year-olds to 13-year-olds), and 6PF49 personality scales. Other variables introduced into the model, such as monthly income, different age ranges (13 to 14, 13 to 15, 13 to 16, 13 to 17, 13 to 18, and so on), and personality scales such as Impulsivity and Sensation Seeking, are not presented in Table 16 because these variables did not predict at a significant level the Internalizing Problems scale did.

The obtained model shown in Table 16 explains an overall percentage of 80.7%, with 118 respondents predicted as non-cases and 37 as cases. Therefore, only 19.3% of the participants were incorrectly assigned to their respective group. The findings indicate that being gifted is not a risk for developing internalizing problems. Regarding gender, findings indicate males are 5.05 times more likely to develop internalizing problems, and being 14 years old (compared to 13 years old) predicts a decrease in the risk for developing internalizing problems (OR ExpB = .226, p = .029).

Regarding personality scales, it is important to mention the Neuroticism scale predicts having a high probability of developing internalizing problems (OR ExpB = 2.241, p = .001). For each increase in neuroticism, the risk for internalizing problems increases 2.2 times. Contrarily, the Sociability (OR ExpB = .804, p = .045) and Aggression–Hostility (OR ExpB = .771, p = .044) scales predict a low risk of internalizing problems.

Table 16. *Binary Logistic Regression for Emotional/Internalizing Problems Scales*

	B	*SE*	*Wald*	*df*	*p*	*Exp(B)*
IQ (Nongifted & Gifted)	0.28	.46	0.37	1	.543	1.32
Gender (Female & Male)	1.62	.53	9.41	1	**.002**	5.05
14 years old Compared to 13 years old	-1.49	.68	4.74	1	**.029**	0.23
Neuroticism–Anxiety	0.81	.14	34.19	1	**.001**	2.24
Activity	-0.20	.12	2.73	1	.098	0.82
Sociability	-0.22	.11	4.01	1	**.045**	0.80
Aggression–Hostility	-0.26	.13	4.05	1	**.044**	0.77
Constant	-1.34	1.23	1.18	1	.277	0.26

Note: R^2 = .546 (Nagelkerke *R* square); model χ^2 (4) = 94.6, *p* = .001 (omnibus test); χ^2 (4) = 3.731, *p* = .881 (Hosmer and Lemeshow test).

Following the results obtained in Table 16 regarding internalizing problems as a whole, in the following paragraphs I describe, scale by scale, the results obtained for the scales constituting the Internalizing Problems Scale (Anxious-Depressed, Withdrawn-Depressed, and Somatic Complaints).

Anxious/Depressed (DSM). The obtained model (Anxiety: R^2 = .581 [Nagelkerke R^2]; Model χ^2 [1] = 81.2, *p* = .001 [omnibus test]; χ^2 [1] = 4.774, *p* = .781 [Hosmer and Lemeshow test]) explained an overall percentage of 88.5%, with 151 respondents predicted as non-cases and 19 as cases. Therefore, only 11.5% of the participants were not well assigned to their respective group.

The findings indicated a gifted person is 2.65 times more likely to have anxiety/depressed problems, according to DSM criteria (OR, ExpB = 2.64, *p* = .132), and males are 4.8 times more likely to develop Anxiety problems compared to females (OR, ExpB = 4.810, *p* = .021).

Regarding personality scales, the Neuroticism Scale predicts a high probability of developing Anxiety/Depressed (OR ExpB = 2.69, *p* = .001), meaning that for each scale increase

in neuroticism, the risk for developing Anxiety increases 2.69 times. Other factors included in the model, such as personality scales, age, and monthly income, did not predict Anxious/Depressed Problems at a significant level.

Withdrawn/Depressed (DSM). The obtained model (Withdrawn Problems: R^2 = .498 [Nagelkerke R^2]; model χ^2 [1] = 75.7, p = .001 [omnibus test]; χ^2 [1] = 4.528, p = .807 [Hosmer and Lemeshow test]) explained an overall percentage of 85.4%, with 139 respondents predicted as non-cases and 25 as cases. Therefore, only 14.6% of the participants were not well assigned to their respective group.

The findings indicate gifted people are 1.102 times more likely to be Withdrawn/Depressed, according to DSM criteria (OR, ExpB = 1.102, p = .856), and that males are 5.8 times more likely to develop Withdrawn problems compared to females (OR, ExpB = 5.8, p = .002).

Regarding personality scales, the Neuroticism Scale predicts a high probability of developing Withdrawn problems (OR ExpB = 1.341, p = .024), meaning that for each increase on the Neuroticism Scale, the risk for developing withdrawn behaviour increases 1.34 times. Furthermore, the Sociability Scale predicts a high probability of developing Withdrawn problems (OR ExpB = .526, p = .001). For each increase on the Sociability Scale, the risk for developing Withdrawn problems decreases 0.526 times. The Aggression–Hostility Scale does not predict a high risk of developing Withdrawn problems (OR ExpB = .705, p = .016). Other factors included in the model, such as personality scales, age, and monthly income, did not predict Withdrawn problems at a significant level.

Somatic Complaints (DSM). The obtained model (Somatization problems: R^2 = .467 [Nagelkerke R^2]; model χ^2 [1] = 42.1, p = .001 [omnibus test]; χ^2 [1] = 2.760, p = .949 [Hosmer

and Lemeshow test]) explained an overall percentage of 92.2%, with 173 respondents predicted as non-cases and four as cases. Therefore, only 7.8% of the participants were not well assigned to their respective groups. The findings indicated that being gifted and male does not predict Somatic Complaints at a significant level.

Regarding personality scales, the Neuroticism Scale predicts a high risk of developing Somatic Problems (OR ExpB = 1.832, p = .002), meaning that for each increase on the scale, the risk for developing Somatic Problems increases 1.832 times. The Activity Scale does not predict a high risk of developing Somatic Problems (OR ExpB = .641, p = .017). For each increase on the Activity Scale, the risk for developing somatic problems decreases 0.641times. Other factors included in the model, such as personality scales, age, and monthly income, did not predict Somatic Problems at a significant level.

Regression Model for Externalizing Problems

The obtained model shown in Table 17 explains an overall percentage of 92.2%, with 163 respondents predicted as non-cases and 14 as cases. Therefore, only 7.8% of the participants were not well assigned to their respective group. The findings indicate that being gifted is not a risk factor for developing externalizing problems. Regarding sex, findings indicate males are 9.48 times more likely to develop externalizing problems (OR EXpB = 9.48, p = .008), and monthly income significantly predicts externalizing problems (OR ExpB = 1.001, p = .048).

