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**THE EFFECTS OF STRESS FACTORS
CIRCUMSTANCES ON ANXIETY AND BIO
PHYSIOLOGICAL PARAMETERS**

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Abstract

The aim of the study is to identify the difference between two forms of stress revealed both in a psychological and a physiological way of experiment.

The participants were 100 students tested between December 2019 and February 2020, 15 male and 85 female, age between 20 and 35 years old. The procedure in order to test our hypothesis were based on two main situations: A situation in which the subject was passenger in a car driven in a reckless way and the other experimental conditions in which the subject was in the vehicle but was asked to be uninhibited and play some loud music.

Statistically significant differences were revealed with the statistical processing using SPSS IBM® program in 4 parameters: anxiety as state, anxiety as trait, pulse and blood pressure.

As the present research shows, the implications of stress perception had significant results both in the psychological sphere at the level of anxiety and in the physiological sphere, determining significantly different results at the level of pulse and blood pressure parameters. Oxygen saturation, as in other similar studies conducted and presented in the literature, did not undergo statistically significant changes.

Keywords: stress, anxiety, Bio-physiological parameter.

1. INTRODUCTION

Oxidative stress is defined as the excess production of reactive oxygen species (ROS) in relation to antioxidant defense. Reactive Oxygen Species are highly reactive oxygen-based chemical intermediates. The balance between reactive

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oxygen species production and reactive oxygen species attenuation systems is called the "redox state." Increased reactive oxygen leads to the toxicity of many xenobiotics. Normal physiological levels of oxidative stress are guarded by the body's self-defense mechanisms, while overwhelming oxidative stress can be largely harmful. Increasingly, it is estimated that reactive oxygen species may be an important factor in the dynamic of normal aging process and in the pathogenesis of many dangerous chronic diseases, including cancer, cardiovascular disease, diabetes, athero-reactive oxygen species, reactive oxygen species, Alzheimer's and Parkinson's disease, liver damage and immunity diseases (Storz, 2002).

Numerous studies that are bringing an important amount of knowledge of redox signaling has fueled research on the role of oxidative stress under normal physiological conditions (oxidative stress), as opposed to exposure to supra-physiological oxidative challenges that lead to biomolecular damage and subsequent consequences such as disruption of redox signaling (oxidative distress) (Lesser, 2006).

Numerous knowledge of redox signaling has fueled research on the role of oxidative stress under normal physiological conditions, as opposed to exposure to supra-physiological oxidative challenges that lead to biomolecular damage and consequences such as disruption of redox signaling (oxidative distress) (Lesser, 2006). Stress is both a biological and a psychological response as revealed by Rizeanu and Mihăilă (2015). It occurs when a situation is perceived as challenging or threatening (for example, meeting a deadline or facing a high-speed car) and stress responses are mediated primarily by the human "stress system," which involves the amygdala, hypothalamus, ANS, glands, and organs (Chrousos and Gold, 1992). The hormone epinephrine is pumped into the bloodstream and accelerates heartbeat and respiration. These reactions are known as the "fight or flight" response, which allows us to react quickly to life-threatening situations and helps us fight threats or flee safely. Acute stress is transient, beneficial and even vital in many cases. When a stressful situation passes, the parasympathetic branch of the ANS is activated, acting as a "brake" to alleviate stress responses and help restore homeostasis. Unfortunately, this "brake" may not work when our body overreacts to certain chronic stressors, such as long-term work pressure. When the brain continually perceives the situation as stressful, the "fight or flight" responses that can always be stretched can lead to ANS imbalance and damage to the stress response. The cumulative effects of chronic stress often degrade work performance (Kemeny, 2003; Rizeanu, 2016).

Physiologically, long-term activation of the adrenal glands can release excess cortisol that disrupts homeostasis (Romero, 2004). Elevated cortisol levels put people with high stress at increased risk for many health problems, including anxiety, depression (Dula et al., 2010), immune disorder (Rubio et. al, 2005), heart disease, hypertension) and diabetes (Vitasari et. al, 2011). The optimal response of the

stress system is essential also for regulating healthy emotions in social interactions and feelings of well-being (Bubulac, Gatej, Rizeanu, 2018). For example, listening to music can reduce cortisol levels and help people recover from periods of stress (El-Sherbiny et al., 2003). Research by Alvarsson and his colleagues (2010) suggest that post-stress recovery will be far more complete when people are exposed to colors and sound stimuli recorded in natural environments. Teasdale and his colleagues (2000) have documented evidence that the practice of short-term meditation can improve the balance of ANS and that mindfulness practices offer several positive benefits, including low anxiety and increased concentration and improved mood (Gatej, 2013; Rizeanu, 2014). Microelectronics, human-computer interaction and computing platforms, ubiquitous physiological information will potentially transform the role of biofeedback in clinical treatment. This technology will also provide a useful tool for managing stress in everyday life.

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVE

The main objective of this study is to reveal a possible difference between the effects of stressful situations perceived by two experimental groups in two different experimental conditions.

2.2. HYPOTHESES

H1. There is a statistically significant difference between levels of anxiety of the two experimental groups.

H2. There is a statistically significant difference between the biophysiological parameters of the two experimental groups.

3. MATERIAL AND METHOD

Participants

The participants were 100 students, 15 male and 85 female. Their age was between 20 and 35 years old. This sample had a similar level of education and cultural provenance.

The Anxiety level was revealed with State-Trait Anxiety Inventory (STAI) that has been developed by Spielberger in 1968. It consists of two self-assessment scales for measuring two distinct concepts regarding anxiety: state anxiety (A-state) and trait anxiety (A-trait) (Spielberger, Gorsuch & Lushene, 1970).

To measure the blood pressure there was used Sando Advance 3 Blood Pressure Monitor. Blood pressure measurement is reported as two numbers, which represent systolic and diastolic blood pressure. (<https://en.sendo.info/>).

For measuring the level of oxygen saturation or oxygen levels in the blood "Professional puls oximeter Yonker". The pulse oximeter is a small, non-invasive, painless medical device that measures the level of oxygen saturation or oxygen levels in the blood. The purpose of using a pulse oximeter is to check how well the heart is pumping oxygenated blood through the body. (<https://yonker.cn>)

Procedure:

The procedure in order to test our hypothesis were based on two main situations: A situation in which the subject was passenger in a car driven in a reckless way and the other experimental conditions in which the subject was in the vehicle but was asked to be uninhibited and play some loud music. In order to maintain experimental control a very high level of safety it was used a driving simulator made by one of the authors 10 years ago named ERGASIM, a real vehicle equipped with electronic steering wheel and a LCD screen instead of the windscreen. Both samples were connected to the biophysiologic equipment and after they filled in a psychological test for anxiety. Written informed consent was signed by every participant that was a subject of this study. All the process was voluntary. The motivation of people involved was based on the curiosity for science and motivated by the results. The subjects were informed that they could withdraw from the study anytime, no matter what stage of the study has been achieved also they were ensured of confidentiality.

4. RESULTS

After collecting the data we used IBM SPSS® in order to process the results.

Data below are showing a mean 46.15 for the 1st sample and a mean of 43.52 for the 2nd sample.

Table 1

Differences in anxiety levels (Trait) between the two experimental groups

Levene's Test - Equality of Variances		t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper

AT	Equal variances assumed	.067	.852	734872367924390.800	118	.000	2.63000	.00000	2.63000	2.63000
	Equal variances not assumed			734872367924390.800	89.076	.000	2.63000	.00000	2.63000	2.63000

Based on the results shown above, the research hypothesis that assumes significant differences the level of anxiety as Trait is accepted for a sample of 100 subjects. Results on the anxiety scale were significantly different between the two samples. (M1 = 46.15, M2 = 43.52, $t = 0.73$, $p < 0.05$). Data revealed by the table above accept the existence of significant differences between the two samples.

Data below are showing a mean 48.21 for the 1st sample and a mean of 43.88 for the 2nd sample.

Table 2
Differences in anxiety levels (State) between the two experimental groups

	Levene's Test - Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
AS	Equal variances assumed	.078	.781	865260629915603.600	118	.000	4.33000	.00000	4.33000	4.33000
	Equal variances not assumed			865260629915603.600	93.615	.000	4.33000	.00000	4.33000	4.33000

Based on the results shown above, the research hypothesis that assumes significant differences the level of anxiety as State is accepted for a sample of 100 subjects. Results on the anxiety scale were significantly different between the two samples ($M1 = 48.21$, $M2 = 43.88$, $t = 0.86$, $p < 0.05$). Data revealed by the table above accept the existence of significant differences between the two samples.

Data below are showing a mean 89.47 for the 1st sample and a mean of 63.77 for the 2nd sample.

Table 3
Differences in pulse levels between the two experimental groups

	Levene's Test - Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.037	.848	13.057	118	.000	25.69956	1.96821	21.80198	29.59714
PULS Equal variances not assumed			13.057	114.350	.000	25.69956	1.96821	21.80069	29.59843

Based on the results shown above, the research hypothesis that assumes significant differences between groups regarding the Pulse level is accepted for a sample of 100 subjects. Results collected with the blood pressure monitor were significantly different between the two samples ($M1 = 89.47$, $M2 = 63.77$, $t = 13.05$, $p < 0.05$). Data revealed by the table above accept the existence of significant differences between the two samples.

Data below are showing a mean 89.50 for the 1st sample and a mean of 54.23 for the 2nd sample.

Table 4
Differences in blood pressure levels between the two experimental groups

	Levene's Test - Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	43.916	.000	9.154	118	.000	35.26600	3.85246	27.63708	42.89492
BP Equal variances not assumed			9.154	88.990	.000	35.26600	3.85246	27.61123	42.92077

Based on the results shown above, the research hypothesis that assumes significant differences between groups regarding the Blood Pressure level is accepted for a sample of 100 subjects. Results collected with the blood pressure monitor were significantly different between the two samples. ($M_1 = 89.50$, $M_2 = 54.23$, $t = 9.15$, $p < 0.05$). Data revealed by the table above accept the existence of significant differences between the two samples.

Data below are showing a mean 97.01 for the 1st sample and a mean of 97.56 for the 2nd sample.

Table 5

Differences in oxygen saturation levels between the two experimental groups

	Levene's Test - Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.204	.652	1.775	118	.078	-.55000	.30978	-1.16345	.06345
OX Equal variances not assumed			1.775	117.960	.078	-.55000	.30978	-1.16346	.06346

Based on the results shown above, the research hypothesis that assumes significant differences between groups regarding the Oxygen Saturation level is not accepted for a sample of 100 subjects. Results were not significantly different between the two samples. ($M_1 = 97.01$, $M_2 = 97.56$, $t = 1.77$, $p < 0.05$). Data revealed by the table above accept the existence of significant differences between the two samples.

Discussions

As the above results show, there is a significant difference between the two experimental samples in the sense that the experimental sample subjected to stressful situations has higher values in psychological parameters of anxiety as well as physiological parameters of pulse and blood pressure. The experimental sample that causes and controls the stressful situation seems to register lower values at these parameters, which strengthens our belief that a proper attitude towards stress can lead to the improvement of symptoms in the physiological sphere. These differences exclude oxygen saturation which does not show statistically significant differences. Given these findings we can discuss the complexity of the stress phenomenon. As this research has shown, stress can be seen both from a biological perspective and from the perspective of the psychological response. In both cases the effects of this

phenomenon so present in our lives can be controlled by the perspective that the subject has on reality (Dula et al., 2010). The multitude of researches that indicate a significant effect of stress on the human body has led this study to try to reveal significant results depending on the psychological perspective on the stressful situation. Possible explanations for the results of the present study may be related to the neuropsychology and psychosocial perspective. From this perspective, although different reactions to different stressors can be caused in the laboratory but the fundamental difference is one that comes from the social environment: the involvement of the ego. From this perspective, the situation of passive stress from the first experimental sample determined a response to stress based on the possibility of injury both psychologically and physically. In the second case, the catalytic effect of the induced self-stress determined a better control over the situation and even a manifestation of one's own ego (Zuckerman-Levin et. al, 2001).

5. CONCLUSIONS

The study involving the effect of physical stressors showed statistically significant results in terms of both physiological parameters such as pulse or blood pressure and significant differences in blood tests performed. Psychological intervention in the case of such studies could make the difference between stress compensation and the determination of harmful reactions of the body to this phenomenon (Zuckerman-Levin et. al, 2001). However, the approach to stress and how to get involved in different human activities is what can make the difference. As the present research shows, the implications of stress perception had significant results both in the psychological sphere at the level of anxiety and in the physiological sphere, determining significantly different results at the level of pulse and blood pressure parameters. Oxygen saturation, as in other similar studies conducted and presented in the literature, did not undergo statistically significant changes (Vitasari, 2011). Studies identified that there is a certain level of damage to the individual that can be controlled through learned mechanisms of coping with stress and through a trained control of thoughts and emotions. As future directions of our research team, we aim to analyze the most advanced psychological factors that can cause physiological changes in the field of stress. The Mindfulness perspective seems to be a psychological approach that can significantly reduce the harmful effects of stress whether it is situations from outside the individual or self-generated stress.

