

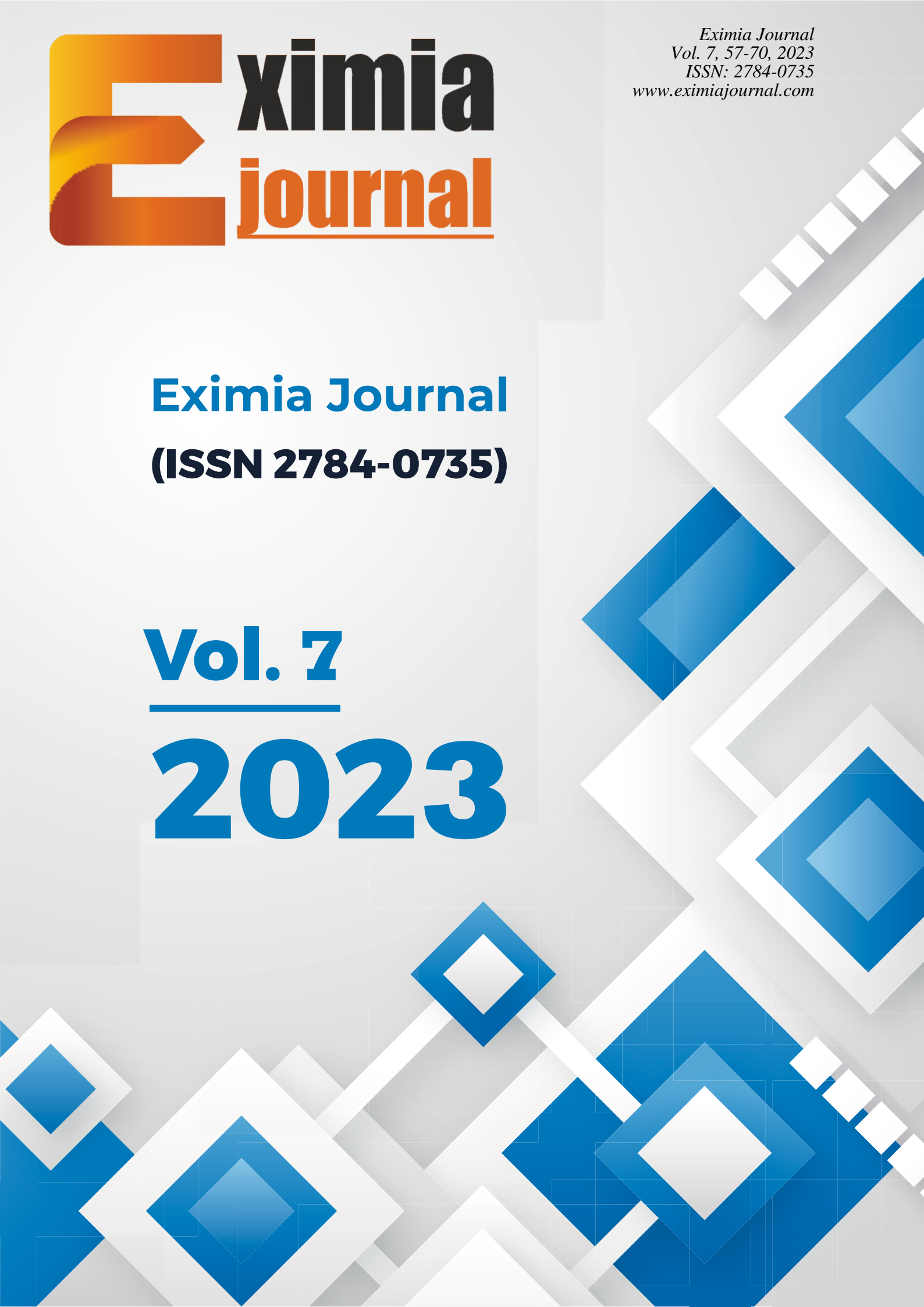


Eximia Journal
Vol. 7, 57-70, 2023
ISSN: 2784-0735
www.eximiajournal.com

Eximia Journal
(ISSN 2784-0735)


Vol. 7

2023



Stress, and Mental Health Problems in Gifted Adolescents and the role of ICTs

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Abstract. There has been an open-ended, continuing argumentation whether giftedness is associated with excessive stress burden or mental disorders. Various literature reviews and research articles exist on the subject, however, there has been little outcome concerning direct comparisons among gifted and non-gifted young people. Contemporary research still presents findings which support both views. In the present review, there has been made an attempt to provide a scientific perspective of research related to emotional problems and/or mental disorders of gifted adolescents. We included research concerning depression and suicidal behaviour, and studies which offer ample evidence on the way stress and anxiety are created, and function in gifted young people. We rather concentrated on research and articles focusing on examining gifted young adolescents in comparison with the general, non-gifted population of the same age. The present review has been limited to research published within the past twenty years (2000-2019).

