

## **RELATIONSHIP BETWEEN CREATIVE THINKING AND ANXIETY AMONG ADOLESCENT BOYS AND GIRLS IN TEHRAN, IRAN**

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### **Abstract**

*Anxiety disorders are the most common mental, emotional and behavioral problems that occur during adolescence. This research determines the relationship between creative thinking and anxiety among Iranian adolescents in Tehran. The study used multi-staged cluster random sampling method in selecting the 517 male and female adolescents aged 12 to 15 years. The Abedi Creativity Test Questionnaire (ATC) was used to assess the creativity thinking and the Revised Children's Manifest Anxiety Scale (RCMAS) for the anxiety level of the respondents. The results of this study indicated no significant differences in anxiety between girl and boy adolescents also, also no significant correlation between age and birth order with anxiety. Furthermore, in this research high correlation was found between creative thinking and anxiety among adolescents. Since creative thinking may help a person reduce anxiety, the findings may help encourage scholars and practitioners especially in Iran to use creative learning methods to lessen anxiety.*

**Keywords:** Anxiety, creative thinking, age, gender, birth order, Iranian adolescents.

### **1. INTRODUCTION**

Anxiety is the most common mental disorder affecting millions of adolescents around the world. It is one of the devastating consequences of psychiatric disorders during adolescence (Fiori, Wanner, Jomphe, Croteau, Vitaro, Tremblay, Bureau, Turecki, 2010). According to Khouzam (2009), anxiety disorders are among the most common mental, emotional, and behavioral problems of adolescence in many countries. The concept of anxiety is characterized most commonly as a diffused, unpleasant, vague sense of apprehension, often accompanied by autonomic symptoms such as headache, perspiration, palpitation, tightness of the chest, mild stomach discomfort, and restlessness, indicated by an inability to sit or stand still for a long time (Sadock, 2007). Over the years, researchers have categorized anxiety into many forms. Sigmund Freud proposed traumatic and signal anxieties whereas Asadi Sadeghi, Basirani, Asadi Bidmeshki, Panahi Mirshekar, Amirshahi and Salehin, (2010) studied generalized anxiety disorder (GAD).

Historically speaking, the twentieth century was called the "anxiety century" because of the prevalent wars, inflation, population increase, unemployment, immigration, and the destruction of families (Passer, Smith, Holt, Bremner, Sutherland and Vliek, (2009). Developmentally, adolescents consistently experience changes between the ages of 11 and 18 (Hofstra, Van der Ende and Verhulst, 2011). Moreover, the process of growing up is complicated and challenging because this is the period when adolescents are faced with many expectations, responsibilities, influences, uncertainties, and lack of experience (Healy, 2009). In a study on parent characters and anxiety in adolescents, Moore (2008) concluded that adolescents are prone to some kinds of anxiety such as tension and worries in a family with a lot of stressors. Passer et al. (2009) found that most adolescents suffer some kind of anxiety when their parents also have the symptoms.

In addition, Clark, Rodgers, Caldwell, Power and Stansfeld, (2007), and Fergusson, Horwood and Bourden (2006) observed that high levels of emotional imbalance affect early adolescence psychiatric disorder. In Iran, many adolescents do not have the capability to meet their daily life problems, so, they become vulnerable in their confrontation with the daily realities of life (Family Education Association Teachers of Tehran City, 2009). Thus, Moffitt, Caspi, Harrington, Milne, Melchior, Goldberg and Poulton (2007) emphasized that the antecedents of adolescent risk factors should be targeted as early as possible for preventive purposes, thereby indicating that it might be more important to predict overlapping symptoms of anxiety. In line with the above, Rothbart and Bates (2006) noted that mechanisms through which predictors contribute to the development of psychopathology should be examined.

## **2 FACTORS AFFECTING ANXIETY**

### **2.1 Age, Gender, and Anxiety**

Adolescents are most prone to anxiety at an early adolescent period between the ages of 11 and 18 (Healy, 2009). It is the period of adolescence when the person experiencing the most challenges in life is inexperienced and highly exposed to peer influence, family and life pressure. Moore (2008) indicated that most reported cases of anxiety came from adolescents who have suffered the disorders for a long time. Nevertheless, Mitra, Fergusson and Sapolsky (2009) noted that anxiety can be treated at an early age. Anxiety is not just common among adolescents but is also one of the most prevalent symptoms among Iranian women. Recent estimates suggest that approximately 50% of the 70-million Iranian populations consist of women under psychic, social and family pressure (Farahani, 2006). The prevalence of psychiatric disorders among Iranian women is much higher than among men (Atef Vahid, 2005). The study complements an earlier study by Feinberg, Neiderhiser, Simmens, Reiss, and Hetherington (2000), which found that anxiety disorders vary according to gender. More studies have shown that older women who have better network support from friends and spouse are less prone to psychiatric disorders and pregnant women who receive continuous support from their spouses suffer less emotional distress (Wells, Booth-Jones and Jacobsen, 2009).