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THE SOCIAL PROBLEM SOLVING INVENTORY–REVISED AS A MEASUREMENT OF INDIVIDUALS' SOCIAL PROBLEMS SOLVING: REVIEW OF MODERN LITERATURE

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Abstract

The study aimed to find out the results of modern studies (2000-2020) that adopted Social Problem Solving Inventory–Revised (SPS-R) by D’Zurilla et al. (2002). Therefore, the trends/ domains of SPS could be determined. We depended on Google Scholar as the main accessible web search engine for collecting the studies. Thirty studies were summarized in terms of country of implementation, objectives, design, participants, instruments, and results. After presenting the studies, it was shown that SPS-R was adopted to find relationships between SPS and other aspects (i.e. loneliness, anxiety, social cognitive affective aspects, stress, traumatic experience, psychological adjustment, quality of life, practice of physical activity, empathy, peace education, attachment, self-esteem, aggression, and academic achievement). In addition, SPSI-R was applied to teachers, college students, children, teenagers, parents, offenders and teachers. It was concluded that SPS, as measured by SPS-R, had been investigated in many domains and among various categories of individuals.

Keywords: *Social Problem Solving, Social Problem Solving Inventory–Revised.*

1. INTRODUCTION

A social problem (SP) (or situation) could be defined as any situation or task that occurs in life and requires a response in order to have an adaptive functioning. However, there is no prompt effective response available to individuals who are confronted by that situation as there are many obstacles exist to hinder the prompt response (D’Zurill, Nezu, & Maydeu-Olivares, 2004). Consequently, to succeed in managing these everyday challenges/problems, it depends on certain number of aspects that include persons' beliefs and attitudes (problem orientation) about their own capability to find solutions for these problems as well as their real problem

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solving ability or skills (D’Zurilla, Nezu, & Maydeu-Olivares, 2002; Heppner et al., 2004; Nezu, 2004). Accordingly, SPS reflects the procedure through which individuals produce, select, and accomplish solutions to interpersonal problems occurring in daily life (D’Zurilla et al., 2004; Nezu, 2004). Discussing how to measure SPS, D’Zurilla, Nezu, & Maydeu-Olivares (2004) divided the dimensions of SPS into: (a) problem orientation, which is either Positive Problem Orientation (PPO) or Negative Problem Orientation (NPO), and (b) problem-solving styles (i.e. Rationality (RS), Impulsivity (IS, and Avoidance (AS)). These five categories were the focus of the findings of the current study as we narrowed our aims to find out the results of the modern studies (2000-2020) that adopted SPSI–R by D’Zurilla et al. (2002). By doing this, we could show the domains of investigating SPS and how and where SPSI–R by D’Zurilla et al. (2002) is used.

2. OBJECTIVE

The study aimed to find out the domains/trends of the studies in the field of SPS where SPSI–R by D’Zurilla et al. (2002) was the main measurement of these studies. By reviewing the results, the domains and trends of the studies of SPS could be defined. In addition, the study aimed to present a summary of the studies that adopted SPSI–R by D’Zurilla et al. (2002) for the researchers in the field of SPS to use them in their literature review and discussion part. This research could save the time of researchers in the field as it presented a sum of new studies, well summarized and well presented.

3. METHOD

We collected some of the modern studies of SPS based on the following limitations: (1) the studies that adopted, mainly or partly, the SPSI–R by D’Zurilla et al. (2002), and (2) the studies that were published from 2000 to 2020. We used Google Scholar as the main accessible web search engine. We managed to review (30) modern studies out of many other studies. The studies summarized in terms of country of implementation, objectives, design, participants, instruments, and results.

4. RESULTS

After our review to the studies on SPS that were conducted during the period from 2000 to 2020, we selected (30) studies to be summarized as follows:

No.	Study	Country	Objectives	Design	Sample	Results
1.	Yavuz & Guzel	Turkey	Studying the relationship between	Experimental design	407 Turkish	There was a positive relationship between SPS skills and communication

	(2020)		SPS skills and communication skills		education teachers	skills. In addition, SPS skills were of moderate level among the subjects of the study.
2.	Chang, et al. (2020a)	Southeast United States	Examining if SPS would work as prognostic helpfulness to loneliness in favour of distinctive modification in ill-being and well-being	Survey study	230 female students	Loneliness has a positive relationship to NPO and AS, while has negative relationship to RS.
3.	Chang, et al. (2020b)	Midwest USA	Investigating if SPS could has a positive link among the three variables: anxiety, loneliness, and depressive symptoms	Survey study	165 students attending psychology classes	NPO was completely had a mediation between anxiety and loneliness. However, NPO has a partial mediation between depressive symptoms and loneliness.
4.	Nguyen, Tran, & Nguyen (2020)	Vietnam	Measuring the three following aspects: children's social cognitive, and the skills of defining certain problems. In addition to charting the abilities of their ability to solve problems by the use of their own words	Experimental	417 elementary school students (grade 3, 4 and 5).	The elementary students had low level in their ability to solve their SP, and they needed the intervention of teachers and parents as well.
5.	Roy, Schwartz-Mette & Nangle (2020)	The United States	Examining the relationship between stress and gastrointestinal symptoms	Survey study	345 university students	There was relationship amongst SPS, stress and gastrointestinal symptoms as having poor SPS raise the stress level, and consequently worked to increase the severity level of gastrointestinal symptom.
6.	Hatam et al. (2019)	Iran	Measuring the influence of empathy training on SPS skills	quasi-experimental	9 th Iranian female graders suffering from traumatic experience	SPS skills increased, while rational style and avoidant style were improved due to the influence of empathy training.
7.	La Fuente,	Spain	Examining how stress	Survey study	336 adult	Weak SPS are positively connected to

	et al. (2019)		and SPS engaged to psychological adjustment		students	stress and negatively associated with poorer psychological adjustment (i.e., greater depressive symptoms and less life satisfaction).
8.	Kasik et al. (2018)	Hungary	Examining SPS among Hungarian underprivileged adolescents whose ages were 12, 14, and 16 years and investigating the influence of family (father and mother) on their children's SPS abilities	Survey study	382 adolescents	There were differences among Hungarian underprivileged adolescents in their NPO. The difference was significant in IS among 12 years old adolescents; in AS among 14 years old; and RS and AS among 16 years old adolescents. In addition, the influence of family affected their children's SPS, especially NPO, IS and AS.
9.	Maciejewski et al. (2018)	USA	Studying the role of neural cognitive control in the relation between negative and positive life events and depressive symptoms in adolescents	Longitudinal study	138 adolescents	Neural cognitive control acts as a protective factor such that adolescents with higher neural cognitive control are protected against depression genic effects of negative life events, whereas adolescents with lower cognitive control are at greater risk for depressive symptoms in response to negative life events.
10.	La Fuente, Chang, Cardenoso, & Chang (2018)	Spain	Examining the SPS abilities in coping strategies	Survey study	310 social work students	The useful strategies of coping were attributed to the students' PPO and RS. However, dysfunctional managing procedures were attributed to the students' NPO.
11.	Abu Hamda (2017)	Palestine	Finding out the relationship between SPS and quality of life	Survey study	304 female university students	The female students had more levels of NPO, while both; male and female had similar level in the PPO, RS, IS and AS. In addition, a negative relationship was shown between the NPO and the quality of life, a positive relationship between the rational style and the quality of life. However, negative relationship was indicated between the IS and AS in one side, and the quality of life in the other side.

12.	Sone et al. (2017)	Japan	Finding out the relationship between students' physical activity and their SPS ability	Survey study	185 students of Tohoku Fukushi University	There is a positive link between physical activity and SPS. It was found that students' who practised more physical activities had more SPS skills.
13.	Kasik and Gál (2016)	Hungary	Exploring the Hungarian fathers', mothers' and teachers' perceptions of their children's SPS	Survey study	4–6-year-olds children	Parents noticed positive orientation towards SPS among their children, unlike their teachers. Mothers and teachers have considered prosociality more typical among children, unlike fathers.
14.	Fang, Luo, Li, & Huang (2016)	China	Finding out the characteristics of SPS	Survey study	681 Chinese bachelor nursing students	There was a significant increase in positive SPS and decrease in negative SPS in final year nursing students as they experienced more practice in dealing with patients, and that enabled them to have positive orientation towards their SPS.
15.	Kasik et al. (2016)	Hungary	Examining the relationship between SPS, anxiety and empathy. In addition to, finding out the influence of parents' educational level and family composition on the adolescents' SPS	Survey study	445 Hungarian adolescents whose ages range between (12 and 16) years old	Twelve years old adolescents enjoyed PPO. However, 16 years old adolescents suffered NPO, but enjoyed RS. As for state anxiety, it was shown typical among 16-year-olds. The study also showed that NPO and AS were higher among the adolescents experienced an increase level of anxiety. Finally, the parents' educational level immensely affected their children's SPS.
16.	Kasik (2016)	Hungary	Discovering mothers', fathers', teachers' and peers' opinions regarding SPS of adolescents	cross-sectional design	459 Hungarian adolescents whose ages (10, 14, and 16) year old	Mothers see that negative orientation and avoidance style are found more typical among 16-year-old, while fathers believe that rational style and positive orientation are more typical among their children.
17.	Kabasakal et	Turkey	Finding out the effects	Experimental	142 9 th	The programme of peace education

	al. (2015)		of a programme based on peace education on the students' violence tendencies and their SPS skills	design	graders	worked to increase the students' skills of SPS and consequently the students' tendency towards violence were decreased.
18.	Kasik et al. (2014)	Hungary	Investigating the development of SPS among Hungarian adolescents during (2009–2011), and describing the nature of correlations between the judgments of evaluators (mothers, and teachers). Furthermore, examining SPS in connection to family aspects	A longitudinal study	181 Hungarian students who were 12-year-olds at the beginning and became 14 at the last time of study	NPO, RS and AS showed increasing tendency with age. However, PPO was not found to be correlated to age. The mothers' ratings indicated the same results in the domains of NPO, PPO and RS. On the contrary, the teachers' ratings showed that NPO, RS and AS have an increased tendency. As for the family factors, mothers' educational level had an effect on NPO and IS, while fathers' educational level had influence on RS in all years.
19.	Abu-Ghazal & Falwah (2014)	Jordan	Studying the relationship between the attachment pattern and SPS	Survey study	260 male and 367 female students	In general RS was the most followed style among adolescents. Furthermore, it was revealed that male students had more levels in the AS. In addition, the RS was mostly adopted among 16 and 17-year-old adolescents. A positive relation was found between the ambivalent attachment and the NPO.
20.	Lindsay et al. (2011)	UK	Assessing SPS among offenders who suffered from intellectual disability	Survey study	132 British offenders (81% of them were male, while 19% were female)	NPO, IS and RS were found in one hand, while PPO, AS were found on the other hand. The participants became more positive and less impulsive in their style and orientation towards SPS.
21.	Wilson et al. (2011)	Australia	Investigating the role of NPO and cognitive distortions in depression and anxiety intervention	Survey study	285 young adults whose ages range between 18 to 25 years old	NPO and cognitive distortions were strengthened as depressive symptoms. There were strong links between cognitive distortions, anxiety symptoms and depressive symptoms in one side, and NPO on the other side.

22.	Siu and Shek (2010)	China	Clarifying the relationship between SPS and the family well-being among Chinese adolescents	Survey study	11 to 17 years old adolescents	AS, NPO, and IS were linked to lower family functioning. On the contrary, RS and PPO were related to higher family functioning. The outcomes showed that the highest association was found in AS, which was a significant predictor of conflicts among the following: Father-daughter, mother-son, and mother-daughter.
23.	El-Ghosain (2008)	Palestine	Investigating the psychosocial development and its relationship to SPS skills	Survey study	150 male and female Palestinian adolescents whose ages (15 and 16) years old	The outcomes revealed moderate level of students' ability in both genders to solve their SP. In addition, there were no differences between the high achievers and low achievers in their ability of SPS skills.
24.	Blanchard-Fields (2007)	USA	Reviewing various studies in the field of SPS	Review study	-	The most important results in this field showed successful SPS could help adolescents relieve interpersonal stress and reduce aggressive behavior. In addition, individual's ability to balance emotion regulation with proactive instrumental strategies made them successfully solve everyday problems.
25.	Hirsch et al. (2012)	USA	Examining the combined moderating effects of life stress and loneliness on the association between SPS and suicidal behaviors	Survey study	385 college students	Only loneliness moderated the association between SPS and suicidal behaviors. Loneliness increases the strength of the association between poor problem-solving and suicidal behaviors.
26.	Elliott, et al. (2006)	USA	Examining the influence of having the skills of SPS among persons' suffering from onset spinal cord injury, and how these skills would be a predictive factor of pressure sore occurrence during the first three years after they released from hospitals	Survey study	188 individuals	SPS abilities expressively helped to predict the pressure sore occurrence. The study added that individuals with unsuccessful problem-solving abilities might be jeopardized for pressure sores.