Regarding personality scales, it is important to mention that the Impulsivity Scale predicts having a high probability of developing externalizing problems (OR ExpB = 2.018, p = .001). For each increase on the Impulsivity Scale, the risk for developing internalizing problems increases 2.018 times. Likewise, the Aggression-Hostility Scale predicts having a high risk of developing

externalizing problems (OR ExpB = 1.551, p = .015), meaning that for each increase on the scale, the risk for developing externalizing problems increases 1.551 times.

Table 17. *Binary Logistic Regression for Behavioural/Externalizing Problems*

Variable	*B*	*SE*	*Wald*	*df*	*p*	*Exp(B)*
IQ (Average & Gifted)	−0.05	.69	0.01	1	.940	.95
Gender (Female & Male)	2.25	.85	6.99	1	**.008**	9.48
Monthly income	0.01	.00	3.90	1	**.048**	1.01
Neuroticism-Anxiety	0.19	.18	1.08	1	.300	1.21
Activity	0.14	.19	0.50	1	.479	1.15
Sociability	0.04	.17	0.06	1	.806	1.04
Impulsivity	0.70	.22	10.19	1	**.001**	2.02
Sensation Seeking	0.18	.22	0.72	1	.397	1.20
Aggression-Hostility	0.44	.18	5.87	1	**.015**	1.55
Constant	−28.77	5930.78	0.01	1	.996	.01

Note: R^2 = .574 (Nagelkerke R^2); Model χ^2 (1) = 69.5, p = .001 (omnibus test); χ^2 (1) = 5.915, p = .657 (Hosmer and Lemeshow test).

Following the results shown in Table 17 regarding externalizing problems, in the following paragraphs I describe, scale by scale, the results obtained for the scales constituting the Externalizing Problems Scale (Attention Problems, Rule-Breaking Behaviour, and Aggressive Behaviour).

Attention Problems (DSM). The obtained model (Attention Problems: R^2 = .588 [Nagelkerke R^2]; model χ^2 [1] = 50.1, p = .001 [omnibus test]; χ^2 [1] = 6.757 p = .563 [Hosmer and Lemeshow test]) explained an overall percentage of 95.8%, with 178 respondents predicted as non-cases and six as cases. Therefore, only 4.2% of the participants were not well assigned to their respective groups. Our findings indicated that being gifted and male does not predict at a significant level the development of attention problems.

Regarding personality scales, the Impulsivity Scale predicts having a high probability of developing attention problems (OR ExpB = 2.123, p = .012), meaning that for each increase on the Impulsivity Scale, the risk for developing attention problems increases 2.123 times. The

Aggression–Hostility Scale does not predict a high risk for developing an attention problems (OR ExpB = .373, p = .011), meaning that for each increase on the Aggression-Hostility Scale, the risk for developing attention problems decreases 0.373 times. Other factors included in the model, such as intelligence, gender, age, and monthly income, did not predict attention problems at significant level.

Rule-Breaking Behaviour (DSM). The obtained model (Rule-Breaking Behaviour: R^2= .676 [Nagelkerke R^2]; model χ^2 [1] = 42.4, p = .001 [omnibus test]; χ^2 (1) = 1.580 p = .991 [Hosmer and Lemeshow test]) explained an overall percentage of 97.4%, with 182 respondents predicted as noncases and five as cases. Therefore, only 2.6% of the participants were not well assigned to their respective groups.

The findings indicated that being gifted and male did not predict developing rule-breaking behaviour at a significant level, but monthly income did (OR ExpB = 1.002, p = .046), and that high income predicts more rule-breaking behaviour. Regarding personality scales, the Impulsivity Scale predicts a high probability of developing rule-breaking behaviour problems (OR ExpB = 3.153, p = .043), meaning that for each increase on the Impulsivity Scale, the risk for developing rule-breaking behaviour problems increases 3.153 times. Other factors included in the model, such as intelligence, sex, personality scales, and age, did not predict rule-breaking problems at a significant level.

Aggression Behaviour (DSM). The obtained model (Rule Breaking: R^2 = .584 [Nagelkerke R^2]; model χ^2 [1] = 60.6, p = .001 [omnibus test]; χ^2 [1] = 3.867 p = .869 [Hosmer and Lemeshow test]) explained an overall percentage of 93.8%, with 171 respondents predicted as noncases and nine as cases. Therefore, only 6.2% of the participants were not well assigned to their respective group.

The findings indicated that males are 13.599 times more likely to display aggressive behaviour problems according to DSM criteria (OR, ExpB = 13.599, p = .015). Regarding personality scales, the Impulsivity Scale predicted a high probability of developing aggressive behaviour problems (OR ExpB = 2.370, p = .001), meaning that for each scale increase in Impulsivity the risk for developing Aggressive behaviour problems is increased 2.370 times. Furthermore, the Aggression–Hostility Scale also predicts a high probability of developing aggressive behaviour problems (OR ExpB = 1.514, p = .004). For each increase on the Aggression–Hostility Scale, the risk for developing aggressive behaviour problems increases 1.514 times. Other factors included in the model, such as intelligence, age, and monthly income, did not predict aggressive behaviour problems at significant level.

Regression Model for Total Mental Health Problems

In Table 18, I describe the best model obtained, including IQ (gifted and nongifted groups), sex, age ranges, monthly income, and 6PF49 personality scales.

The obtained model (Table 18) explains an overall percentage of 85.4%, with 131 respondents predicted as non-cases and 33 as cases. Therefore, only 14.4% of the participants were not well assigned to their respective group. The findings indicate that being gifted is not a risk for developing mental health problems overall. Findings regarding sex indicate males are 4.903 times more likely to develop total mental health problems (OR, ExpB = 4.903, p = .006). Furthermore, being 16 compared to 13 years old predicted an increased risk of developing overall mental health problems (OR EXpB = 10.883, p = .003), and being 17 compared to 13 years old predicted an increased risk of developing total mental health problems (OR EXpB = 6.678, p = .043).

Regarding personality scales, the Neuroticism Scale predicted a high probability of developing total mental health problems (OR ExpB = 2.234, p = .001). For each increase on the Neuroticism Scale, the risk for developing total mental health problems increases 2.234 times. Furthermore, the Impulsivity Scale predicts a high probability of developing total mental health problems (OR ExpB = 1.601, p = .007). For each increase on the Impulsivity Scale, the risk for developing overall mental health problems increases 1.601 times. Other factors included in the model, such as monthly income, did not predict total mental health problems at a significant level.