### **2.2. Creative thinking and Anxiety**

The theory of anxiety and creative thinking can be traced back to early humankind. Freud's work suggested that anxiety is a form of stress resulting from birth separation and human experiences of biological fantasies. This theory was later supported by Rank (1993), George Kelly (1955), Klein (1975) and Winnicott (1999) on human creativity. Therefore, Passer et al. (2009) suggested the possibility of implementing creative thinking techniques to lessen anxiety. This is important because creativity thinking is a skill that produces the power of discovery and new thought and also helps to change negative feelings to positive and in return improves mental health when an unpleasant event occurs. In Iran, The Family Education Association Teachers of Tehran City (2009) sees this as a positive attitude in finding new solutions. Nevertheless, Silvia and Kimbrel (2010) revealed that anxiety, depression, and social anxiety predicted little variance in creativity with inconsistent direction. Conjectures of creativity vary on a number of issues, but scholars have reached a consensus that there is no one sense in which adolescents are creative (Beghetto and Kaufman, 2007).

Further study on creativity was done by Carlson (2002) who concluded that creativity provided a defense mechanism to anxiety and this was later supported by Henderson, Rosen and Mascaro (2007) who indicated that drawing (creativity stage) provided a calming effect on post-traumatic stress disorder (PTSD) patients. On the other hand, Mitchell, MacDonald and Knussen (2008) also showed music as a therapeutic key that significantly decreased anxiety. Earlier, Ohnmacht (1966) states that creative powers obtained through education in a person's life when growing up could be a safeguard against mental health disorders. Potur and Barkul (2010) also suggest that creativity is important in the solution of everyday problems of planning and decision making. Significant decisions in life, such as planning careers, choosing employment, spouses, and places of residence, and making large important commitments, all require divergent thinking (creative thinking) of particular relevance to creativity. These life experiences involve situations that are open-ended, ambiguous, and that have no clearly visible external sources of correctness or truth. Fleischer (1964) perceived that persons with highly anxious inclined to have trouble in these areas.

## **3. PROBLEM STATEMENT**

Symptoms of anxiety have been documented since the existence of mankind and anxiety is one of the problems encountered by many Iranian adolescents (Khouzam, 2009; Niknam, 2007).

Prolonged anxiety when not cured can be harmful and cause physical and psychological disorders like depression (Farahani, 2006), digestive problems (Mokhtari and Jamileh, 2009), and schizophrenia (Mohammadi, 2004). Farahani (2006), Kockar and Gencoz (2004), and Niknam (2007) have suggested that anxiety is prevalent among 10% of Iranian adolescents who experience psychic and social pressure. They also indicated that creative thinking is a factor that affects anxiety. This study was conducted because adolescents are most vulnerable to anxiety and other mental disorders and the symptoms can be catastrophic and affect the person's later life. The study is important because creative thinking has been documented to have a strong effect on anxiety. Nevertheless, there is a slow but growing interest in the subject in Iran as there is a rapid increase of reported anxiety cases among Iranian adolescents. According to Mohammadi's (2004) study on adolescents and adults in Iran from 1960 to 2003, the prevalence of mental disorder ranged from 11.9% to 30.2%.

By using affective and schizophrenia questionnaire (SADA), the prevalence of psychiatry disorders was reported as 14.3% in Tehran (19.6% women and 9.3% men). The findings showed that the most prevalent disorders are anxiety disorders (8.6%) and affective disorders (5.4%). The results further indicate that psychiatric disorders in cities (13.67%) are higher than in the rural areas (7.63%) (Atef Vahid, 2005). The study also indicated that anxiety can affect adolescents' academic achievements and also the grade of adolescents' learning. It can also hinder development of the adolescents' life-skills. Thus, anxiety among Iranian adolescents is therefore a significant problem and this study is therefore timely and necessary. It seeks to determine the relationship between creative thinking and anxiety among Iranian adolescents.