27.	Siu and Shek (2005)	China	Finding out the link between SPS, empathy and family well-being	Survey study	1462 Chinese adolescents	Obtaining higher levels of SPS work to increase the level of empathy and consequently worked to decrease the level of personal distress.
28.	D'zurilla et al. (2003)	USA	Examining the relationship among three variables; self-esteem, SPS ability, and aggression	Survey study	205 college students	A negative relationship between aggression and SPS; reduced levels of PPO and reduced level of RS increased the level of aggression. In addition, more levels of NPO, IS, and AS were associated with more levels of hostility.
29.	Belzer et al. (2002)	USA	Investigating the relationships between trait anxiety, SPS, and worry	Survey study	353 college students	The dimensions of RS and IS were chiefly responsible for the unique association between worry and SPS. Furthermore, it was found that the students had high levels of RS, careful and systematic gathering to facts, and information about the problem.
30.	Rodríguez-Fornells & Maydeu-Olivares (2000)	Spain	Examining which dimension of the SPS measurement affects academic achievement	Survey study	263 Spanish first year college students	The dimension of impulsive/careless problem-solving was negatively related to academic achievement.

As the table showed, the domains of SPS were wide as SPSI-R by (D'Zurilla et al., 2002) was used to determine SPS characteristics. The adoption of SPSI-R by (D'Zurilla et al., 2002) was used by various scholars in different countries. This indicated that it is the mainly used measurement to check SPS among individuals.

5. CONCLUSIONS

By reviewing those modern studies, we can reach a conclusion of the current trends/tendencies of how the SPSI-R by (D'Zurilla et al., 2002) has been utilized, what the results of these studies were, who the sample of the studies was, how it was connected to other domains, and where the place of implementing these studies was. The study can conclude that SPS, as measured by SPSI-R by (D'Zurilla et al., 2002), was investigated in connection to the following domains: Communication skills, loneliness, ill-being and well-being, anxiety, depressive symptoms, social cognitive affective aspects, stress, gastrointestinal symptoms, traumatic experience, psychological adjustment, unprivileged adolescents, quality of life, practice of physical activity, empathy, parents' believes towards their

children, peace education, attachment pattern, pressure sore occurrence, self-esteem, aggression, and academic achievement. In addition, SPSI-R by (D'Zurilla et al., 2002) was used as a measurement to define SPS among the following categories: Teachers, college students, children, adolescents, advantaged and disadvantaged adolescents, social work students, mothers, fathers, teachers, offenders, adults, and patients. Therefore, it can be concluded that the field of SPS, as measured by SPSI-R by (D'Zurilla et al., 2002), had various investigations among wide range of individuals and topics.

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THE RELATIONSHIP BETWEEN HAPPINESS, EMOTIONS AND QUALITY OF LIFE

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Abstract

The study is focused on evidencing the relationship between perceived happiness, emotions and quality of life. The hypotheses were underlining the possible bivariate correlations between the mentioned variables. Furthermore, two hypotheses highlighted the prediction models: happiness and positive emotion in the last 3 months predicts separately the criteria Quality of life. The method: the research group consisted of 39 people, aged between 22 and 55 ($M=38.85$; $S.D.=10.55$), both females and males from different professional backgrounds. The ethical conditions and GDPS were respected. The instrument used are: Oxford Happiness scale (Hills & Argyle, 2002), MEST (Pitariu, Levine, Muşat & Ispas, 2006), Quality of life (Flanagan, 1978).

Further studies should be focused on how the Quality of life can be increased starting from increasing the positive emotions, happiness, positive relationships, personal growth and many other variables related.

Keywords: *happiness, quality of life, positive emotions in the last 3 months, negative emotions in the last 3 months.*

1. THEORETICAL FRAMEWORK

Susniene and Jurkauskas (2009) conducted a study focused on the relationship between the variables: quality of life and happiness. In this way, the authors used the literature comparative analysis and the review of published research. They define the quality-of-life concept (physical, spiritual and health state) after authors as: Ruzevicius (2006), Shin (1979), Bagdoniene (2000). Also, they presented the integrative theory of the quality of life as concentric circles (Existential quality of life, meaning of life, happiness, realization of the potential, fulfilment of needs,

satisfaction with life, well-being). Kashdan (2004) operationalized the subjective well-being by analyzing two forms of the Oxford Happiness Questionnaire.

Medvedev, et al. (2017) conducted a research focused on Oxford Happiness Questionnaire reliability and validity analysis. The authors define happiness as related with pleasure-driven hedonic happiness according Joshanloo (2015). The authors cited Kim-Prieto et al. (2005) defining happiness higher than health, love, or wealth. The authors applied the Oxford Happiness Questionnaire (Hills & Argyle (2002) on 281 students. They analyzed the validity and reliability of the 29 items scale, measured from 1-very low to 6 -very high.

Pitariu, Levine, Muşat & Ispas, (2006) adapted the MEST questionnaire after Levine & Xian (2005). The instrument contains a number of 10 general emotions (five positive and five negative) measured as trait and state on a 10 points scale.

Boglut, Rizeanu, Burtaverde and Codreanu (2016) conducted a study concerning well-being and quality of life, using the Quality-of-Life Scale developed by Flanagan (1978), while Rizeanu and Chraif (2020) conducted a study about the relationship between humor, life satisfaction, emotions and well-being, using MEST-Ro (Pitariu, Levine, Muşat & Ispas, 2006) adapted after Levine & Xu (2005).

Lyubomirsky, King & Diener (2005) were interested to evidence “How happiness leads to success”. They find out that the positive affect can be the cause of resources, and successes correlated with happiness.

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVE

The objectives of the research are the following:

1. To highlight possible correlations between the variables: Happiness, Positive emotions in the last 3 months, Negative emotions in the last 3 months, Quality of life.
2. To evidence that perceived happiness predicts the Quality of life.
3. To evidence that positive emotions in the last 3 months predicts the Quality of life.

2.2. HYPOTHESES

The research has the following hypotheses:

1. There is a positive statistically significant correlation between the happiness and the perceived quality of life.
2. There is a positive statistically significance correlation between the positive emotions in the last 3 months and the perceived happiness.

3. There is a positive statistically significant correlation between the positive emotion in the last 3 months and the perceived quality of life.
4. There is a negative statistically significant correlation between the negative emotions in the last 3 months and the perceived happiness.
5. We assume that perceived happiness predicts the Quality of life.
6. We assume that positive emotions in the last three months predicts the Quality of life.

3. METHOD

3.1. The participants

The research group consisted of 39 participants, aged between 22 and 55 (M=38.85; S.D.=10.55), both females and males from different professional backgrounds.

3.2. The instruments

1. The Oxford Happiness Questionnaire was developed by Hills & Argyle (2002). The internal consistency reliability ($\alpha = .92$) and good construct validity as positive association with extraversion ($r = .38$ $p < .001$) and negative association with neuroticism ($r = -.57$ $p < .001$) were tested by Robbins, Francis & Edwards, (2010) in a published study. Hills & Argyle (2002) evidenced a .91 alpha reliability internal consistency construct validity coefficient. The original version is composed of 29 items measured on 6 points scale and the application version in the present research used the same items on five points Likert scale.

2. The questionnaire "Emotions at work" adapted after MEST, the Romanian version adapted by Pitariu, Levine, Muşat & Ispas, (2006) after Levine & Xu (2005). It consists of 10 items, and the answer for each item varies on a 10-step Likert scale. It has 10 major dimensions: 5 dimensions for positive emotions (joy, pride, alertness, affection, contentment) and 5 for negative emotions (anxiety, sadness, anger, envy, guilt, and shame). Each item out of the 10 provides two answers, one for the recent state of the emotion and the second for its general state. For the present study were selected the 10 major dimension and applied for the last 3 months as state emotions from a scale from 1-very low to 9- very high. The alpha reliabilities for these scales (positive and negative emotions) were .83 (for the state emotions) and .86 (for the trait emotions) for the five positive emotions and .63(for the state emotions) and .65 (for the trait emotions) for the five negative emotions (Levine et al., 2011).

3. The Quality-of-Life Scale developed by Flanagan (1978) is composed from 15 items on a Likert scale. The reliability was not reported at that time. The version used in the present research is 16 items scale on a Likert from 1- very low to 5-very

high. The results indicated that the QOLS-N has highly satisfactory rates of test-retest reliability ($r = 0.83$) and internal consistency reliability ($\alpha = 0.86$) (Wahl, Burckhardt, Wiklund, Hanestad, 1998). The cited authors evidenced that the scale had a lower correlation with the variable physical health ($r = 0.24$) and a higher correlation with the variable mental health ($r=0.52$).

3.3. Procedure

The instruments were applied on-line using document Google-docs. The Ethical code and GDPR legislation were respected. In the beginning of the items application the participants were informed about the study, the ethics and the instruction.

The participants were informed about the research consent and about the anonymous identity.

3.4. The design

To test the regression hypotheses, the variables were the followings:

- Dependent variables: Quality of life.
- Independent variables: Happiness and positive emotions in the last 3 months.

4. RESULTS

In the table 1 are presented the Descriptive statistics for the variables: Happiness, Positive emotions in the last 3 months, Negative emotions in the last 3 months, Quality of life.

Table 1. Descriptive statistics

variable	Mean	Std. Deviation
Happiness	114.6667	12.66851
Positive emotions in the last 3 months	34.9487	5.24630
Negative emotions in the last 3 months	17.9487	10.02615
Quality of life	91.7179	10.24168
N	39	

The table 2 reveals the bivariate correlations coefficients and statistically significance for the variables: Happiness, Positive emotions in the last 3 months, Negative emotions in the last 3 months, Quality of life.

Table 1. Correlations

		Happiness	Positive emotions in the last 3 months	Negative emotions in the last 3 months	Quality of life
Happiness	Pearson Correlation	1	.410**	-.495**	.820**
	Sig. (2-tailed)		.010	.001	.000
	N	39	39	39	39
Positive emotions in the last 3 months	Pearson Correlation	.410**	1	-.169	.468**
	Sig. (2-tailed)	.010		.303	.003
	N	39	39	39	39
Negative emotions in the last 3 months	Pearson Correlation	-.495**	-.169	1	-.285
	Sig. (2-tailed)	.001	.303		.078
	N	39	39	39	39
Quality of life	Pearson Correlation	.820**	.468**	-.285	1
	Sig. (2-tailed)	.000	.003	.078	
	N	39	39	39	39

The hypotheses were tested with the bivariate correlation Pearson test (Table 2):

There is statistically significant positive correlation between the variables: Happiness and Positive emotions in the last 3 months ($r=.410$; $p<.001$), Happiness and Quality of life ($r=.820$; $p<.01$), Positive emotions in the last 3 months and Quality of life ($r=.468$; $p<.01$).

There is a statistically significant negative correlation between Negative emotions in the last 3 months and Happiness ($r=-.495$; $p<.01$).

After we tested the correlation hypotheses, the following hypotheses were confirmed:

- There is a positive statistically significant correlation between Happiness and Positive emotions in the last 3 months.
- There is a positive statistically significant correlation between Happiness and Quality of life.
- There is a negative statistically significant correlation between the Negative emotions in the last 3 months and Happiness.
- There is a positive statistically significant correlation between Positive emotions in the last 3 months and Quality of life.

The hypotheses were statistically significantly confirmed at the $p<.05$ threshold.

The hypotheses regarding the predictive models were tested using the simple linear regression model.

In table 3 can be see the R and R Square values for the first prediction model corresponding to the hypothesis no.9 “Intensity as sensation seeking dimension predicts the Compulsive work”.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.820a	.673	.664	5.933

- a. Predictors: (Constant), Happiness
 b. Dependent Variable: Quality of life

Analyzing the Unstandardized Coefficients and the statistically significance of the predictor Intensity for the regression model the hypothesis number 5 has been confirmed.

Hence, the regression equation is the following:

$$\text{Quality of life} = 15.658 + .663 * \text{Happiness}$$

Testing hypothesis no. 6: We assume that positive emotions in the last three months predicts the Quality of life.

The hypothesis was tested with the linear regression procedure. In the table 4 can be seen the R and R Square values.

Table 4. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.468a	.219	.198	9.16997

- a. Predictors: (Constant), Positive emotions in the last three months
 b. Dependent Variable: Quality of life

The regression equation is the following:

$$\text{Quality of life} = 59.76 + .914 * \text{Positive emotions in the last three months}$$

The hypothesis no. 6 has been confirmed for $p < .05$.

5. CONCLUSIONS

The hypotheses were confirmed at the thresholds .01 and .05. As the bivariate correlations evidenced in the table no.2, there are positive bivariate correlations

between the variables: Happiness and Positive emotions in the last 3 months ($r=.410$), Happiness and Quality of life ($r=.820$), Positive emotions in the last 3 months and Quality of life ($r=.468$) and a negative statistically significant correlation between the Negative emotions in the last 3 months and Happiness ($r=-.495$; $p<.01$). Also, the prediction hypotheses were confirmed for $p<.05$.