Keywords — stress, anxiety, depression, suicidal behaviour, perfectionism, overexcitabilities, peer acceptance

1 Introduction

The detection of psychological disorders among gifted and non-gifted youth has not been based on solid epidemiological data so far, since the type of longitudinal studies required to identify both the behavioural and the developmental standards of the gifted population demands, first of all, sufficient funding, which is not always guaranteed. Secondly, there is a lack of consensus on the definition of giftedness which also impedes the detection and the description of clinical deviations from the norms [1]. Recent research defines giftedness as the possession of multiple qualities, setting aside the IQ score index as an inadequate indicator of giftedness [2]. Renzulli describes giftedness as synergy among three basic sets of human characteristics which are simultaneously present at a high level: cognitive ability, task engagement and creativity. Educators and health professionals also add qualities such as superior recall, eagerness to learn and outstanding reasoning ability.

The gifted school children comprise 5% -20% of the general school population, depending on either the definition of giftedness or the diagnostic criteria that have been used [3]. This percentage may lead to the conclusion that a considerable proportion of gifted students could suffer from the same mental problems as their non-gifted peers. After all, gifted youth may be traced in all settings, irrespective of the financial status or the cultural group they belong to. Taking all the above into consideration, there has been made an attempt to shed light on research concerning the way stress and anxiety are created and function in gifted young adolescents in comparison with the general, non-gifted population of the same age. Depression and suicidal behaviour have also been examined under the same prism. We chose to consider the occurrence of stress and mental disorders in gifted adolescents rather than pre-adolescent students. One reason for this, apart from the fact that research is still limited concerning this age group, is that pre-adolescent students seem to adjust better to the school environments than their peers [4]. Another significant reason is the fact that adolescence is a very important period in a person's development, characterised by critical changes on social, emotional, physical and psychological levels and by feelings of anxiety and isolation, which are intensely experienced and expressed [5].

2 Stress and anxiety in gifted adolescents

Stress is defined as the response of the body to any strong physical, mental, or emotional stimulus, of internal or external origin [6]. It occurs every time a person is confronted on an emotional or physical level to an extent that surpasses their ability to cope effectively [7]. Anxiety is a state creating mental worry, which leads to physical and psychological annoyance. Anxiety disorders always involve fear emerging from an imminent threat [8]. The top stressors for adolescents seem to be school, family, time management and high expectations from parents and teachers [9]. Scientific research on giftedness and anxiety of the last two decades still presents opposing results. On one hand, there is the view that gifted youth experience anxiety with great intensity due to their special characteristics [10, 11, 12]. Moon particularly claims that anxiety can be perceived as a result of growing up in a social context both unable and unwilling to accept and incorporate giftedness. Moreover, the fact that a person is gifted does not guarantee that they are equally capable of dealing with or reducing stress [13]. On the other hand, there are research results who prove gifted adolescents to be more resilient, thus managing to cope with anxiety more efficiently than their non-gifted peers [1, 14, 15, 16, 17]. Cross et al. [16, 17] found that gifted students' anxiety is in the normal range. Martin, Burns & Schonlau [1] concluded in their meta-analyses that gifted and non-gifted males exhibit no difference in the levels of anxiety, whereas gifted females exhibit slightly higher rates. Neihart and Reis's [18] research showed that gifted adolescents special abilities, including problem-solving skills, curiosity, sense of humour, and self-efficacy, help them to cope with adversity. Finally, Kitano and Lewis [19] reached the same conclusion that high cognitive ability seems to function as a protective factor when it is related to problem solving and coping with situations. The distinctive characteristics that make gifted adolescents prone to stress are presented below, in line with the literature of the last two decades.