#### **4. METHODOLOGY**

The study uses a quantitative research approach with a correlational design aimed at examining the relationship between selected demographic factors (age, gender and birth order), creative thinking and anxiety among adolescent students aged 12 to 15 years in Tehran, Iran. The sample comprised 267 (51.6%) female and 250 (48.4%) male secondary school students. The study used cluster random sampling in selecting the 517 respondents to be representative of the general population. The researcher initially randomly selected two schools (one girl's school and one boy's school) in each one of the five educational districts randomly by using the lottery method. Ten girl's schools and ten boy's schools were selected. Then the researcher selected one class from each of the boys' and girls' secondary schools through random sampling. After selecting one class in each secondary school, the researcher selected all the students of the class as the respondents. The Revised Children's Manifest Anxiety Scale (RCMAS), Abedi Creativity Test (ATC), and a self-developed demographic questionnaire were used to measure the studied variables. The pilot study was conducted to check the reliability of the instruments. Data normality assessment or EDA was performed to check for normality of data in the actual study. Descriptive statistics, *t*-tests, Pearson *r* correlation, and linear multiple regression were conducted utilizing SPSS statistical software (version 17).

##### **4.1 Revised Children's Manifest Anxiety Scales (RCMAS)**

The Revised Children's Manifest Anxiety Scales (RCMAS) was designed to assess the level and nature of anxiety in children and adolescents aged 6 to 19 years. The RCMAS is a brief, objective self-reporting inventory consisting of a 37-item questionnaire useful in evaluating children for academic stress, test anxiety, peer and family conflicts or drug problems. Because anxiety is a good indicator of stress, RCMAS scores often lead clinicians to basic problems. Teachers find it an easy way to identify anxiety levels in the classroom, and parents find RCMAS data useful in helping their children adapt to anxiety-producing situations. RCMAS internal consistency is at .83 and second cross-validation yielded a consistency of 0.85. The instrument reliability was also supported by test re-test analysis. Cronbach's alpha of (RCMAS), for this present study was .89.

##### **4.2 Abedi Creativity Test Questionnaire (ATC)**

Abedi Creativity Test (ATC) was drafted in 1995 and can be implemented collectively and in groups. It is a multiple-choice questionnaire requiring a respondent to select an answer from a list of answers provided (Khamseh, 1999). The original 75 questions drafted in 1991 available in Spanish and other languages was first made available in 1994 by O'Neil, Abedi and Spielberger and was prepared in the form of a 60-question test in 1996. In 1997, the new form was designed with 56 questions and 4 questions were dropped from the 60 questions due to psycho-analytical reasons (Khamseh, 1999). ATC has been used many times in Iran. Cronbach's alpha of (ATC), for this present study was .92. Permissions were obtained from the researcher's supervisor, University Putra Malaysia's graduate school office, the Islamic Republic of Iran Embassy in Kuala Lumpur, and the Iran Ministry of Education in Tehran to conduct the study in Tehran's secondary schools.

## 5. RESULTS AND DISCUSSION

The main objective of this study was to find the relationship between gender, age, birth order, creative thinking and anxiety among Iranian adolescents in Tehran. The sample comprised 517 adolescent students, aged between 12 and 15 years [267 (51.6%) girls and 250 (48.4%) boys] from secondary schools in Tehran. Of the respondents, 101 students (19.5%) were 12 years old, 151 (29.2%) were 13, 165 (31.9%) were 14, and 100 (19.3%) were 15 years of age. The students were comprised 153 (29.6%) students of first grade, 163 (31.5%) students of second grade, and 201 (38.9%) students of third grade of secondary schools. Of the students sampled, 16.8% were the only child, 28.6% were first child, 34.2% were second child and 20% were third child or later.

Firstly, an independent-samples t-test was conducted to compare the anxiety (RCMAS) scores for girls and boys. The significance level of Levene's test is .725 that meaning the assumption of equal variance has not been violated. The result show that there was no statistically significant difference [ $t(515) = .756, p > .05$ ] in scores for girls (mean = 12.82, SD = 3.69) and boys (mean = 12.58, SD = 3.64). The difference between means is (mean difference = .24, 95% CI: -.390 to .879) that is very small (eta squared = .001). So, according to the t-test, there is no significant difference in the anxiety level of girl and boy adolescents in Tehran.

The finding related to anxiety and gender from this study supports some other researches that indicate there is no significant difference in the level (scores) of girls and boys on anxiety. For example, the result of t-test analysis in a study that performed by Faleye (2010) was demonstrated, there is no significant difference in cognitive test anxiety (CTA) level between male and female students. And also, The Oludipe's study in 2009 showed, there is no significant difference in levels of test anxiety between male and female students. However, the result of this study contradicts the findings of Esfandiary, Baharudin and Nowzari (2009), and Reese-weber and Khan (2005), who concluded that girls have a higher tendency to acquire psychological disorder than boys.