Further studies should focus on how the variable Quality of life can be increased and people can feel happiness, joy, positive emotions, pleasure of life, satisfaction with life and many other positive variables.

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POSTNATAL DEPRESSION IN DISFUNCTIONAL ATTACHMENT STYLE

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Abstract

The aim of this paper is to determine whether there is any connection between the mother's dysfunctional attachment style and the prevalence of postnatal depression.

We formulated the following hypotheses: the style of dysfunctional attachment predisposes to the appearance of postnatal depression; women with dysfunctional attachment style show more symptoms associated with postnatal depression than those with functional attachment; and the symptoms of postnatal depression have a relatively constant incidence during the first 12 months postpartum.

The study was performed on a group of 128 women, aged between 21 and 43 years, with a mean age of 31.2, using the following tools: Collins and Read Adult Attachment Scale (1990) and Edinburgh Scale for Postnatal Depression (1987).

The obtained results demonstrated the validation of the 3 hypotheses: respondents with dysfunctional attachment style have a risk of postnatal depression 3,705 times higher than respondents with functional attachment style; there was a statistically significant difference between the average scores for depression in the group of women with dysfunctional attachment, compared to the group of women with secure attachment; and the incidence of postnatal depression remains relatively constant in both analysed groups (0 - 6 months postpartum vs. 7 - 12 months postpartum).

Keywords: *postpartum depression, attachment style, incidence*

1. INTRODUCTION

Attachment theory was developed by John Bowlby (1969, 1973) and refers to the biological instinct in which closeness to a protective figure is required when the child feels or perceives a threat or discomfort. The most important principle of the theory

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is that a child must develop a relationship with at least one of those who care for him, to have a healthy social and emotional development and particularly to learn how to successfully manage their own emotions.

The postpartum period is known as a period of high risk for the onset of an affective disorder: epidemiological data shows that between 7-13% of mothers develop depression during the first year after birth and up to 20% in the first postpartum trimester (Almond, 2009).

The term „postpartum depression” is used generically in the literature, encompassing the depressive symptoms that manifest starting from the immediate postpartum period and which is etiologically connected with the birth or with physiological, hormonal, social, psychological, psychological, or medium aspects and related to the time interval in the vicinity of birth (Austin, 2010; Howe, 2011; Mikulovic, Rizeanu, 2020).

In a broader sense, the concept of postpartum depression encompasses a mild to moderate non-psychotic depressive episode, including subclinical depressive symptoms, beginning in the first year after birth, and in narrower sense, postpartum depression refers to a major depressive episode that begins in 4 weeks after birth, according to the guidelines of the American Psychiatric Association (APA, 2013).

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVE

The main goal of this research is to determine whether there is a link between the mother's dysfunctional attachment style and the prevalence of postnatal depression.

2.2. HYPOTHESES

Hypothesis 1: The dysfunctional attachment style predisposes to postnatal depression.

Hypothesis 2: Women with dysfunctional attachment style show more symptoms associated with postnatal depression compared to those with functional attachment.

Hypothesis 3: The symptoms of postnatal depression have a relatively constant incidence during the first 12 months postpartum.

3. METHOD

The research sample consisted of 128 women, aged between 21 and 43 years, with an average ageing of 31.24, of which 96.1% come from urban areas. Regarding

the literacy, only one respondent had only secondary education, 86 of the participants having university studies (67% of the total) and 41 of them (32%), post-university studies.

At the same time, 87 women were at the time of this study in their first year postpartum, after birth of their first child. The other 41 women were included in the multiparous group: 35 mothers with 2 children each, and 6 mothers with 3 children each.

Regarding the attachment style, 81 of the study participants, in a percentage of 63.3%, presented a functional attachment style, while 47 of the participants presented dysfunctional attachment styles, accumulating a percentage of 36.7% of the total respondents.

The investigation tools were the following:

- Collins and Read Adult Attachment Scale, used for measuring the type of attachment, which was developed in 1990 by researchers Collins and Read, on basis of previous works of psychologists Hazen and Shaver (1987) and Levy and Davis (1988).
- The Edinburgh Scale for Postnatal Depression was developed in 1987 by Cox, Holden and Sagovsky, a psychometric tool specially adapted to postpartum women and universally used to identify depressive symptoms in women in the first year after childbirth and to assess the severity of postnatal depression.

To validate the hypotheses, we performed statistical analysis in the IBM SPSS Statistics and Graphpad Prism software, the used tests being the contingency tables, the T test with independent variables and the ANOVA linear regression model.

This paper is an observational, descriptive study, conducted in a cross-sectional manner, through observation and questionnaires that were self-applied by participants or during their interviews.

4. RESULTS

To verify the first hypothesis, we compiled a contingency table in SPSS, to investigate whether there is a correlation between the two variables: attachment style (functional or dysfunctional) and the occurrence of postnatal depression. The results are illustrated in the following tables:

Tables 1 and 2: Statistical analysis, attachment style contingency tables x postnatal depression I

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Attachment style* Depression yes/no	128	100.0%	0	0.0%	128	100.0%

Attachment style* Depression yes/no Crosstabulation					
			Postpartum depression		Total
			No	Yes	
Attachment style (AS)	functional	Count	43	38	81
		% within AS	53.1%	46.9%	100.0%
	dysfunctional	Count	11	36	47
		% within AS	23.4%	76.6%	100.0%
Total		Count	54	74	128
		% within AS	42.2%	57.8%	100.0%

Tables 3 and 4: Statistical analysis, attachment style contingency tables x postnatal depression -II- Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.744a	1	.001		
Continuity Correction	9.561	1	.002		
Likelihood Ratio	11.180	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	10.660	1	.001		
N of Valid Cases	128				

Risk Estimate			
	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for AS (functional / dysfunctional)	3.703	1.657	8.275
For cohort Depression yes/no = without depression	2.268	1.301	3.956
For cohort Depression yes/no = with depression	.612	.463	.811
N of Valid Cases	128		

Basically, it was demonstrated that respondents with dysfunctional attachment style have a risk of 3.705 times higher than respondents with functional attachment style for the occurrence of postnatal depression. The value of p (Sig.), at the 95% confidence interval, was 0.001.

To test the second hypothesis, we used the T test with independent variables. We compared the numerical scores obtained after completing the Edinburgh Scale for Postnatal Depression (ESPD) to the two groups: women with functional attachment style and women with dysfunctional attachment style. The results are illustrated in the following tables.

Tables 5 and 6: T test with independent variables for ESPD score and attachment

Group Statistics					
	Attachment style	N	Mean	Std. Deviation	Std. Error Mean
EPDS	functional	81	9.47	3.956	.440
	dysfunctional	47	12.85	4.823	.703

Independent Samples Test

Levene's test for Equity of Variances				T-test for Equity of Means						
									95% Confidence Interval of the Difference	
Depression score		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal Variances assumed	3.125	.079	-4.296	126	.000	-3.382	.787	-4.940	-1.824
	Equal variances not assumed			-4.077	81.768	.000	-3.382	.830	-5.032	-1.732

The obtained results suggest a statistically significant difference in the average scores for depression in the group of women with dysfunctional attachment,

compared to the group of women with secure attachment (attachment considered to be functional), so the second hypothesis is confirmed.

To be able to compare the incidence of depression according to the postpartum period situation corresponding to each mother, we formed and divided the participants into two groups: a group of mothers in the postpartum period of 0-6 months, and a group of mothers in the postpartum period of 7-12 months. The group of 0-6 months consisted of 58 participants, meaning a percentage of 45% from total, and the group of 7-12 months was formed by 70 participants, meaning a percentage of 55% of the total.

To be able to test the third hypothesis, we checked if the first 6 months postpartum present a higher risk for the appearance of symptoms specific to postnatal depression, compared to the next 6 months (7-12), the results being illustrated in tables 7, 8 and 9, as follows:

Tables 7 and 8: 2x2 contingency tables, testing the influence of the postpartum period on the incidence of postnatal depression -I-

Postpartum period * Depression yes/no Crosstabulation				
Count				
		Depression yes/no		Total
		With Depression	Without Depression	
Postpartum period	0.6 months	24	34	58
	7.12 months	30	40	70
Total		54	74	128

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.028 ^a	1	.866		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.028	1	.866		
Fisher's Exact Test				1.000	.505
Linear-by-Linear Association	.028	1	.867		
N of Valid Cases	128				

Table 9: 2x2 contingency table, testing the influence of the postpartum period on the incidence of postnatal depression -II-

	Risk Estimate		
	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Postpartum period (0,6 months / 7,12 months)	.941	.465	1.905
For cohort Depression yes/no = Without Depression	.966	.642	1.453
For cohort Depression yes/no = With Depression	1.026	.763	1.380
N of Valid Cases	128		

Basically, the incidence of postnatal depression remains relatively constant in both analysed groups (0-6 months postpartum vs. 7-12 months postpartum), so the third hypothesis is in this way confirmed, the incidence of postnatal depression is not depending on the time elapsed since birth, in the first birth in postpartum.

5. CONCLUSIONS

In conclusion, the present study shows the dysfunctional attachment style presents a 3.7 times higher risk for the development of postnatal depression, compared to the secured attachment style, a fact also found by various research works conducted by McMahon and colleagues (2005), Lee and Koo (2015), or Robakis and colleagues (2015), concluding that anxious and insecure attachment styles are predictors of maternal depression.

We also demonstrated that women with dysfunctional attachment style show more symptoms suggestive of postnatal depression in the first 6 months postpartum, compared to women with secure attachment style, and the symptoms of postnatal depression are constant during the first year of postpartum, which was also confirmed by other studies conducted by Nanni and Troisi (2017).

The limitations of this research refer to the fact that the group of subjects was relatively small, chosen arbitrarily, and the distribution by age groups and backgrounds of the participants to this study was not uniform.

However, this study is a first step in researching dysfunctional attachment styles and postnatal depression in Romania. Starting from the obtained results, other studies can be conducted in the future aiming to investigate the debated topics, but also other topics that may be found related to them.

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EFFECTS OF COLLABORATIVE LEARNING TECHNIQUE ON STUDENTS' ACHIEVEMENT IN CHEMISTRY

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Abstract:

This study investigated the efficacy of Collaborative Learning Technique (CLT) and gender on students' achievement in chemistry. The study adopted the post-test-only research design. The sample consisted of one hundred and eighty-six (186), senior secondary year one (SS1), students, drawn from two schools in Awka urban. The intact classes were assigned to treatment and control groups by simple random sampling. The treatment conditions which lasted for five weeks was implemented by the regular class teacher who was previously trained by the researcher on the guiding principles for the study. The teachers for the intact classes used two versions of the same lesson plan prepared by the researcher. Data were collected using Chemistry Achievement Test (CAT) which had an internal consistency reliability index of 0.86. The research questions were answered using means and standard deviation while the hypotheses were tested at 0.05 level of significance using t-test statistics. The result among others indicated that the CLT had a significant effect on the students' achievement in chemistry while gender was not a significant factor on the learning outcome. It was further recommended that CLT be adopted by teachers as complementary strategy to their conventional methods of teaching chemistry.

Keywords: Collaborative learning, Gender, Achievement, Chemistry

1. INTRODUCTION

Ordinarily, learners' conventional classroom interactions depict a competitive experience. Learners at all levels of the education system more often than not, view the classroom as a venue where one must strive to out-perform the rest and emerge

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singly as the best in the class. Teachers and School Authorities even encourage this idea through various means such as rewarding only the best students in the class to the dismay of others in the class. In some cases, particularly in primary schools, teachers display the class progress-chart in front of the class showing the learners' scores in class tests and assignments as a way of motivating them to improve in their academic achievement.

In some schools still, students are streamed into classes based on their cognitive ability. For instance, after the annual performance ranking of all the one hundred and twenty (120), students in Class 2, the first forty (40) are made to go to Class 2A, the next forty (in positions 41-80) will go to Class 2B, and the next forty (positions 81 -120) will be in Class 2C. This ability streaming engenders healthy-competition as intra and inter-stream competition is encouraged among the learners. Every student strives to out-perform the other.

The ultimate expectation of every parent/guardian is to hear that his/her ward (pupils/students) performs so creditably well that he/she comes topmost in the class. Similarly, parents are equally eager to hear that the school/institution where their ward studies are rated second to none when compared to other institutions. Again, philanthropic individuals, school authorities and government at different levels, usually award scholarships to students/pupils based on one's distinguished position in performance ranking among his/her contemporaries. These instances outrightly, shows that education system is structured to encourage competition among the learners. Although competitive classroom experience has its merits, nevertheless, over-emphasis on competition in the classroom has given rise to some learning-based misdemeanor especially with respect to examinations misconduct. Many over-ambitious learners, in a bid to excel in the class with a view to clinching fantastic rewards, are known to have ruined their career by indulging in examination misconduct, among other social vices.