Table 18. *Binary Logistic Regression for Total Mental Health Problems*

	B	*SE*	*Wald*	*df*	*p*	*Exp(B)*
IQ (Average & Gifted)	0.34	0.51	0.45	1	.502	1.41
Gender (Female & Male)	1.59	0.57	7.65	1	**.006**	4.90
16 years old compared to 13 years old	2.39	0.81	8.78	1	**.003**	10.88
17 years old compared to 13 years old	1.89	0.94	4.08	1	**.043**	6.68
Monthly Income	0.01	0.01	1.04	1	.309	1.00
Neuroticism–Anxiety	0.80	0.15	27.71	1	**.001**	2.23
Activity	-0.07	0.14	0.28	1	.595	0.93
Sociability	-0.08	0.12	0.52	1	.472	0.92
Impulsivity	0.47	0.17	7.30	1	**.007**	1.60
Sensation Seeking	0.10	0.14	0.52	1	.473	1.10
Aggression–Hostility	-0.19	0.14	1.76	1	.185	0.83
Constant	-5.98	1.57	14.52	1	**.001**	0.01

Note: R^2= .592 (Nagelkerke R^2); model χ^2 (1) = 100.6, p = .001 (omnibus test);
$\chi 2$ (1) = 7.100, p = .526 (Hosmer and Lemeshow test).

Based on the results (Table 18) regarding the Total Mental Health Problems Scale, in the following paragraphs I describe, scale by scale, the results obtained for the scales constituting this scale (Social Problems and Thought Problems).

Social Problems (DSM). The obtained model (Social Problems: R^2 = .494 [Nagelkerke R^2]; Model χ^2 [1] = 60.5, p = .001 [omnibus test]; χ^2 [1] = 4.362, p = .823 [Hosmer and Lemeshow test]) explained an overall percentage of 89.1%, with 161 respondents predicted as noncases and 10 as cases. Therefore, only 10.9% of the participants were not well assigned to their respective groups.

The findings indicated gifted people are 4.729 times more likely to have social problems according to DSM criteria (OR, ExpB = 4.729, p = .026) and males are 4.629 times more likely to develop social problems (OR, ExpB = 4.629, p = .021). Furthermore, being 14 compared to 13 years old predicted a decreased risk of developing a social problem (OR EXpB = .115, p = .018).

Regarding personality scales, the Neuroticism Scale predicted a high probability of developing social problems (OR ExpB = 2.124, p = .001), meaning that for each increase on the Neuroticism Scale, the risk for developing social problems increases 2.124 times. Furthermore, Sociability Scale does not predict a high risk of developing social problems (OR ExpB = .710, p = .016), meaning that for each increase on the Sociability Scale, the risk for developing social problems decreases 0.710 times. Other factors included in the model, such as age, and monthly income, did not predict social problems at a significant level.

Thought Problems (DSM). The obtained model (Thought Problems: R^2 = .452 [Nagelkerke R^2]; Model χ^2 [1] = 55.5, p = .001 [omnibus test]; χ^2 [1] = 7.755, p = .458 [Hosmer and Lemeshow test]) explained an overall percentage of 86.5%, with 156 respondents predicted as noncases and 10 as cases. Therefore, only 13.5% of respondents were not well assigned to their respective group. The findings indicate males are 7.369 times more likely to develop thought problems when compared to females (OR, ExpB = 7.369, p = .004).

Regarding personality scales, the Neuroticism Scale predicts a high risk of developing thought problems (OR ExpB = 1.602, p = .002), meaning that for each increase on the Neuroticism Scale, the risk for developing thoughts problems increases 1.602 times. Furthermore, the Activity Scale does not predict a high risk of developing thought problems (OR ExpB = .650, p = .005). For each increase on the Activity Scale, the risk for developing thought problems decreases 0.650 times. Other factors included in the model, such as intelligence, age, and monthly income, did not predict thought problems at a significant level.

According to the binary logistic regression results, it was clear that being gifted is not a risk factor for mental health problems, including emotional and behavioural problems according to DSM criteria of diagnosing cases and non-cases. Regarding personality scales, high neuroticism, low sociability, and low aggression–hostility are considered risk factors for emotional problems, and high neuroticism, high impulsivity, and high aggression–hostility are considered risk factors for behavioural problems. Regarding sociodemographic variables, being male significantly predicted emotional and behavioural problems, and being 14 years old significantly predicted emotional problems.

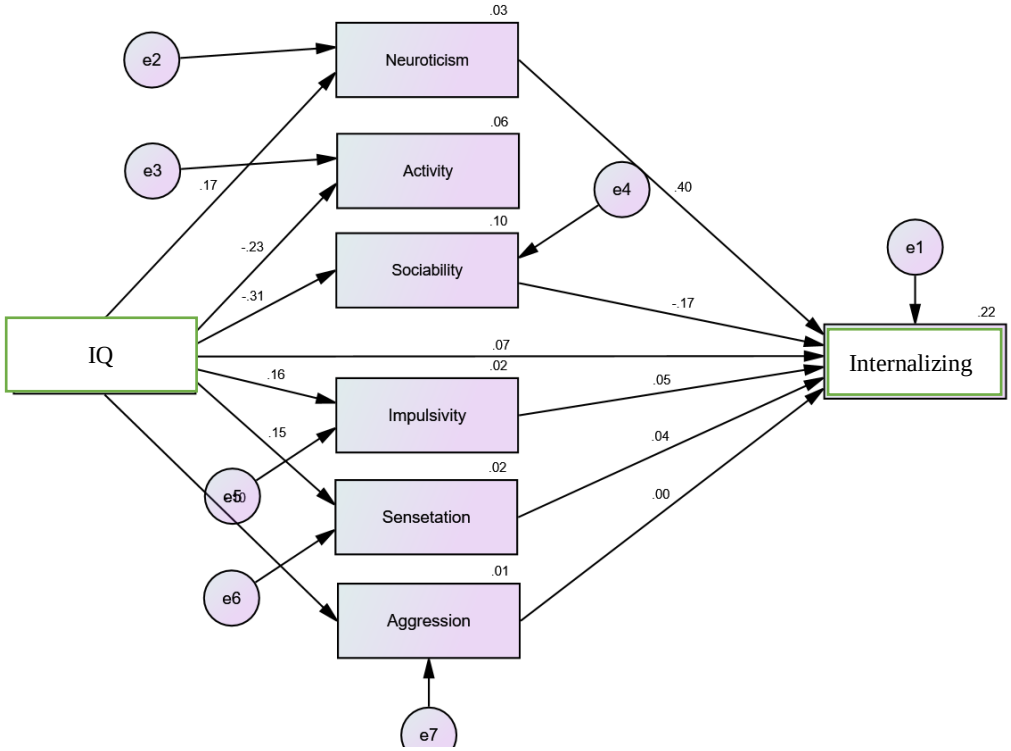
8.6. Mediation Analysis

In this section, and to clarify the nature of the relationship between IQ (gifted and nongifted) and personality variables, and from the other part mental health problems, specifically emotional and behavioural problems, I provide several mediation analyses. With these analyses, I hope to contribute to a better understanding of the relationship between the independent variables (IQ and personality) and the dependent variable (internalizing and externalizing mental health problems).