3 Stress generating characteristics and factors

3.1. Need for peer acceptance

As it has already been mentioned, gifted young people seem to have no higher incidence of mental disorders or emotional problems than their peers. They demonstrate more or less the same abilities on social interactions since they usually have a total positive perception of their giftedness [20]. Nevertheless, when these people undergo severe stress or mental issues, this tends to be attributed to their giftedness rather than other factors [21]. Coleman characterises giftedness as a condition which places a 'stigma', therefore it may turn out as stress generating, as gifted adolescents often tend to hide it in order to enjoy acceptance from peers, according to Cross and Cross [22] who also consider this state as an inhibitory factor towards the development of the ego. Grobman [23] pointed out the difficulty of gifted adolescents to enjoy their intellectual superiority. Many of them consider it as leading to outstanding accomplishments which devalue non-gifted peers potential. Hence, they resort to copying behaviours which divert peer attention away from their giftedness, in order to avoid peer pressure and fulfil their need for social belonging [22]. However, these fake behaviours may also lead to peer rejection when the gifted person does not have the ability of proper emotional self-regulation, which is often the case. Gifted adolescents do not share common interests or have the same cognitive potential with their non-gifted peers. On the other hand, they are not easily accepted by older children, as their social skills are not fully developed. This situation often leads to loneliness and isolation [9]. Actually, many gifted individuals are more introverted than the general population [24], which unavoidably leads to fewer warm and deep friendships than the average. The fact that gifted adolescents often receive mixed messages from peers and parents is another stress generating factor [25]. They are forced to perform outstandingly, yet at the same time, they are bullied by peers for being so outstanding. Such mixed messages and behaviours together with the fear of not living up to high parental, school or self-expectations also contribute to higher stress and anxiety levels [23, 26].

3.2. Perfectionism and school environments

The high cognitive potential of gifted individuals, together with their perfectionism and over excitabilities have been considered as risk factors for mood disorders [27, 28, 29]. According to Hollender [30], perfectionism is defined as the demand stemming from oneself or another person to perform in higher standards than those normally required. Perfectionism is closely connected with the

fear of failure to fulfil self-or-other expectations, of not being ‘good enough’ [31]. It is important to realise the way perfectionism is involved in competitive educational settings, as it rather influences the students’ cognitive skills and their overall performance. Gifted adolescents are characterised by uneven academic and social development [32]. Thus, they demonstrate a higher progress rate than their peers and exhibit divergent thinking together with a tendency to achieve perfection, which is often dysfunctional for them and their peers, especially when it is motivated by anxiety and the fear of underachievement. It is a fact that gifted adolescents often feel under pressure to perform exceptionally [33]. This pressure either comes from their immediate family and school environment or it is innate. Perfectionism, school environments and high parental expectations often cause anxiety and emotional problems to gifted adolescents [34]. Greenspon [31] claims that behind the fear of failure or underachievement often lies the fear of not being accepted, thus explaining the anxiety that triggers perfectionism and the fact that many gifted adolescents avoid demanding and difficult to be accomplished tasks.

To make matters worse, it seems that the absence of academic challenge and motivation together with inefficient peer relations are factors which may influence a gifted person’s psyche negatively [12, 29]. Although Vialle, Heaven and Ciarrochi [35] rated gifted adolescent students as having less behavioural or emotional problems compared to their peers, the same students proceeding to self-evaluation, reported feelings of sadness and dissatisfaction concerning the support they had from their school. Gifted adolescents seem to function well at appropriate, supportive educational settings that match their personality traits and their demanding nature. Eventually, this has a positive social and emotional outcome and boosts their academic success [14]. High academic expectations, on the other hand, may increase school-related stress, together with peer rejection and failure, which could become very difficult to handle [36]. Simultaneously, prior excellence usually forces them to be in the pursue of top positions [37], which uses up all their energy and creates more stress, as they perceive the whole procedure as essential to justify peer attention, as well. Finally, another stress generating factor also bearing the burden of perfectionism is the gifted adolescents’ reluctance and unwillingness to seek external help to overcome their fears [38]. They believe that due to their high mental abilities, they should be able to provide solutions to their problems.

3.3 Overexcitabilities and anxiety disorders

Gifted students are often characterised by overexcitabilities, which leads to the diffusion of their energy, imagination and curiosity to inappropriate settings and/or in inappropriate ways [3]. The term ‘overexcitabilities’ appears in Dabrowski’s Theory of Positive Disintegration and indicates the intensity in which individuals experience and respond to sensory stimuli [39]. It is largely due to increased neuronal sensitivity. Gifted adolescents are considered to be more sensitive to the world than their peers and have strong reactions to various stimuli [40]. This disposition makes them experience their environment quite differently since they are more sensitive and more intellectual than their peers. At the same time, they are more vulnerable, a thing which is in line with Dabrowski’s theory. The overexcitabilities appear early in a person’s life [39] and are connected with the person’s idiosyncratic personality, comprising a kind of inner strength for them. Citing Bailey [39] and O’Connor [41] we provide a brief description of the sub-domains of overexcitabilities, and the ways they are expressed in school environments and are related to anxiety disorders.