Secondly, the study shows that there is no significant relationship ( $r = -.006, p > .05$ ) between age and anxiety among Iranian adolescent students in Tehran's secondary schools. The result of this study about the relationship between age and anxiety supports some other researches that indicate there is no significant relationship between age and anxiety. For example, in a study that performed by Morse and Takau (2004) demonstrated that, there was no significant relationship between age and anxiety among aboriginal Fijians peoples from 18-45 years. Also, similar finding was reported by Mckinley, Stein-Parbury and Chehelnabi, (2004), and Zac (2007) on the relationship between age and anxiety.

Thirdly, this study shows that there is no significant relationship between birth order and anxiety ( $r = .021, p > .05$ ) among Iranian adolescent students in Tehran's secondary schools. The finding related to birth order from this study supports other researches that indicate the effect of birth order on anxiety. For example, Anantharman (1981) reported there is no difference in the levels of anxiety between the first born and the other later born children and adolescents. Any other study showed that birth order does not effect on neuroticism or extroversion (Shaughnessy, Neely, Manz, and Nystul, 1990).

Fourthly, result of this study shows that there is a strong negative correlation ( $r = -.804, p < .01$ ) between creative thinking and anxiety among Iranian adolescent students in Tehran's secondary schools. The result of this study supports the finding of Byron and Khazanchi (2010) that found negative relationship between anxiety and creativity. Also local researcher, Niknam (2007) found negative relationship between creative thinking and anxiety among elementary school students in Iran. However, as cautioned by many scholars such as Beghetto et al. (2007), there are many factors of creative thinking that may be attributed to anxiety and these attributes need to be studied further.

Finally, this study identified a unique predictor of anxiety using multiple regression analysis that includes, creative thinking which was found to have a linear relation. The results' of this study [ $F(517) = 944.757, p < .001$ ] shows that creative thinking were able to explain 64% of variance toward anxiety. This result was supported by Silvia and Kimbrel (2010) who revealed that anxiety, depression, and social anxiety predicted 5.0% of the variance in creativity with inconsistent direction. Thus this finding supports the suggestions of Passer et al. (2009) on implementing creative thinking techniques to lessen anxiety. Several techniques to enhance creative thinking such as teaching a person to draw, writing stories, composing music or solving scientific equations, which not only focus the mind of a person on something valuable but also increase the person's mental power. Thus, the study recommends that an adolescent be taught creative thinking methods to avoid the risk of anxiety and other mental disorders.

The results from this and most studies tend to indicate that a person's creative thinking is one of the most important attributes to develop and advance well in life. The person with strong creative thinking is more likely to have better mental health, higher education and achievements. The self-theory of Rogers in general sees anxiety as detrimental to creativity. Rogers sees creativity as important to one's success in life and can be exhibited through creativity in the arts or sciences, through social concerns and parental love (Middent, 1970).

## 6. CONCLUSION

Anxiety is a problem that occurs in the majority of adolescents. However, levels of anxiety, for many reasons differ among adolescents. The implication of this is that some adolescents suffer from high anxiety and stress and studies show that creative thinking affects mental health and anxiety. A study by Rubinstein (2008) on adolescents established the associations between creativity and anxiety, which consequently strengthened the conclusion of Kockar et al. (2004) and Khouzam (2009) that creative thinking is affected by society (school and family).

This study strengthens conclusions made by previous researchers on the contributors of anxiety. The result of this study that related to anxiety and gender indicated there is no significant difference in the level of girls and boys on anxiety. As confirmed by some others researchers, the result of this study indicated that, there is no significant relationship between age and anxiety. Also, the result of this study shows there is no significant relationship between birth order and anxiety. So, birth order doesn't have any role on increasing or decreasing anxiety. Many studies have documented the effect of creative thinking as a facilitator for educational achievement and higher intelligence. In support of the findings of many researchers mentioned earlier, this study confirmed the associations between creative thinking and anxiety. Even though the relationship may have been traced to early civilization, developments or improvements in the knowledge and techniques to increase a person's creative thinking have helped to reduce the incidence of anxiety disorders. Methods of enhancing creative thinking such as improved imagination in drawing, music, acting and dancing may improve a person's defense against anxiety.

Creative thinking techniques such as maintaining a person's focal attention and making the person's brains active may lessen stress. These findings are important to know so that effective steps can be taken in the areas that can significantly reduce anxiety disorders that are affecting millions of Iranian adolescents. Reducing anxiety is not only beneficial for a person's health but also helps stimulate mental wellness, reduces cost and fuel the economy. From the results, the study recommends that further study be done to look at specific creativity techniques and their effects on anxiety. In general there are studies that show positive association between creative thinking, gender, age, birth order, and anxiety. There are also studies that show negative correlations between these variables. Nevertheless, this indicates that there is a need for more studies to confirm the relations, and most important, studies that assess the factors that contribute to anxiety with the aim of reducing the incidence of anxiety.

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