8.6.1 The Mediating Effect of IQ on Internalizing and Externalizing Problems

Path analyses (Figure 3) showed that IQ did not predict internalizing problems at any significant level nor when personality factors were added as mediators. The model did not fit (RMSEA = 0.151, which is not significant, and CFI = 0.472, which is far from the desirable level).

Figure 3. *SEM, Mediation Model: Effects of IQ (Nongifted and Gifted) on Emotional/Internalizing Problems Through Personality Factors*



Note: χ^2 = 227.03, *df* = 16, *p* < .001, CFI = 0.472, NFI = 0.479, RMSEA = 0.151, R^2 = .22

According to Table 19, being gifted is a significant positive predictor of neuroticism, impulsivity, and sensation seeking and a negative predictor of activity and sociability. Contrarily, IQ does not significantly predict aggression and internalizing problems.

Regarding personality as a mediator, only two variables predicted internalizing problems at a significant level: neuroticism predicts positively and sociability negatively. Table 19 shows the estimates and direction of each predicted variable relative to the dependent variable.

Table 19. *SEM, Mediation Model: Effects of IQ (Nongifted and Gifted) on Emotional/Internalizing Problems Through Personality Facets*

Variables			*Estimate*	*SE*	*C.R.*	*p*
Neuroticism	<---	IQ	.69	.23	2.99	**.003**
Activity	<---	IQ	−.79	.19	−4.11	*******
Sociability	<---	IQ	−1.21	.21	−5.66	*******
Impulsivity	<---	IQ	.44	.16	2.81	**.005**
Sensation Seeking	<---	IQ	.49	.18	2.71	**.007**
Aggression-Hostility	<---	IQ	−.34	.20	−1.73	.083
INTERNALIZING	<---	IQ	.04	.05	0.74	.459
INTERNALIZING	<---	Neuroticism	.08	.01	10.13	***
INTERNALIZING	<---	Activity	−.02	.01	−1.90	.058
INTERNALIZING	<---	Sociability	−.04	.01	−3.81	***
INTERNALIZING	<---	Impulsivity	.01	.01	1.18	.239
INTERNALIZING	<---	SS	.01	.01	1.29	.194
INTERNALIZING	<---	Agg-Host	.01	.01	0.02	.986

Note. Regression weights: Group 1; default model.

The same analysis was performed to test whether personality was a good mediator of IQ and externalizing problems, but again, the results showed the model did not fit well (χ^2 = 220.93, *df* = 15, *p* < .0001; CFI = .360; NFI = .382; RMSEA = .154; R^2 = .13).

Being gifted is a significant positive predictor of neuroticism, impulsivity, and sensation seeking, and a negative predictor of activity and sociability (Table 20). Contrarily, IQ does not significantly predict aggression and externalizing problems.

Regarding personality as a mediator, only two variables (impulsivity and aggression) predicted externalizing problems at a significant level, both positively.

Table 20 shows the estimates and direction of each predicted variable towards the dependent variable.

Table 20. *SEM, Mediation Model: Effects of IQ (Nongifted and Gifted) on Behavioural/Externalizing Problems Through Personality Facets*

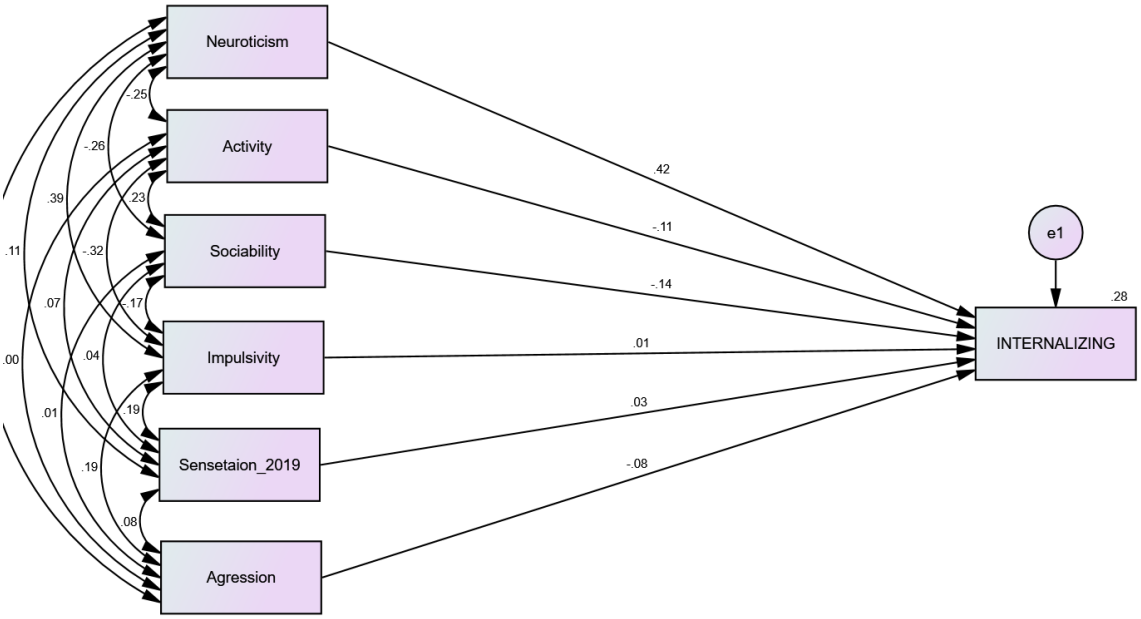
			Estimate	*SE*	*C.R.*	*p*
Neuroticism	<---	IQ	.69	.23	3.01	**.003**
Activity	<---	IQ	−.80	.19	−4.16	***
Sociability	<---	IQ	−1.21	.21	−5.71	***
Impulsivity	<---	IQ	.46	.16	2.91	**.004**
Sensation Seeking	<---	IQ	.48	.18	2.67	**.007**
Aggression-Hostility	<---	IQ	−.35	.19	−1.77	.077
EXTERNALIZING	<---	IQ	.02	.04	0.49	.618
EXTERNALIZING	<---	Neuroticism	.01	.01	0.60	.546
EXTERNALIZING	<---	Activity	−.01	.01	−0.13	.899
EXTERNALIZING	<---	Sociability	−.01	.01	−0.52	.599
EXTERNALIZING	<---	Impulsivity	.07	.01	7.51	***
EXTERNALIZING	<---	Sen. Seeking	.01	.01	1.66	.096
EXTERNALIZING	<---	Agg-Host	.03	.01	3.88	***

Note. Regression weights: Group 1, default model

From the two analyses in Tables 19 and 20, we can conclude that neither internalizing nor externalizing problems is predicted by IQ, even if one adds personality as a mediator. Moreover, I performed a SEM to test whether personality has a linear interaction with emotional/internalizing problems (see Figure 4). The results showed that the model did not fit well (RMSEA = .154; R^2 = .28).