- **Psychomotor overexcitability** is connected with excessive physical energy. It often appears as the need of a gifted student to get involved with something new, of being fully energetic, or the ability to focus on a subject for a long time. A gifted student is usually impulsive, restless, has a fast pace of speech and may show tics such as hair twirling or lips licking.
- **Sensory overexcitability** comes with intense sensual experience, involving all senses. The gifted student shows the need for being with others, tries to catch attention and sometimes becomes oversensitive to smells or lights. Amend [42] observed that the sensory burden over gifted students raises anxiety if they have not developed relevant skills or lack support by their immediate environment. Psychomotor and sensory overexcitabilities probably play a role in insomnia among the gifted [40].
- **Imaginational overexcitability** is related to creativity and excessive imagination, and often ‘leads’ to fantastic worlds created in the minds of gifted individuals [40, 43]. It concerns the ability to make connections between images and impressions and to make visualisations. Many

gifted individuals are often known as highly intuitive, yet at the same time they bear the fear of the unknown. As a result, when the imaginational type co-exists with the sensory type, it may lead to panic attacks [40].

- **Intellectual overexcitability** is related to the gifted person's need for the deep understanding of the self, of the others, of life, of death, and of the world. The gifted student is an avid learner demanding precision and details and processes things analytically. Gifted young people often suffer from 'premature existential depression' in their attempt to interpret the meaning of life, of mortality and other universal issues and mysteries [44]. Subsequently, intellectual overexcitability may also be related to insomnia, fear of the unknown and anxiety about death.
- **Emotional overexcitability**, as stated before, involves a more sensitive perception and disposition to the world. Gifted young people often exceed in feelings of idealism, have a deep sense of social justice and global responsibility, thereby increasing stress together with guilt for not being able to change the world [45]. In their school environments, they are often vulnerable and they need strong relationships, so they get closely attached to certain people. When their sensitivity meets their cognitive abilities and their vivid imagination, it may lead to very strong self-criticism, the realisation of self-inferiority and possibly depression.

Gifted students seem to suffer more from insomnia, fear of the unknown and overexcitabilities than their non-gifted peers [40]. However, death anxiety did not prove to be higher among gifted students in the same research. Generally speaking, the gifted adolescents tend to have significantly higher overexcitabilities than their non-gifted peers, especially of the emotional, intellectual and imaginational kind [39, 46, 47, 48]. Their overexcitabilities often appear in all the areas of sensory, imaginational, emotional, psychomotor and intellectual experience [41]. Concerning the emotional and sensual sub-domains, the gifted individuals present slightly bigger effect sizes than their non-gifted peers, whereas, in the psychomotor area, no significant differences occur, according to the literature.

4 Depression

The assumed association between giftedness and mood disorders is often referred to as the 'mad genius theory' [49]. Nevertheless, there is not enough scientific evidence based on empirical or quantitative research to prove this theory. Neihart [21] points out that depression and anxiety are frequently interrelated. Depression, as described by the American Psychiatric Association [8], is characterised by sadness, emptiness and sometimes irritable mood, which leads to cognitive and physical alterations that make a person dysfunctional. It does not differentiate according to age, race, gender or the educational level and the social/economic status of the individual. Typically, a person suffering from depression lacks interest and motivation to be involved in activities, among others. Mueller [50] examined whether gifted students are likely to develop depression. He concluded that they are less likely to develop depression than their peers and more resilient to the negative impact of the environment, following the finding of earlier research by Richards, Encel and Shute [51]. That is due to a variety of personal-idiosyncratic, family, school, and social factors which determine any possible connection between giftedness and depression or even suicidal behaviours [52]. Some of them relate to self-esteem, self-control, one's optimism, high intelligence (above average) and support from the family and school environment. On the other hand, there seems to be no difference either in the rate of appearance or the severity of depression in gifted and non-gifted populations [17, 53]. Gifted adolescents tend to be resilient and overcome social and emotional problems they may face, due to their superior cognitive abilities which result in accurate problem-solving. However, the risk factors and the situations causing anxiety described so far, should not be underestimated as they could lead to depression [22].