In view of the shortcomings of competitive classroom experience, it has become important to explore some alternative learning strategies which would improve classroom social climate and at the same time engender learning outcomes in chemistry. This call to mind an innovative classroom interaction pattern, which although rarely practiced or encouraged in contemporary African setting, has been found to be of great value in encouraging students' achievement else-where (Johnson & Johnson, 1984). This is the Collaborative or Cooperative Learning Strategy (CLS). This is known to have engendered not only cognitive achievement but also social skills and motivation. Johnson (1976,) described the CLS as a social situation in which the goals of separate individuals are so linked together that an individual can attain his/her goal only if the other persons with whom he/she is cooperatively linked can attain theirs as well. In other words, here, the students are made to work as a team, cooperating with the group members (usually 4-6) and working in a mixed

ability group (Okebukola, 1984), whereby the brighter student in the group takes it upon him/her self to tutor (peer-tutoring), the weaker ones.

The distinctive features of CLS includes that the students:

- i. Worked in a mixed ability (high, middle, low) group of five students each
- ii. Worked as a team
- iii. Contributed ideas and suggestions together in problem solving situations
- iv. Made decisions by consensus
- v. Sought for assistance primarily from group members
- vi. Completed class assignments together

The teachers rewarded the team as a group, not on individual bases. In other words, the group score in a class assignment, would be the average of the scores made by the members in the intra group.

In addition to the pattern of interaction prevalent in the class setting, another factor that has been reported as influencing students' achievement in science, generally, is gender (Ezeife, 1990). Indeed, there is this commonly-held view that sciences are exclusive disciplines for males while the females are better in the literary fields. An improved version of this pseudo-thought, and perhaps, one that is obviously been from students' enrolment in our secondary and tertiary institutions, is that females are more in the Biological and home-management sciences while males predominate the Physical sciences and Technical courses (Anaeke & Okekeokosisi, 2018; Ishaka et. al, 2019). The effect of gender on students' achievement in sciences however, still remains inconclusive. Against this background, it could still be possible that the observed achievement pattern of students in Chemistry is a function of the combined effect of interaction pattern and gender. This study however, is not directed to the determination of the combined effect of interaction pattern and gender, as much as to investigate singly the effect of the collaborative learning style and gender, as the two independent variables on students' achievement in chemistry.

Social learning theory as propounded by Bandura (1977), emphasized the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others. He stated further that : "Learning would be exceedingly laborious if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action." Social learning theory explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, an environmental influences. The component processes underlying observational learning included: (1) Attention, including modeled events (distinctiveness, affective valence, complexity, prevalence, functional value) and observer characteristics (sensory capacities, arousal level, perceptual set, past reinforcement),(2) Retention, including symbolic

coding, cognitive organization, symbolic rehearsal, motor rehearsal), (3) Motor Reproduction, including physical capabilities, self-observation of reproduction, accuracy of feedback, and (4) Motivation, including external, vicarious and self reinforcement. Interestingly, these four outlined components are operative in a collaborative or cooperative classroom climate. Learners under this strategy, are attentive to themselves and share ideas together. This engenders retention of science concepts, as they build upon the interaction and the internally-driven motivation to succeed on themselves to enhance learning. **Statement of the problem:**

The pattern of classroom interaction is fundamental to the achievement of instructional objectives. The Collaborative Learning technique has been rarely practiced in our classroom, although it is in diadem with our cultural practices, where inter-personal collaboration is fully support and encouraged. Conventionally, the competitive experience predominates in institutional library, although some students and some times, teachers have exploited this strategy to unmerited scores and a whole lot of unhealthy tendencies aimed at circumventing the spirit of consequences as our hospitals may turn into “slaughter houses”, the highways, building and bridges may turn to death traps and eventually retrogression will turn out to be our own civilization. Again, many prospective female science students would continue to be edge-out and scares from pursuing science and technology related courses, on the pseudo-belief that science is a male-dominated discipline, thereby widening the gender gap in Science and Technology courses. The problem of this study is to empirically explore the efficacy of the collaborative Learning Strategy and gender in facilitating students’ achievement in Chemistry.

2. OBJECTIVE AND HYPOTHESES

2.1 OBJECTIVE/RESEARCH QUESTION

This study was guided by two objectives and hypotheses.

- i. How different are the mean scores of the students who were taught chemistry concepts using CLS and their counterparts who were taught the same concepts using conventional teaching method?
- ii. To what extent does gender facilitate students’ achievement in chemistry vis-à-vis the Collaborative Learning group?

2.2 HYPOTHESES

- i. There is no significant difference between the mean achievement scores of students taught chemistry concepts using CLS and conventional method
- ii. The mean achievement score of Chemistry students taught using CLS will not differ significantly due to gender.

3. METHOD

The design adopted in this study was the post-test only Quasi Experimental design. This is because there was no pretest on the two intact classes, adjudged to be equivalent, which were used for this study. The sample consisted of 184 Senior Secondary one (SS1) Chemistry students streamed in two intact classes drawn from two Secondary Schools in Awka Urban. Simple random sampling was used in assigning the classes to experimental and control groups.

Experimental treatment (Cooperative Learning Strategy) and control Conventional Teaching Method (CTM) were affected by the regular classroom teachers in the two sampled schools, using appropriate versions of the lesson plan prepared by the researcher. The teacher for treatment group was trained prior to the actual treatment with a view to familiarizing the teachers with the pedagogical competencies needed to implement the treatment condition.

The students for treatment group worked in a mixed ability (high, middle and low representing upper 25%, middle 50% and bottom 25% respectively of their previous term examination's score continuum) group of five students each, worked as a team, completed class exercises, and assignments together, sought for assistance primarily from group members. The students in the control group were not restricted to any pattern of class interaction. After the treatment which lasted for five weeks, the Chemistry Achievement Test (CAT) which had an internal consistency reliability index of 0.94 was administered to both groups and the result analysed. The content areas of the CAT were based on "Techniques of Separating Mixtures and particulate Nature of Matter" all in SS 1 curriculum (FME, 1985). The research questions were answered using means and standard deviation, while hypotheses were tested at 0.05 level of significance using the t-test statistics.

4. RESULTS

The result of the study with respect to the Research Questions and Hypotheses were presented in the following tables.

Table 1: Mean score and Standard Deviation of Students' Achievement by Groups and Gender

Gender	Statistic	Group		
		CLS	Control (CTG)	Total
Male	Mean	56.60	33.40	
	S.D	9.90	6.50	93

	N	48	45	
Female	Mean	57.70	35.10	
	S.D	9.50	8.20	93
	N	47	46	
Overall	Mean	57.10	34.30	
	S.D	9.60	7.40	186
	N	95	91	

Research Question one could be answered from Table 1. The mean achievement score of students taught chemistry concepts using the CLS is 57.10 as against 34.30 for their counterparts taught the same concepts using the conventional teaching method (control). These values indicated that the difference in achievement scores was in favour of the experimental group which recorded a higher achievement score.

Similarly, table 1 presented data relevant to answering research question two. The mean achievement score of male students taught chemistry concept using CLS was given as 56.60 while that for their female counterparts was 57.70. These values indicated that the mean achievement score of the treatment group was in favour of the females who had higher mean score than their male counterparts.

Table 2: t-test of Students' Achievement Scores by Groups

Groups	Mean	S.D	N	Df	t-cal	t-criti	Decision
Treatment (CLS)	57.10	9.60	95				Reject H ₀₁
Control (CTM)	34.30	7.40	91	184	7.10	1.96	

From table 2, the calculated value of t is 7.10, while the critical value of 4, at 0.05 level of significance and 184 degrees of freedom is 1.96. since the calculated value (7.10) is greater than the critical value (1.96), we reject the null hypothesis one, as stated. This means that a significant difference was observed between the mean scores of students who were taught chemistry concepts using Cooperative Learning Strategy (treatment group) and their counterparts who were taught the same concepts using the conventional teaching method (control group).

Table 3: t-test of Students Achievement Scores by Gender

Gender	Mean	S.D	N	Df	t-cal.	t-crit.	Decision
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Male	56.60	9.90	48	93	0.55	accept H ₀
Female	57.70	9.50	47			1.98

From table 3, the calculated value of t is 0.55, while the critical value of t, at 0.05 level of significance and 93 degree of freedom is 1.98. Since the calculated value (0.55), is less than the critical value (1.98), we accept the null hypothesis two, as stated. This means that gender was not a significant factor affecting the mean achievement score of the Chemistry students who were exposed to the treatment group. In other words, the observed difference between the mean achievement score of male and female students was due to chance factor.

Discussion of Findings

From the results of this study, it is evident that the Cooperative Learning Strategy (treatment) had significant effect on students' achievement in chemistry. This finding is consistent with that of Johnson and Johnson (1984), Okebukola (1984). A possible explanation for the superior means achievement score of the Cooperative Learning group in comparison to the control group can be found from the fact that the team approach to learning makes their classroom experiences less formal and akin to natural experiences tenable in the local and informal settings. This intimate relationship to natural experiences enhances higher quality cognitive internalization and long term recall of such facts.

The result of this study also indicate that gender was not a significant factor affecting the mean achievement score of the chemistry students who were exposed to the Cooperative Learning Strategy, although the female students recorded higher mean score. This result was consistent with that of Okoye and Nzewi (2018), Danjuma and Nwagbo (2015). A justifiable explanation to this finding is the fact that chemistry students, irrespective of gender come from the same local environment and are naturally exposed to the same pattern of socialization. Therefore, the classroom experience under the Cooperative Learning Strategy proved to be intimately related to their informal environmental settings. Thus, they responded favourably to such situation, unlike the competitive experience that may tend to be unfriendly and aversive to internalization of chemistry concepts.

By implication, the result of this study has pointed to the fact that cooperation which is one of the values in African cultural setting should be explored for optimal understanding of chemistry concepts. Furthermore, given a favourable environmental condition, the pseudo belief that science concepts are difficult to female students could be systematically neglected. In other words, conducive classroom environment via Cooperative Learning Strategy could be structured as a way of closing the gender gap in students' achievement in chemistry.

Conclusion and Recommendation

The result of this study portrayed the CLS a efficacious in enhancing students achievement in chemistry. It has also pointed to the need for analysis of chemistry curriculum with a view to eliminating any/some gender bias/es which could have been hindering optimal participation and achievement of students, especially girls, in chemistry. It is believed that irrespective of gender, all students can benefit optimally from conducive science classrooms. It is also expected that professional organisations like Science Teachers Association of Nigeria (STAN), mathematical Association of Nigeria (MAN) etc, would organize workshops for both pre-service and in-service teachers as a way of popularizing the Cooperative Learning Strategy, for more result-oriented classroom instructions. When properly put into use the CLS could serve as an alternative or supplementary teaching strategy that would help to curtail the excesses of competitive classroom interaction.

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THE RELATIONSHIP BETWEEN LONELINESS, SOCIAL SATISFACTION AND SELF-ESTEEM

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Abstract

The study is focused to evidence the relationship between the variables: loneliness, social satisfaction and self-esteem. The correlation hypotheses assume that there are statistically significant bivariate correlations between the variables: loneliness, social satisfaction and self-esteem.

Method: The participants were 31 people, age between 21 and 62 years old, both females and males, different occupations. The instruments were: The Rosenberg Self-Esteem Scale (Rosenberg, 1965), De Jong Isolation and Loneliness scale- Long version (De Jong-Gierveld & Kamphuis, 1985; De Jong-Gierveld & Tilburg, 1999) and 6 items version of the Duke Social Support Index (Koenig et al., 1993). The procedure respected the ethics in research conditions and the GDPR. The independent variable for the prediction models was the social support. The dependent variables were the perception of isolation and the self-esteem.

The results confirm partially the correlation hypotheses and the prediction hypotheses.

Further studies should investigate relationship between the social support, isolation and well-being, satisfaction with life, work engagement, anxiety, depression, stress.

Keywords: Social support, self-esteem, isolation and loneliness.

1. INTRODUCTION

Bagley, Bolitho, & Bertrand (1997) conducted a study with 1,084 males and 1,024 females using the Rosenberg Self-Esteem Scale. They analyzed the construct validity from correlations with behavior problem categories, measure of family relationships and measures of school climate. The authors proposed the use of self-esteem measures in school counselling.

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Martín-Albo, Núñez, Navarro and Grijalvo (2007) were interested to translate and validate the Rosenberg Self-Esteem Scale. The participants were 420 university students. The authors used the confirmatory factor analysis that revealed the model that best fit the data. The use of the study is in the higher education field.

Tomas and Olivier (1999) were interested to evidence the existence of a global self-esteem factor underlying responses to the scale.

Jackson (2020) was interested to evidence the validity and reliability for the Rosenberg self-esteem scale in his dissertation thesis. The author evidenced that a unidimensional model fit the data. Also, the author evidenced the convergent and discriminant validity.

Gierveld & van Tilburg (2006) conducted a study applying the 6-Item De Jong Loneliness scale. The authors highlighted that loneliness is an indicator for well-being.

Szcześniak, Bielecka, Madej, Pieńkowska, Rodzeń (2020) were interested to highlight the mediator Role of Self-Esteem Between the variables Loneliness and Life Satisfaction. The results evidenced that the variable loneliness correlated negatively with the variables self-esteem and life satisfaction. Hence, the variable Self-esteem was associated positively with the variable life satisfaction.