Neuroticism was a significant positive predictor of internalizing problems and sociability was a negative predictor (Table 21). The model explained 28% of the variance.

Figure 4. *SEM: Effects of Personality Factors on Emotional/Internalizing Problems*



RMSEA = .154, R^2 = .28.

Table 21. *SEM, Model: Effect of Personality Factors on Emotional/Internalization Problems.*

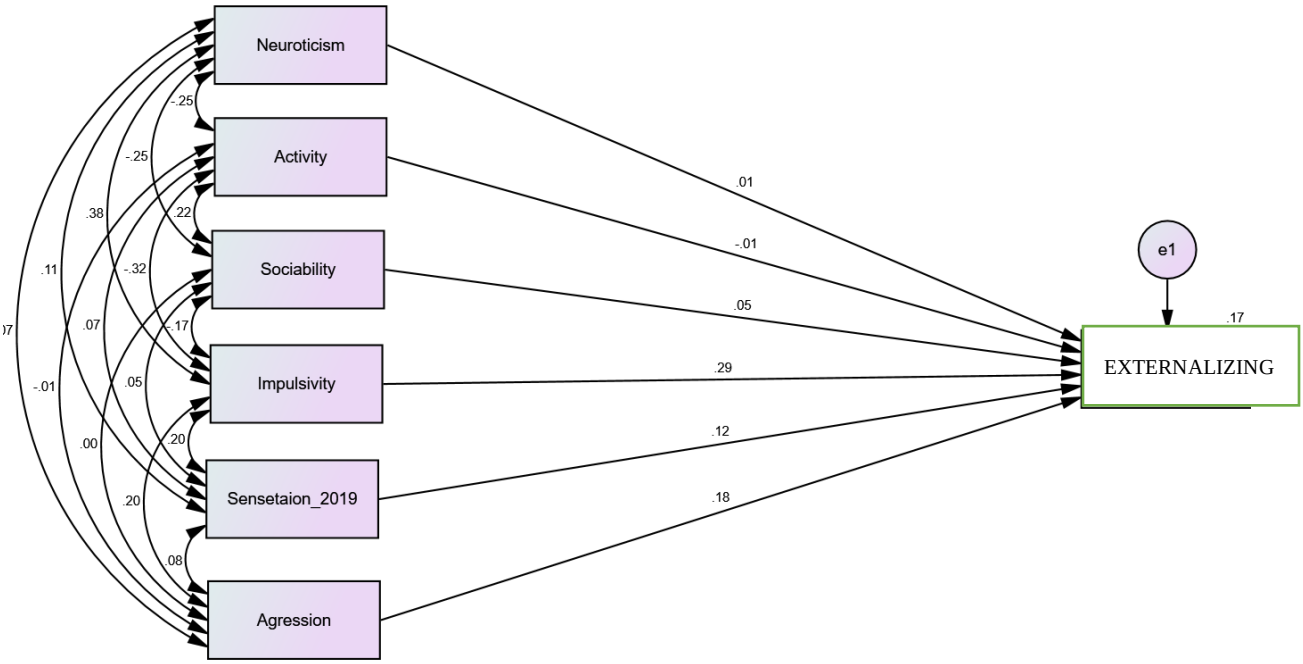
		Estimate	*SE*	*C.R.*	*p*
INTERNALIZING <---	Neuroticism	.09	.01	7.11	***
INTERNALIZING <---	Activity	−.02	.01	−1.77	.076
INTERNALIZING <---	Sociability	−.03	.01	−2.48	**.013**
INTERNALIZING <---	Impulsivity	.01	.02	.144	.885
INTERNALIZING <---	Sensation Seeking	.01	.02	0.55	.582
INTERNALIZING <---	Aggression-Hostility	−.02	.01	−1.51	.132

Note. Regression Weights: Group 1, default model

I performed the same analysis for testing if personality factors had a linear interaction to behavioural/externalizing problems (see Fig. 5). Results showed that the model did not fit well (RMSEA =. 138; R^2 = .17).

According to Table 22, significant positive predictors of externalizing problems were impulsivity, sensation seeking, and aggression–hostility. The model explained 17% of the variance.

Figure 5. *SEM, Model: Effects of Personality Factors on Behavioural/Externalizing Problems.*



RMSEA = .138, R^2 = .17

Table 22. *SEM, Model: Effect of Personality Factors on Behavioural/Externalizing Problems*

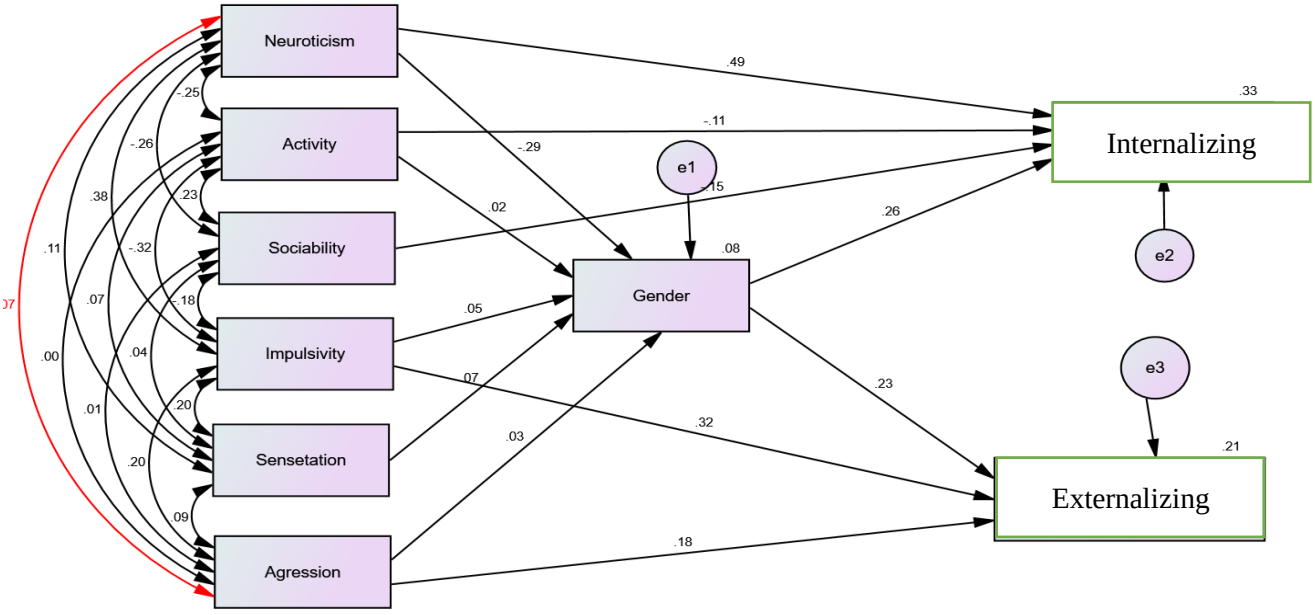
			Estimate	*SE*	*C.R.*	*p*
EXTERNALIZING	<---	Neuroticism	.01	.01	.13	.897
EXTERNALIZING	<---	Activity	−.01	.01	−.22	.828
EXTERNALIZING	<---	Sociability	.01	.01	.85	.396
EXTERNALIZING	<---	Impulsivity	.06	.01	4.34	***
EXTERNALIZING	<---	Sensation Seeking	.02	.01	1.98	**.047**
EXTERNALIZING	<---	Aggression-Hostility	.03	.01	3.11	**.002**