5 Suicidal behaviour

Suicidal ideation, gestures, attempts and completions is what scientists of mental fields often report as suicidal behaviours. Psychache is a factor with significant contribution to suicidal behaviours/risk [54]. Shneidman defines psychache as a mental pain that refers to excessively painful negative feelings of cognitive and affective origin, which are intolerable by a person. Psychache and feelings of hopelessness often serve as a background for suicidal behaviours of students in great distress [29].

Mueller and Winsor [52] also connect the feelings mentioned with suicidal behaviours/risk, adding that they weaken all factors that act protectively for students in distress. These feelings could concern gifted populations due to those special characteristics which potentially are risk factors. Introverted behaviour, uneven development, perfectionism, withdrawal, and difficulties in family and social relationships can be risk factors, yet, there is no scientific evidence of increased risk among gifted persons [44]. It has to be mentioned that the relationship between high IQ and psychiatric disorders has mainly been studied for the adult population and not for adolescents. As a result, there is inadequate evidence for high rates of mood and suicidal disorders among adolescents gifted with creative and artistic charisma as they exist in adults. Research on suicide ideation has produced some differentiated results, though. According to it, suicide ideation rates are the same [55] or lower [56] for gifted adolescents in comparison with a non-gifted group. The outcome of the research suggested a rather perplexed interpretation concerning the motives and the rationale behind the suicide ideation of gifted adolescents. Social impact and social isolation seem to play a significant role, together with suicide pragmatics and morbid fixation. There are certain factors which act protectively, such as healthy relationships and parental support. On the contrary, other factors may be detrimental for a person at suicidal risk, namely alcohol and drug abuse. After years of research, Cross has come to the conclusion that gifted individuals may have more successful suicide attempts than the general population.

6 Conclusion

The social, emotional and cognitive development of gifted adolescents is uneven, mostly characterised by excellence in their performance, perfectionism, and fear of underachievement, in rather inappropriate school environments [2, 4]. All these factors make them vulnerable and may lead to high levels of stress and anxiety. Gifted adolescents have the cognitive capacity to understand the concepts of life, death and other issues, but that does not guarantee competent emotional and social awareness of the matters. They often feel different from their peers as their emotional maturity lags behind their cognitive abilities. Their struggle to maintain top positions, to exceed their potential and to fulfil parental or school expectations may cause feelings of hopelessness, passive or active aggressiveness and end up in mental disorders and/or alcohol and drug abuse [3]. Undoubtedly, gifted adolescents have needs that are not always met by their immediate environment. Neither can their cognitive abilities hide their psychological states or unfulfilled emotional needs. Interestingly though, the research of the last two decades indicates that gifted adolescents have the same or lower risk to suffer from anxiety/stress [1, 14, 15, 16, 17] and depression [17, 20, 50, 51, 53], compared to their non-gifted peers. However, mixed messages and high expectations together with their inner urge to prevail may deprive them of motivation, interest and willingness to respond to any task, thus leading them to depressive mood. No significant difference was found, between gifted and non-gifted groups of young people concerning suicide behaviours [44, 55, 56]. Moreover, there has been evidence that gifted young people seem to be less prone to exhibit emotional or mental aggravation due to their special skills, who rather act protectively [4, 14, 15, 19].

In conclusion, it is necessary to point out that the number of studies on the matters above is still rather limited, and results are contrasting at certain points. Therefore, more research is needed on the field. Ideally, it should focus on all possible associations between youth giftedness and mental health, providing concurrent valid comparisons with a non-gifted population of the same age. It would also be useful to focus on additional factors which possibly put more strain on gifted adolescents, such as diverse socio-cultural or financial backgrounds.

Finally we underline the importance of the digital technologies in education domain and stress management training that is very productive and successful, facilitates and improves the assessment, the intervention and the educational procedures via Mobiles which brings educational activities everywhere [61-70], various ICTs applications which are the core supporters of education [71-106], AI, STEM & ROBOTICS which raise educational procedures into new levers of performance [107-125], and games which transforms the education in a very friendly and enjoyable interaction [126-134]. Additionally, the enhancement and combination of ICTs with theories and models of metacognition, mindfulness, meditation and emotional intelligence cultivation [135-181] as well as with environmental factors and nutrition [57-60], accelerates and improves more over the educational practices and results, especially in the stress management and wellbeing domain and its practices like assessment and intervention.

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