Cosmoiu and Rizeanu (2020) conducted a study which highlighted the relationship of core self-evaluation traits: self-efficacy, locus of control and self-esteem with academic achievement.

Wardian, Robbins, Wolfersteig, Johnson & Dustman (2013) conducted a validation study for Duke Social Support Index with 10 items version. The study was completed and the Confirmatory Factor Analysis confirmed the factors structure by gender, ethnicity, and age and for the total population (Wardian et al. 2013). Regarding the relationship between the Social Support and Suicide, Pan, et al. (2020) investigated the psychometric characteristics of Duke Social Support Index related to suicide. George, Blazer, Hughes & Fowler (1989) related the social support with the major depression. The authors find out that social network and subjective social support are predictors of depressive symptoms.

Zhao, Kong & Wang (2013) conducted a study regarding the “role of social support and self-esteem in the relationship between shyness and loneliness”. The authors revealed that between shyness and loneliness it was a partial mediated effect by the variables social support and self-esteem.

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVE

The objectives of the research:

1. To highlight possible correlations between the variables self-esteem, loneliness, and social support.
2. To evidence that social support predicts the self-esteem.
3. To highlight that social support negatively predicts the perception of loneliness and isolation.

2.2. HYPOTHESES

The research hypotheses are the followings:

-Hypotheses for the bivariate correlation

1. There is a positive statistically significant correlation between Self-esteem and social support.
2. There is a negative statistically significant correlation between the Social support and Isolation.
3. There is a negative correlation between isolation and self-esteem.

-Hypotheses tested with linear regression model

4. Social support positively predicts the self-esteem.
5. Social support negatively predicts the isolation.

3. METHOD

3.1. The participants

The participants were a group of approximately 31 people aged between 20 and 62 ($M=40.71$; $S.D.=11.57$), both females and males from different professional backgrounds. They responded by filling out a Google docs document form between January and February 2021.

3.2. The instruments

1. The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a tool for assessing self-esteem, used in the psychiatric clinical field as well as in psychology. Rosenberg constructed a 10-item scale to which subjects can respond by choosing one of four answer options: "true," "rarely true," "sometimes true," "false."

The global level of self-esteem influences the choices in the lives of individuals as well as their existential style. To calculate the score, the indications for questions number 1, 3, 4, 7, 10 are used, where the answers given by the subjects are rated with four points for the "true" variant, the following three answers being rated with 3 points "rarely true", 2 points "Sometimes true" and 1 point "false". The

internal consistency was .77 and the Coefficient of Reproducibility was at least .90 (Rosenberg, 1965). The Cronbach alpha coefficients ranging from .85 to .96 in studies according to Jackson (2020) in his dissertation thesis. The scale was applied for the present study from 1-very low to 5-very high.

2. De Jong Isolation and Lonliness scale-Long version (De Jong-Gierveld & Kamphuis, 1985; De Jong-Gierveld & Tilburg, 1999). For this research was used the long version with 11 items. The reliability of the scale was $\alpha = .84$ (Gierveld & van Tilburg, 2006; page 585). The items were applied for the present study on a scale from 1-very low to 5-very high.

3. Duke Social Support Index (Koenig et al., 1993). For the present study was used the 6 items extracted from the 10 items form (Wardian et al., 2013; page 101). The items were applied on a scale from 1-very low to 7-very high.

3.3. Procedure

The instruments were applied on-line using document Google-docs. The Ethical code and GDPR legislation were respected.

The participants were informed about the research consent and also about the anonymous identity.

3.4. The design

The variables for the regression models were the followings:

- Independent variables: social support.
- Dependent variables: isolation and self-esteem.

4. RESULTS

In table 1 can be seen the Mean and Standard Deviation for the variables: Isolation, Social support and Self-esteem.

Table 1. Descriptive statistics

variable	Mean	Std. Deviation
Isolation	27.09	6.399
Social support	34.22	6.020
Self-esteem	58.77	7.881
N	31	

In the table two can be observed the bivariate correlation coefficients for the variables: Isolation, Social support, and Self-esteem.

Table 2. Correlations

		Isolation	Social support	Self-esteem
Isolation	Pearson Correlation	1	-.526**	-.329
	Sig. (2-tailed)		.002	.070
	N	31	31	31
Social support	Pearson Correlation	-.526**	1	.496**
	Sig. (2-tailed)	.002		.005
	N	31	31	31
Self-esteem	Pearson Correlation	-.329	.496**	1
	Sig. (2-tailed)	.070	.005	
	N	31	31	31

In the table 2 can be seen that there is statistically significant positive correlation between the variables: Self-esteem and social support ($r=.496$; $p<.001$).

There is a statistically significant negative correlation between the Social support and Isolation ($r=-.526$; $p<.01$).

Testing the correlation hypotheses, were confirmed the following two:

- There is a positive statistically significant correlation between Self-esteem and social support.
- There is a negative statistically significant correlation between the Social support and Isolation.

The other correlation hypotheses were not confirmed ($p>.05$).

The hypotheses regarding the predictive models were tested using the simple linear regression model.

In table 3 can be see the R and R Square values for the first prediction model corresponding to the hypothesis “Social support predict the isolation”

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.526a	.276	.251	5.53710

- a. Predictors: (Constant), Social support
b. Dependent Variable: Isolation

Analyzing the Unstandardized Coefficients and the statistically significance of the predictor Social support for the regression model the hypothesis has been confirmed (table 4).

Table 4. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	46.223	5.832		7.925	.000
	Social support	-.559	.168	-.526	-3.328	.002

The regression equation is the following:

$$\text{Isolation} = 46.223 - .559 * \text{Social support}$$

Testing hypothesis “Social support predicts self-esteem”

The hypothesis was tested with the linear regression procedure (Tables 5 and 6).

Table 5. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.496	.246	.220	6.958

- a. Predictors: (Constant), Social support
b. Dependent Variable: Self-esteem

In the table 6 can be observed the Constant and the Standardized Coefficients for the regression model.

Table 6. – Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	36.535	7.330		4.984	.000
	Social support	.650	.211	.496	3.079	.005

The regression equation is the following:

$$\text{Self-esteem} = 36.535 + .650 * \text{Social support}$$

5. CONCLUSIONS

The conclusions highlight that from the bivariate correlation hypotheses only two were confirmed: there is statistically significant positive correlation between the variables Self-esteem and social support ($r=.496$; $p<.001$) and there is a statistically significant negative correlation between the Social support and Isolation ($r=-.526$; $p<.01$).

Regarding the prediction models, the hypotheses were confirmed for $p<.05$. In this way the study evidenced that the social support predicts positively the self-esteem and negatively the isolation. The findings are supported by the scientific literature presented in the introduction.

According to the results and the previous studies, social support plays a major role in increasing the self-esteem and reducing the social isolation and the perception of loneliness. Family and friends represent as Duke Index Social Support mention the main support for strong self esteem and reduced perception of loneliness and isolation.

Further studies should focus on relating the social support and loneliness and isolation with other variables: well-being, happiness, positive and negative emotions, anxiety, depression, work involvement.

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**THE MEDIATING ROLE OF PSYCHOLOGICAL
FLEXIBILITY IN THE MANIFESTATION OF
DYSFUNCTIONAL COGNITIONS IN THE EMERGING
ADULT**

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Abstract

This article presents the results of the investigation of the mediating role of psychological flexibility in the manifestation of dysfunctional cognitions in the emerging adult. A lot consisting of 212 young people were interviewed with the Acceptance and Involvement Questionnaire (AAQ-II), the Metacognition Questionnaire-30 (MCQ-30) and the Cognitive Scheme Questionnaire (YSQ-S3) - Deprivation and Abandonment Schemes in the Separation Domain and Failure Schema in the Autonomy Domain.

The analysis of the Mediating Role of the Psychological Inflexibility on early maladaptive schemas is a first in this area. The results have shown how the Psychological Inflexibility, measured with AAQ-II, acted as a mediator of the effect of the Separation Schemas (Deprivation and Abandonment) on the Autonomy Schema (Failure). The Psychological Inflexibility seems to have a mediating role in the relationship between the Metacognitive Beliefs and the Scheme of Autonomy (Failure). Consequently, the Psychological Inflexibility seems to play a relevant role in the manifestation of maladaptive or dysfunctional cognitions schemas. This result has practical implications in the organising personal development and behavioural optimization groups in emerging adults.

Keywords: *psychological flexibility, early maladaptive patterns, metacognitive beliefs, emerging adult.*

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1. INTRODUCTION

This article presents the results of the investigation of the interrelationships between the maladaptive cognitive patterns of Separation and Autonomy, Dysfunctional Metacognitive Beliefs and Psychological Inflexibility. Psychological /Behavioural flexibility is characteristic of a behaviour susceptible to adaptive changes. This is measured according to the changes related to the situation differences, where a situation persists, and may take the form of a change in response or of a change in strategy. Changes in tactics or strategy, which are proof of a taken choice, are demonstrated to be possible from an exceedingly early age on the path of individual development and they also allow overcoming the difficulties caused by immaturity. In fact, during the stage of the concrete operations (between 7-8 to 10-11 years of age), as they interact with more people and encounter a multitude of points of view, the children begin to give up the idea that there is a single and absolutely correct and wrong standard and they can take into account now several aspects of a situation (Papalia, 2013).

The psychological flexibility is the ability to stay in touch with the present moment, regardless of thoughts, feelings and unpleasant happenings felt or experienced, acting based on the present situation and thus on personal values and beliefs. During their adolescence and emerging maturity, young people are affected by insecurity, then, as they mature and reach engagement / involvement in the context of relativism, based on their own beliefs and values, despite insecurity and recognition of other valid possibilities (Papalia, 2013). Along with the initiative and the orientation to the goals, flexibility facilitates the transition of emerging adults to the workplace and reduces the number of perceived failures (Blustein, Juntunen and Wonhtington, 2000).

Flexibility is also the middle ground between rigidity and freely chosen commitments, which is why we believe this it is a capacity that needs to be developed and cultivated in young people. After reviewing the literature we can conclude that there is significant evidence on the value of psychological flexibility in the development and manifestation of healthy (Kashdan, 2010; Bonnano et al., 2004) and resilient personality (Block and Block, 2006; Rizeanu, 2013).

We first assumed that psychological inflexibility mediates the relationship between maladaptive cognitive patterns in the Areas of Separation/Rejection and Autonomy/Poor Performance, considering that these areas are closely related to lack of initiative, avoidant behaviour of the young „NEETs” and mood disorders. Secondly, we assumed that psychological inflexibility mediates the relationships between metacognitive beliefs and the Autonomy-Failure Schemas.

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVE

The main aim of research is to find out the mediating role of psychological flexibility in the manifestation of dysfunctional cognitions schemas in the emerging adult.

2.2. HYPOTHESES

- a. The Psychological Inflexibility acted as a mediator in the relationship between the Separation and Autonomy Schemas.
- b. The Psychological Inflexibility acted as a mediator in the relationship of the Negative Metacognitions with the Failure Schema.
- c. The Psychological Inflexibility was a mediator of the relationship between The Metacognitions Control and the Failure Schema.

3. METHODS

3.1. THE RESEARCH GROUP

The research group consists of 212 people, aged between 19 and 30 years ($M = 24.3$, $AS = 3.2$), of which 84% come from urban areas, and 16% from rural areas. 31% are students, 23% student-employees, 25% employees and 21% NEET (acronym for Not in Education, Employment, or Training). According to the 2019 Eurostat report, 11.5% of males and 27.8% of females aged 20 to 34 have this NEET status (source: ec.europa.eu).

3.2. INSTRUMENTS

Acceptance and Action Questionnaire II (as known as AAQ-II) (Racu și Lungu, 2019; Bond, 2011) which measures the psychological flexibility and the experiential avoidance. It consists of 7 items that are evaluated on a 7-point Likert scale (1 = never true; 7 = always true). The items reflect the reluctance to experience unwanted emotions and thoughts (such as „I am afraid of my feelings”, „I worry that I cannot control my worries and feelings”) and the individual’s inability *to be* in the present moment and to behave according to the action directed towards value when he experiences psychological events that could undermine him (for instance „My painful experiences and memories prevent me from living a life I would appreciate”, „Painful memories prevents me from leading a fulfilled life”). The scale has shown a good internal consistency ($\alpha = 0.86$).

Metacognition Questionnaire-30 (also known as MCQ-30) (Wells, Cartwright-Hatton, 2004). The MCQ-30 is a shorter version of the well-known MCQ-65. Thus, this is a 30 items scale measured in a Likert system in 4 points (1 = do not agree; 4 = strongly agree) which contains the following five factors: Positive beliefs about

worries, negative beliefs about uncontrollability and danger related to worries, beliefs about the need to control thoughts, cognitive confidence, and cognitive self-awareness.

MCQ-30 has shown a good internal consistency, convergent validity, and an acceptable test retesting reliability, $\alpha = .92$ (Bond, 2011).