Note. Regression Weights: Group 1, default model

Finally, I performed the same analysis to test if gender was a good mediator of internalizing and externalizing problems. Figure 6 shows that the model fit was good [RMSEA = .043; χ^2 = 13.52, *df* = 9, *p* = .140; CF I = .983; NFI = .958; R^2 = .33 for internalizing; R^2 = .21 for externalizing]. Figure 6 also shows that, when looking at the linear direction between personality factors and internalizing and by introducing gender as a mediator, the R^2 increases by .5. The same applies with externalizing problems; when introducing gender as a mediator, the R^2 increases by .4.

As shown in Table 23, gender and neuroticism positively and significantly predicted internalizing problems, while activity and sociability negatively predicted internalizing problems. In this model, gender, impulsivity, and aggression–hostility were significant and positive predictors of externalizing problems.

Figure 6. *SEM, Mediation Model: Effects of Personality Facets on Internalizing and Externalizing Problems Through Mediation of Gender*



Note: χ^2 = 13.523, *df* = 9, *p* = .140; CFI = .983; NFI = .958; RMSEA = .043; R^2 = .33 internalizing, R^2 = .21 externalizing.

Table 23. *SEM, Mediation Model: Effects of Personality Factors on Internalizing and Externalizing Problems Through Mediation of Gender*

			Estimate	*SE*	*C.R.*	*p*
Gender	<---	Neuroticism	−.07	.02	−4.47	***
Gender	<---	Activity	.01	.02	.33	.742
Gender	<---	Impulsivity	.02	.02	.71	.477
Gender	<---	Sensation Seeking	.02	.02	1.14	.253
Gender	<---	Aggression-Hostility	.01	.02	.46	.643
INTERNALIZING	<---	Gender	.24	.05	4.95	***
INTERNALIZING	<---	Neuroticism	.11	.01	8.77	***
INTERNALIZING	<---	Activity	−.03	.01	−2.04	**.042**
INTERNALIZING	<---	Sociability	−.03	.01	−2.65	**.008**
EXTERNALIZING	<---	Gender	.15	.04	4.26	***
EXTERNALIZING	<---	Impulsivity	.07	.01	5.67	***
EXTERNALIZING	<---	Aggression-Hostility	.03	.01	3.18	**.002**

Note. Regression weights: Group 1, default model.

Overall, mediation analysis has shown that personality and gender are important mediators in explaining internalizing and externalizing problems, as assessed by the YSR. This analysis has also shown that personality factors and being a male adolescent directly impact internalizing and externalizing problems. Furthermore, it is important to emphasize that this analysis has shown that IQ does not interact with internalizing and externalizing problems.

9. DISCUSSION

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Few studies exist that search for the relationship between mental health and intelligence, and even less that specifically address the topic of mental health and giftedness in adolescents. Regarding studies searching for the relationship between personality and intelligence, the situation is not much better. Published studies concurrently considering these three variables (mental health, intelligence, and personality) are quite scarce.

Due to the current lack of studies on these different topics, the main objective of my thesis was to determine if giftedness related to mental health problems, taking into account personality dimensions. I also positioned my study at the adolescence period because this is a sensible period of life development. Furthermore, I wanted to determine risk and protective factors of mental health among gifted adolescents to help them progress as healthy subjects in society.

I compared two groups of adolescents differing in their levels of IQ. My results provide new evidence on how the groups differ between personality and mental health problems and how the three topics under study are related. Additionally, bringing new evidence to this field will help to confirm and explain in detail the psychological profile of gifted and nongifted adolescents, which is important for them to function better in society. In this way, I also hope to aid society and policymakers to understand this collective better and help them to develop as functional subjects in society.

Not all studies mentioned at the introduction section came to the same conclusion regarding the relationship between giftedness and mental health problems. Some concluded that being gifted is a protective factor for mental health problems, but others concluded the opposite. In addition to these incongruences, it was not easy to find researches that, besides analysing the linear interaction between intelligence and mental health, included personality as a predictor of mental health and

even more difficult to include personality as a mediator of the relationship between intelligence and mental health.

The main variables studied in my thesis were intelligence, specifically giftedness; mental health problems, specifically emotional and behavioural problems; personality traits; and sociodemographic variables. In the next pages, I address the results obtained, taking as a guide the fulfilment of my objectives and hypothesis.

Hypotheses 1 and 2: Gifted Adolescents Would Suffer More From Emotional and Behavioural Problems Compared With Nongifted Adolescents

One of the most important objectives and hypotheses of this study was to contrast if gifted adolescents would suffer from emotional and behavioural problems. I only found significant differences between gifted and nongifted adolescents regarding behavioural and total mental health problems. The gifted adolescents exhibited higher scores on these two scales.

Garland and Zigler (1999) found no significant evidence that intellectually gifted youth expressed and scored significantly higher in emotional and behavioural problems than the general sample of nongifted youth. Scores reported for internalizing and externalizing problem scales were within the norms. Those findings support the theory for emotional problems and do not support the findings for behavioural problems. My results are in the same line with the findings of Dauber and Benbow (1990) and Shaywitz et al. (1986), who reported that the gifted sample had higher behavioural problems among those who were intellectually exceptional.

As previously described, emotional problems and behavioural problems become a construct when computing other scales, such as Anxious Depression, Withdrawn Depression, Somatic Complains, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behaviour, and Aggressive Behaviour. Based on these scales, I checked the differences between two groups, gifted and nongifted, in relationship with each scale. According to the results in all scales, gifted adolescents scored higher than nongifted adolescents did, but only in three out of eight scales were the differences significant.

Gifted adolescents scored higher with significant differences in Withdrawn/Depression, in Attention Problems, and in Rule-Breaking Behaviour.

I compared my findings to other studies that did research in the field of psychological and emotional disorders in samples of gifted children. Within those studies, different results were sometimes contradictory. However, some studies done on children with anxiety showed that gifted children reported anxiety in higher levels compared to nongifted children; researchers concluded that giftedness might be a risk factor for anxiety disorders (Peyre et al., 2016; Roberts & Lovet, 1994). Those results are not in line with the findings of this thesis. Other studies that were in line with my findings did not find any significant difference in anxiety levels between gifted children and their nongifted peers (Guenole et al., 2013; Zeidner & Shani-Zinovich, 2011).

According to Kermarrec et al. (2020), who sought an interaction between giftedness and anxiety, there was no significant interaction between anxiety and giftedness in a sample of 162 cases, in which the evaluation was done after children self-reported and parents reported. An evaluation was done through the Revised-Children's Manifest Anxiety Scale, a self-report inventory for children from 6 to 19 years old, and there was no significant interaction. These authors concluded that, after reviewing parent reports and child self-reports, there was no significant interaction between anxiety and giftedness. My findings similarly found no significant differences or interactions. My results confirm the results of Kermarrec et al. (2020).

I found opposite results from Mueller (2009). According to his research, gifted adolescents scored significantly lower in depression compared to nongifted samples. Mueller's results are in line with Neihart's (1999) conclusions, supporting that the levels of depression in a sample of gifted students are similar or lower than in a sample of nongifted students (Baker, 1995; Neihart, 1991). Muller's (2009) study shows different results from my finding regarding depression, but his results are in line with previous studies.

According to other studies by Garland and Zigler (1999), Neihart (1999), and others, there were no significant differences between gifted and nongifted students regarding mental health problems. Those results support my findings in clinical settings, and do not support the well-known myth that being a gifted teen is a predictor and risk factor of mental health problems.

A review of the literature in the past 25 years from Martin et al. (2010) on mental health and giftedness in youth samples concluded that there were no significant differences between gifted and nongifted youths regarding depression and suicidal ideation. Furthermore, gifted youths scored significantly lower in anxiety.

The first hypothesis was not accepted because there were no significant differences between gifted and nongifted adolescents on emotional problems.

Regarding the second hypothesis, gifted adolescents in comparison with nongifted adolescents scored significantly higher on behavioural problems, which means the second hypothesis is accepted.

Hypothesis 3: Gifted Adolescents Would Score Higher in Neuroticism, Impulsivity, and Aggression

One of the objectives and hypotheses is that gifted adolescents will score significantly higher in the neuroticism, impulsivity and aggression-hostility scales. According to the results, there are no significant differences between gifted and nongifted students in relation to the Neuroticism scale. Those results are in line with the results presented above about the severity of emotional problems. However, gifted adolescents scored significantly higher in Sensation Seeking and significantly lower in Sociability and Aggression-Hostility scales. Regarding the Impulsivity scale, it is worth mentioning that gifted scored higher on this scale, but the difference did not reach statistical significance. These results indicate a personality profile characterized by emotional stability, shyness, and being patient with people; but also looking for sensations and risks. This pattern probably relates to the obtained results regarding hypothesis 2, in that they do not exhibit emotional problems, but they do exhibit behavioural problems in the form of risky activities either normative or not. Our findings show that in a group of gifted adolescents, their predominant traits are less sociable, less aggressive, and high in sensation seeking. They are also more impulsive, but not at a level that the results become significantly different.

Zeidner et al. (2011) reported high scores for a sample of gifted adolescents on Openness and lower scores on Neuroticism. My findings confirmed those results; gifted students scored lower in Neuroticism and higher in Sensation Seeking. Furthermore, both studies are in the same line with results found by McCrae et al. (2002).

Consistent with my objective and hypothesis are results that gifted adolescents score significantly less on Neuroticism, compared to the sample of nongifted adolescents. The data are

in line with previous studies indicating that neuroticism is negatively associated to giftedness (Ackerman & Heggestad, 1997).

The third hypothesis was not accepted because the results were not significantly higher between gifted and nongifted adolescents regarding neuroticism, impulsivity, and aggression–hostility.

Hypothesis 4: Giftedness is a Significant Predictor of Mental Health Problems

I addressed this hypothesis from the perspective of being gifted. In addition, I explained in more detail the reasons why the manner of presenting the obtained results may create a perception that gifted adolescents suffer more from behavioural and total mental health problems.

The YSR, used for assessing mental health problems, is based on DSM criteria. In a YSR scales of Withdrawn Depression, Attention Problems and Rule breaking Behaviour gifted adolescents scored significantly higher comparing to nongifted adolescents. In the DSM-oriented scales and additional scales measured, gifted adolescents scored significantly higher in affective/depressive problems, ADHD, Conduct Problems and Stress Problems. Regarding the DSM scales of the YSR in the DSM-oriented scale of oppositional defiant problems, there were no significant differences between gifted and nongifted children. I found the same results in the DSM-oriented scale for anxiety and somatic problems.

Looking into those results based on mean differences between two groups related to mental health problems, there may be a perception that being gifted indicates higher mental health problems in the abovementioned scales. However, when I did a more sophisticated, in-depth analysis (referring to binary logistic regression and mediation analysis) and treated the scales based

on DSM criteria, being gifted was not a risk factor for emotional and behavioural problems. When I performed a binary logistic regression with two categories, 0 for no case and 1 for case, based on DSM criteria, only the Social Problems scale was a significant predictor of being gifted.

According to results looking for mean differences, I found that gifted adolescents scored higher than nongifted adolescents did on the scales for Withdrawn/Depressed, Externalizing Problems and Total Problems. Does scoring higher mean that gifted children suffer more from emotional and behavioural problems? Based on the results, the answer is no for this important question. Why? Gifted adolescents might score higher than comparison group of nongifted adolescents, but if the results are just differing in mean and both groups are not above the cut-off point of scoring to become a clinical case. Then higher Mean score cannot be understood that it is a clinical case. When I talk about gifted adolescents, I talk about a group whose mental development is highly mature compared to their peers, and thus, it is expected that this group will not behave and emotionally react in the same way as their peers do. Because of their maturity, they are expected to be more withdrawn from their peers but not from society and others who are at the same mental age development. Similarly, it is expected that gifted adolescents will not follow every rule that is set for the general population of a specific age as they do not fit with the adolescent developmental mental age because they are more mature. This can be well illustrated in the scale of attention problems where gifted adolescents obtain higher scores. Because of their giftedness, it is not supposed to have attention problems, but probably they are bored and do not have enough patience for others, and consequently a lack of attention appears.