Cognitive Scheme Questionnaire - Short Form 3 (also known as YSQ-S3) consists of 114 items and measures eighteen cognitive schemas. For this article, we chose to analyse only three of these schemas: the Deprivation and the Abandonment Schemas in the Separation Domain and the Failure Schema in the Autonomy Domain (Young, Klosko, Weishaar, 2003).

4. RESULTS

From *Table 1* we observe that the psychological inflexibility ($M = 18.5$, $AS = 6.73$, $\alpha = .87$) is significantly and positively correlated with all the analysed variables: with the Failure Schema ($M = 7.5$, $AS = 3.5$, $r = .56$, $\alpha = .89$), Separation - Abandonment and Deprivation Schemas ($M = 7.8$, $AS = 3.5$, $r = .43$, $\alpha = .86$), as well as with the Positive Metacognitive Beliefs ($M = 13.9$, $AS = 3.6$, $r = .26$, $\alpha = .75$), with the Negative ones ($M = 13.08$, $AS = 3.6$, $r = .55$, $\alpha = .76$) and with those related to the need of controlling thoughts ($M = 13.5$, $AS = 3.5$, $r = .36$, $\alpha = .78$).

	2	3	4	5	6	Med.	SD	α
1.Failure	.56**	.43**	.12	.44**	.32**	7.52	3.56	.89
2.Inflexibility	-	.48**	.26*	.55**	.36**	18.55	6.73	.87
3.Separation		-	.37**	.38**	.34**	7.88	3.55	.86
4.Positive metacognition			-	.24*	.31**	13.9	3.66	.75
5.Negative metacognition				-	.46**	13.08	3.65	.76
6. Metacognition control					-	13.55	3.57	.78

Table 1. Descriptive data, internal consistency, and correlations between the analysed variables

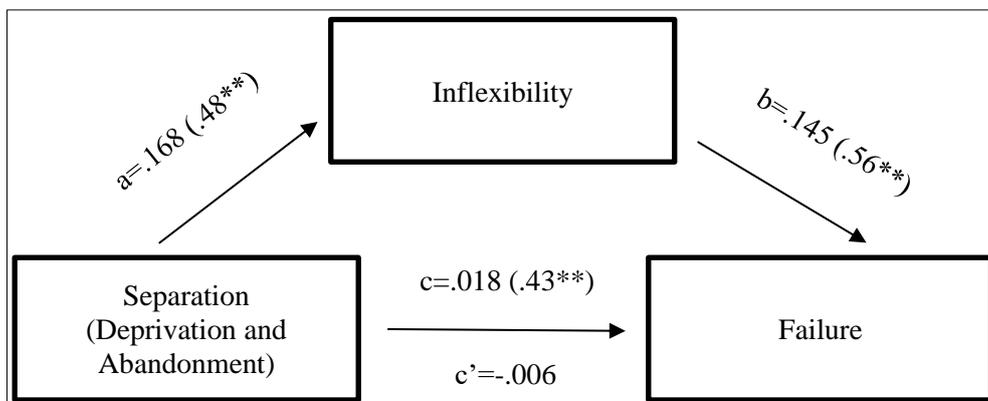
4.1 MEDIATION ANALYSIS OF THE EFFECT OF THE SEPARATION SCHEMA ON THE FAILURE SCHEMA

Mediation analysis (Bootstrapping type) were performed to estimate the direct and indirect effects using PROCESS (Hayes, Preacher, 2014). The predictor variables were Separation Schemas, Positive and Negative Metacognitions, and Metacognitions Control.

The mediation analysis revealed that Psychological Inflexibility acted as a mediator in the relationship between the Separation Schema and Autonomy (as shown in *Figure 1*, where the shown values are the path coefficients and the Pearson

correlation coefficients. The c-coefficient refers to the total effect of the separation schemas on the Failure Schema, while the c-prime coefficient refers to the direct effect).

The Separation Schema (Deprivation and Abandonment) significantly predicted the proposed mediator variable (Psychological inflexibility, path a: $ET = .168, p = .001$), but not the dependent variable Failure (the c path or the total effect: $ET = 0.18, p = .27$). Psychological inflexibility significantly predicted Failure (path b: $ET = .145, p = .0001$) and the indirect effect of Separation (Deprivation + Abandonment) on Failure was statistically significant (ab path), with a point estimate of .024 (95 %).



4.2 MEDIATION ANALYSIS OF THE EFFECT OF THE METACOGNITIONS ON THE FAILURE SCHEMA

In the first mediation analysis, the Psychological Inflexibility was a significant mediator in the relationship between the Positive Metacognitive Beliefs (PMB) and the Failure Schema, as shown in *Figure 2*.

The Positive Metacognitive Beliefs (PMB) predicted Psychological Inflexibility (path a: $ET = .374, p = .002$), but did not predict the Failure Schema (path c or total effect $ET = .030, p = .82$). However, the Psychological Inflexibility was a significant predictor of the Failure Schema (path b: $ET = .142, p = .001$). The estimated point of the Indirect Effect (path ab) was .053 (95%).

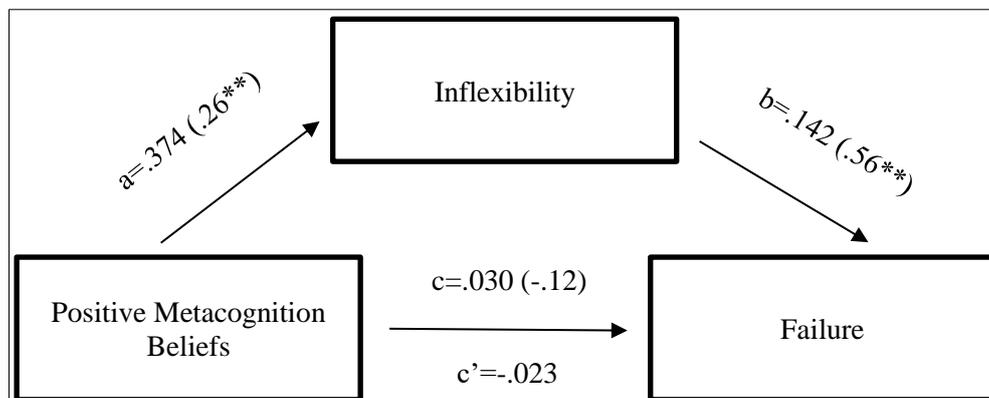


Figure 2. Analysis diagram of the Mediation Effect exerted by Psychological Inflexibility on the relationship between Positive Metacognitions and Failure Schema.

In the second mediation analysis, the Psychological Inflexibility acted as a mediator in the relationship of the Negative Metacognitions with the Failure Schema. Negative Metacognitions predicted Psychological Inflexibility (path a: $ET = .652$, $p = .001$) and predicted the Failure Schema (path c or total effect $ET = .165$, $p = .04$), as shown in *Figure 3*.

The last prediction lost its significance when Psychological Inflexibility was included in the model (path c' or direct effect $ET = -.072$, $p = .52$); however, the Psychological Inflexibility significantly predicted the Failure Schema (path b: $TE = .137$, $p = .0006$). The Indirect Effect was significant (ab pathway), with a point estimate of .093 (95%).

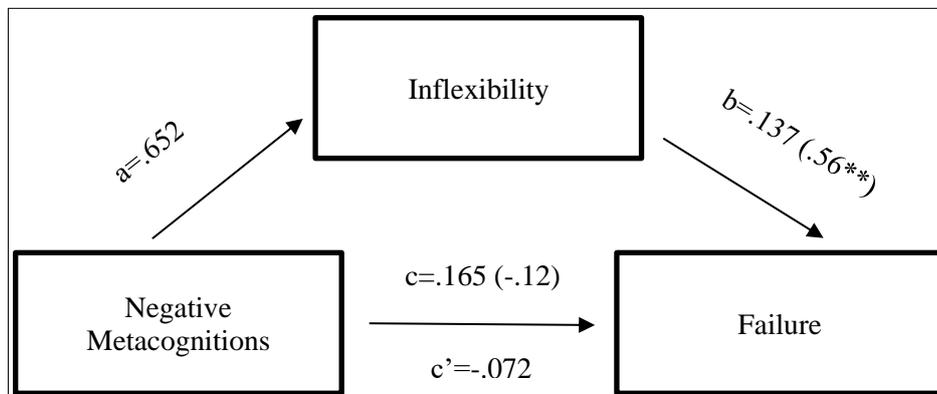


Figure 3. Analysis diagram of the Mediation Effect exerted by Psychological Inflexibility on the relationship between Negative Metacognitions and Failure Schema

Finally, the third mediation analysis revealed that the Psychological Inflexibility was a mediator of the relationship between The Metacognitions Control and the Failure Schema. The need to control the thoughts predicted Psychological Inflexibility (path a: $ET = .627$, $p = .001$), but did not predict the Failure Schema (path c or total effect: $ET = .075$, $p = .46$), as shown in *Figure 4*.

The last prediction lost its significance when the Psychological Inflexibility was included in the model (path c' or direct effect: $ET = -.012$, $p = .85$); however, the Psychological Inflexibility was a significant predictor of the Failure Schema (path b: $TE = .137$, $p = .0001$). The Indirect Effect was significant (ab pathway), with a point estimate of .63 (SE = .063, 95%).

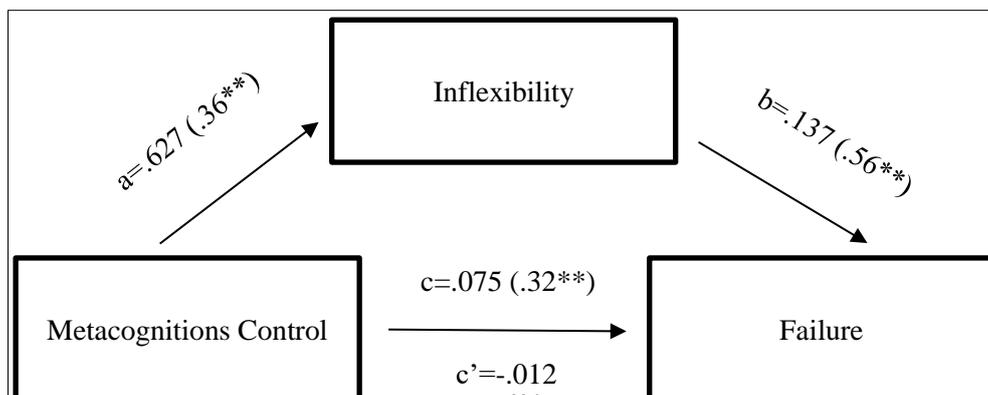


Figure 4. Analysis diagram of the Mediation Effect exerted by Psychological Inflexibility on the relationship between Metacognitions Control and the Failure Schema.

5. CONCLUSIONS

As the documentation has shown, the analysis of the Mediating Role of the Psychological Inflexibility on early maladaptive patterns is a first in this area. The results have shown how the Psychological Inflexibility, measured with AAQ-II, acted as a mediator of the effect of the Separation Schema (Deprivation and Abandonment) on the Autonomy Schema (Failure). Also, the Psychological Inflexibility seems to have a mediating role in the relationship between the Metacognitive Beliefs and the Schema of Autonomy (Failure). Consequently, the Psychological Inflexibility seems to play a relevant role in the manifestation of maladaptive or dysfunctional schema cognitions. This result has practical implications in the organising personal development and behavioural optimization groups. Thus, increasing psychological flexibility becomes one of the priority issues, being correlated, among others, as the studies presented, with the quality of life and the mental well-being.

The Psychological Flexibility is not a state of happiness or ease, but an ability to navigate in flexible manner through the changing and challenging demands of life, as well in the times when the difficult thoughts and feelings arise. Thus, the perspective from which the psychological health is assessed includes the way the individual is functioning, in relation with different areas of life (Rizeanu, 2014). According to Kashdan and Rottenberg (2010), a healthy person is someone who can manage himself in the uncertain and unpredictable world around him, where the novelty and the change are the norm and not the exception. Increasing the flexibility is the main desideratum of the ACT therapeutic method, developed by Hayes and his collaborators (Hayes et al, 2006) and a number of researches found significant result in connection with obsessive compulsive disorder (Twohig et al., 2015; Rizeanu, 2020), clinical perfectionism (Limburg et al, 2017). The research of Hayes et al. (2006) found that psychological flexibility promotes a better quality of life, the individual creating adaptive relational contexts including his internal experiences. Craske et al. (2014) reported the link of psychological inflexibility with social anxiety. ACT therapeutic method targets unsafe control and avoidance behaviours, which is why its core techniques for engaging to action are an important aspect of the behavioural optimization intervention arsenal over the *NEET emerging adult*.