In conclusion, the scales on which gifted adolescents scored significantly higher showed only significant differences in mean. Results did not indicate that being a gifted adolescent is a predictor of being a clinical case. According to the results of this thesis, being gifted does not

predict emotional, behavioural, or total mental health problems. Being gifted should be an alert for society, schools, universities, and others to offer services that the gifted adolescents need, so that they may benefit and contribute. Being gifted should not be an alert for mental health.

According to binary logistic regression, mediation, and path analysis, giftedness does not significantly predict emotional and behavioural problems. To avoid checking this in a linear path, I generated a model using path analysis that predicted Emotional and Behavioural problems and mediators (personality traits and gender) and independent variable (Intelligence). According to the results, emotional problems explained 22% of the variance, but in this percentage, IQ, specifically giftedness, did not contribute any significant percentage or level in the model. Personality scales more accurately predict emotional and behavioural problems than IQ predicts.

In general, as described above, gifted and nongifted adolescents did not show significant differences in specific YSR scales besides Withdrawn/depressed, Attention Problems and Rule-breaking Behaviour. Furthermore, when they were grouped into emotional problems, behavioural and total mental health problems they scored significantly higher in behavioural and total mental health problems. Findings of Cross et al. (2008) reported no significant changes in mean between groups of gifted and nongifted adolescents, on youth self-report scales of mental health problems, these results are in the same line with our finding.

It is obvious that there are some factors that can be considered risk factors for gifted children and adolescents and do not contribute positively to general and mental health, such as social stereotypes, asynchronicity, perfectionism, and withdrawn or “social isolation” (Zeidner & Shani-Zinovich, 2011), and also a list of protective factors, such as high intelligence, orientation in strategies that helps problem solving, coping with problems, high results in their engagements,

and openness. All factors help to mediate the impact and possible implications of gifted people's productive results (Gardynik & McDonald, 2005).

The fourth hypothesis was not accepted based on the results performed by binary logistic regression and mediation analysis.

Personality, Intelligence, and Mental Health

When I analyse the main variables and their interactions through regression and mediation analysis, I conclude that being gifted is not a predictor of emotional and behavioural problems nor total mental health problems. Even more, adding personality variables as mediators, do not modify the effect of giftedness. To put more bluntly, neither emotional nor behavioural problems are predicted by giftedness even though introducing personality traits as mediators.

According to binary logistic regression analysis, in three main personality scales, gifted results which were, high in neuroticism, low in aggression-hostility and low in impulsivity are that significantly predict emotional problems, scoring high in impulsivity and Aggression hostility are significant predictors of Behavioural problems, and scoring high in Neuroticism and high in Impulsivity predict significantly total mental health problems. In addition, gender, specifically being male, significantly predicted mental health problems in some youth self-report scales. The results are important because they note that being gifted is not a risk factor for mental health problems. Personality traits and the abovementioned factors more likely predict mental health problems.

My findings are in line with Zeidner and Shani-Zinovich (2011), who found that being gifted was not a risk factor for mental health problems. Furthermore, the personality traits that are predictors of mental health problems are fully in line with my findings, confirming the empirical finding that gifted adolescents function similarly and often healthier in a psychological perspective compared to nongifted adolescents (Cross et al., 2008). In addition, being a gifted adolescent does not prove to be a risk factor for mental health problems.

10. CONCLUSIONS

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I present the main conclusions of the thesis' empirical work below.

1. Gifted adolescents are characterized with high levels of withdrawn/depression, attention problems, and rule-breaking problems as measured by the YSR.
2. Gifted adolescents are characterized with high levels of behavioural problems and total mental health problems and no significant differences in emotional problems as measured by the YSR.
3. Females are characterized with high levels of anxious/depression, somatic complaints, and emotional problems, and males are characterized with high levels of rule-breaking behaviour and behavioural problems as measured by the YSR.
4. Gifted adolescents are characterized with high scores in sensation seeking and low scores in sociability and aggression–hostility as measured by the 6PF49. No significant differences were found in neuroticism, activity, and impulsivity.
5. Neuroticism and impulsivity correlated positively, and activity and sociability negatively and significantly with emotional problems.
6. Neuroticism, impulsivity, sensation seeking, and aggression–hostility correlated positively and activity negatively and significantly with behavioural problems.
7. Neuroticism, impulsivity, and sensation seeking correlated positively and activity and sociability negatively and significantly with total mental health problems.
8. Regarding being a clinical case according to DSM criteria, being male, being 14 years old (in comparison to 13 years old), and having high scores in neuroticism, and low in sociability and aggression–hostility predict emotional problems.

9. Regarding being a clinical case according to DSM criteria, being male and having high scores in impulsivity and aggression–hostility predict behavioural problems.
10. Risk factors for mental health problems, including emotional and behavioural problems, are personality traits of neuroticism, aggression–hostility and impulsivity. Regarding giftedness, there was no significant evidence that should be considered as a risk factor for mental health problems.

LIMITATIONS

The limitations of the thesis might be as follows.

1. Volume of the questionnaires—the youth self-report included 112 items; the 6PF49 included 49 items; the sociodemographic questionnaire contained approximately 20 items; the Standard Progressive Matrices test (SPM+) included 60 items; and the Leiter International Performance test (Leiter 3) included four subtests (Questionnaires and IQ tests were administered in different days).
2. The 6PF49 was used for the first time. Even after fulfilling all criteria of translation, back translation, test and retest, and all statistical analyses and showing good result reliability and validity, the use of 6PF49 might be considered a limitation.

The advantages of the thesis are as follows.

1. The inclusion of IQ, personality, and mental health and the interaction and impact of the variables to the others.
2. There is a high reliability of the results because of the test validity, the standardized test measuring IQ, and the use of multiple tests to confirm the results.
3. This is a nationwide study with a representative sample and dedicated to the process of evaluations with different tests and questionnaires.

RECOMMENDATIONS

Based on the results, I strongly recommend the following.

- Family and schools should be aware of their gifted children's development and personality to get ready to fulfil their demands as they are ahead in their mental and emotional development compared to their chronological age and peers.
- Schools should train teachers how to deal with the gifted children and adolescents and offer individual plans for education.
- When referred cases are gifted children with suspected mental health issues, mental health professionals should check for the personality traits and gender that significantly predict mental health problems, as noted in the models presented in this thesis.

Based on the results, I strongly recommend continuing research in the field and longitudinal studies starting from school age.

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