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COMMUNICATION SKILLS DEVELOPMENT FOR TEACHERS

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Summary

This research study was designed to create a psychological intervention program with a formative character aimed at stimulating and developing the communication skills necessary for the teaching profession. Following the implementation of the psychological intervention program, we organized the control experiment in order to evaluate the efficiency of the training program. The communication style refers to the set of manifestations characteristic of a person in the act of communication, being an indicator of the way a person structures his or her world of social relations, as well as an indicator of how information processing and transformation of this information into behavioral facts in social, evaluative, and practical judgments. In our research we relied on the classification of communication styles according to St. Marcus. There are four styles of communication that we investigated in teachers: assertive, non-assertive, aggressive, and manipulative. The research results showed that the communication techniques and assertiveness training included in the intervention program stimulated the practice of an assertive communication style, as well as a decrease in the non-assertive communication style.

Keywords: *communication, assertive, non-assertive, aggressive, teachers*

1. INTRODUCTION

The assertiveness of the human personality, in any associative context, is explicitly based on the development of symbolic interferences integrated in communication processes. Beyond the postulate of the communicative character exclusively to human interactions, the circulation of messages in any way is a defining note of contemporary society.

The term communication comes from the Latin *comunis / communicatio* which means "to share", "to be in a relationship" or "to establish a community with someone". Iacob (2004) defines human communication as a relationship based on sharing a meaning. An extensive definition of communication belongs to the sociologist Mircea Agabrian (2008), who considers communication: "a process

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by which information is exchanged between individuals through a common system of symbols, signs, and behaviors." Extensive and effective communication requires basic skills in sending the message, listening, asking questions, and giving feedback. Communication skills are important for a teacher who provides education to students (McCarthy and Carter, 2001 apud Khan, Khan, Syed Zia-UI-Islam, Khan, 2017). In the literature there are various studies that study the communication of teachers, the ability to convey clear messages, to listen, and to provide feedback (Shaunessy, 2009; Cooper, 1979; Brusckhe, 1991). Didactic communication, carried out in an educational context, is defined in the general sense as a form of instrumental communication, directly involved in supporting a systematic learning process (Ciobanu, 2007 apud Goia 2011). Didactic communication is the one that mediates the realization of the educational phenomenon as a whole, this taking place only as a special form necessary in the transmission of specific learning content. Given that one of the basic objectives of the education system is to prepare the child for real life, communication at the didactic level should be conceived as a permanent interaction between teacher and student (Bloju, Stan, 2013).

1.1. Communication styles

The communication style refers to the set of manifestations characteristic of a person in the communicative act, being an indicator of the way a person structures his or her world of social relations, as well as an indicator of how information processing and transformation of this information into behavioral facts in social, evaluative, practical, and other judgments. There are a multitude of classifications of communication styles. Each style has some specific characteristics that deserve to be developed (Pânișoară, Sandu, Pânișoară, Druță, 2015). In one study, Jackson reveals that participants considered that "different learning activities were effective in developing oral communication skills during their university studies" (Jackson, 2014).

In our research we relied on the classification of communication styles according to Solomon Marcus (1987). There are four styles of communication that we have investigated in teachers.

An individual who uses the *aggressive style* has a tendency to express their own opinions and feelings, without taking into account how the other person will feel. This style is based on the desire to dominate and control the communication process through intimidation, insult, and coercion of the interlocutor.

The manipulative style represents the individual's preference for a backstage role, in which he or she waits for the right moment to come to light and to stand out. There is a tendency to look for hidden intentions behind any statements of others. The person who has adopted this style of communication avoids confrontations and open exposure of opinions, which can change to those of the interlocutor.

The *non-assertive style* is characterized by the avoidance of conflict situations and the reserved expression of one's own beliefs, thoughts, and emotions. People with this style of communication most often have a passive, detached position, rarely manifesting their own initiative.

The *assertive style* refers to that option of the individual in communication that helps him to directly express his thoughts, feelings and beliefs without hurting others (Rizeanu, 2013). Yogaranee (2016) states that assertiveness is a personality trait that describes how people behave when they want to express something without being aggressive.

The more commonly used opinion regarding the communication styles in the literature emphasizes the idea that the teacher's communication style, either in relation to students or their parents and colleagues, remains constant, characterizing the teacher's personality. At the same time, according to more recent research from Stavropoulou and Stamatis (2017), teachers can adopt more or less all styles of communication occasionally depending on the communication needed at a given time or in a certain situation. Suharni, Atmowardoyo and Salija (2018) reached the same conclusions, stating that the aggressive style was used when the teacher intended to forbid or remind students of something, the assertive style in situations when it motivated students, and the passive style when the student asked for help.

2. OBJECTIVES AND HYPOTHESES

2.1. OBJECTIVES

The research aimed at realizing a program of psychological intervention with formative character oriented towards the stimulation and development of the communicative abilities necessary for the teaching profession. The general objective of the training experiment was the development of efficient communication with teachers in order to provide continuous training in their professional activity. The specific objectives of this experiment proposed for the intervention program were: stimulating, developing, training and practicing communication skills through various techniques and exercises; developing assertive communication; and training the ability to use communicative competence in working with the student, which requires knowledge and application of effective communication styles. The objective of the control experiment is to evaluate the effectiveness of the psychological intervention program.

2.2. HYPOTHESES

We propose to study the following hypotheses in this paper: We believe that through a complex program consisting of a system of communication techniques and assertiveness training we will develop communication skills in teachers.

3. METHOD

3.1. PARTICIPANTS

The training experiment included 22 teachers aged between 25 and 65, 11 in the control group (CG) and 11 in the experimental group (EG). The selection criterion, to ensure the homogeneity of EG and CG, was the level of assertiveness, aggression and non-assertiveness in the communication of the subjects and the expressed desire to enter the psychological training program

3.2. INSTRUMENTS

The questionnaire "Analysis of communication styles" (S.C), developed by S. Marcus, aimed at identifying communication styles in teachers. The test is relevant for the 4 fundamental styles of communication: non-assertive style, aggressive style, manipulative style, and assertive style. One point is awarded to the "true" answers. The points are summed up on communication styles. The style in which the maximum number of points was obtained indicates the dominant attitude in communication, the relatively stable and predictable characteristics of communicative behavior.

3.3. PROCEDURE

Following the training of the research participants, the evaluation questionnaire of the studied constructor was applied repeatedly (non-assertive style, aggressive style, manipulative style, and assertive style). The preparation of the participants for the questionnaire application consisted in explaining that it is necessary to select a "true" or "false" option for each item of the scales. The way to complete the scales was pencil and paper. The completion of the scales was done without a time limit. The questionnaire was applied individually to the subjects from the experimental group and the control group in order to evaluate the effectiveness of the psychological intervention program. To determine the comparisons of the experimental group and the control group, we used the nonparametric statistical test to compare two independent U Mann Whitney samples and the Wilcoxon statistical test.

3.4. EXPERIMENTAL DESIGN

The experimental design chosen for the present research was that of a formative and control study. The questionnaire "Analysis of communication styles" (S.C), developed by S. Marcus, was applied to 66 teachers before the implementation of the psychological intervention program in order to identify the communication styles of teachers. The complete data obtained in this stage did not form the subject of this

paper, but were the basis for the elaboration of the formative program. Psychological interventions were carried out regularly with the teachers in the experimental group once a week, 12 sessions over a period of 12 weeks.

The psychological intervention program consisted of several basic stages:

1. *The stage of interpersonal knowledge and creating an atmosphere of trust within the group* (2 sessions) - the stage involves knowing the purpose and objectives of the program, identifying expectations, interpersonal knowledge and creating a secure atmosphere, and setting rules.
2. *The actual intervention stage* (8 sessions) - aimed at achieving the proposed objectives and was based on the application of techniques for developing effective communication (active listening, expressive skills, the art of asking, non-verbal language, etc.), and assertiveness training.
3. *Consolidation and evaluation stage* (2 session) - is an important part of the psychological intervention program, in which the consolidation of skills takes place, their transfer to practice, evaluation of the feedback of the subjects after participating in this program, and appreciation of group activity.

Following the implementation of the intervention program, the questionnaire "Analysis of communication styles" was repeatedly applied to evaluate the studied constructor (non-assertive style, aggressive style, manipulative style, and assertive style). The final data from the control experiment (post-intervention) were reported to the data of the ascertaining experiment (pre-intervention), being a reference in demonstrating the differential relevance obtained, following in parallel the evolution of the control group, compared to the experimental group.

4. RESULTS

The control experiment aimed to determine the progress made in developing teachers' communication skills, comparing and interpreting the results of the experimental group (EG) and control group (CG). To determine the homogeneity of the experimental group (EG) and the control group (CG), we compared the results obtained by teachers at the test stage. The results obtained from EG and CG are shown in Figure 1 where the data in the test phase can be viewed.

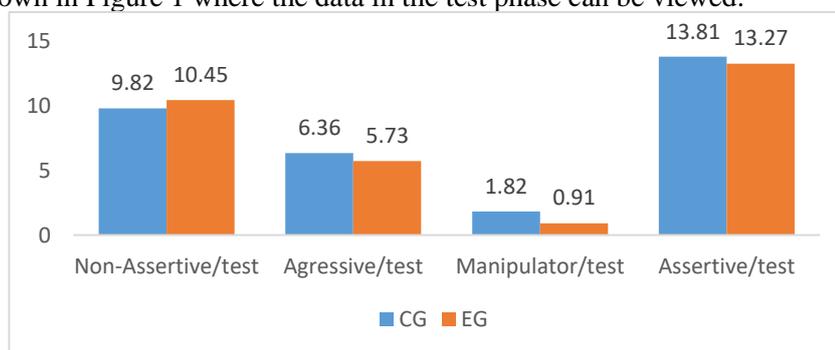


Figure 1. Results of EG and CG / test communication styles

According to the results presented in figure 1, we can see that the experimental and control groups are homogeneous. This is statistically confirmed. For the variable *Non-assertive communication style* ($U=44.00$; $p=0.264$); for the *Aggressive communication style variable* ($U=38.50$; $p=0.124$); and for the *Assertive communication style* ($U=57.50$; $p = 0.832$). However, the data described confirm that the experimental and control groups are homogeneous in three variables: Non-Assertive communication style, Aggressive communication style, and Assertive communication style.

Table 1. U Mann Whitney test of EG / CG-test communication style

	Non-Assertiv/test	Agressiv/test	Manipulator/test	Assertiv/test
Mann-Whitney U	44.000	38.500	31.000	57.500
p	0.264	0.124	0.024	0.832

Statistical data processing allowed only non-assertive, aggressive, and assertive styles to be taken into account. The Manipulator style cannot be taken into account due to the statistically significant differences obtained by subjects from EG and CG ($U = 31$; $p = 0.024$). These results allow us to conclude that for the manipulative communication style, homogeneity was not ensured and will continue to be excluded from our research.

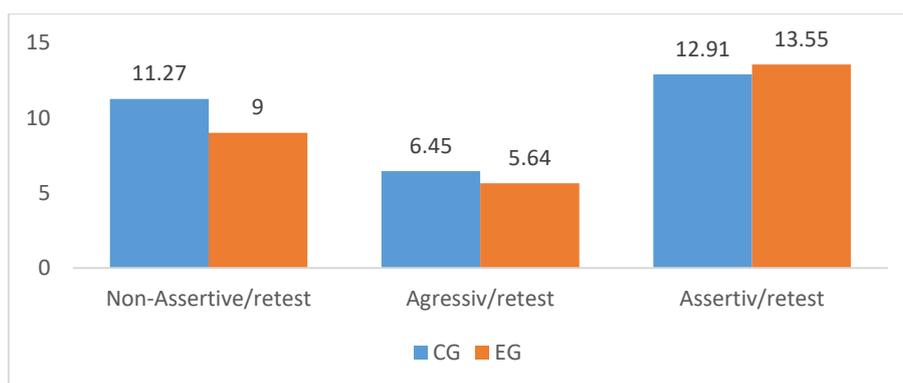


Figure 2. Results on EG and CG / retest communication styles

The results presented in Figure 2 illustrate statistically significant differences between CG and EG in the retest. Statistically significant differences were confirmed in the Non-Assertive, Aggressive, and Assertive communication style.

Table 2. Test U Mann Whitney communication style EG / CG-retest

	Non-Assertiv/retest	Agresiv/retest	Assertiv/retest
Mann-Whitney U	4.500	35.500	34.500
p	0.001	0.041	0.046

Through the U Mann Whitney test, the statistically significant difference was confirmed for the *Non-Assertive communication style* variable ($U = 4.50$; $p = 0.001$), for the *Aggressive communication style* variable ($U = 35.50$; $p = 0.041$), and for the *Assertive communication style* variable ($U=34.50$; $p=0.046$). Following the application of the training program, we determined that the incidence of the *Aggressive style of communication* with teachers is lower. Considering that the aggressive communication style involves the direct expression of their opinions, feelings, and needs in a way that can harm the dignity and rights of the interlocutors, and for teachers the target audience are students, we can see that they have become more tactical in communication oriented towards interlocutors. Teachers in the experimental group use criticism and threats less often, do not interrupt the interlocutor frequently, and take into account the opinions of others. The Assertive style registered a statistically significant increase. The *Non-assertive style* decreased compared to the pre-intervention data, so there is a positive dynamic in approaching teachers' communication styles.

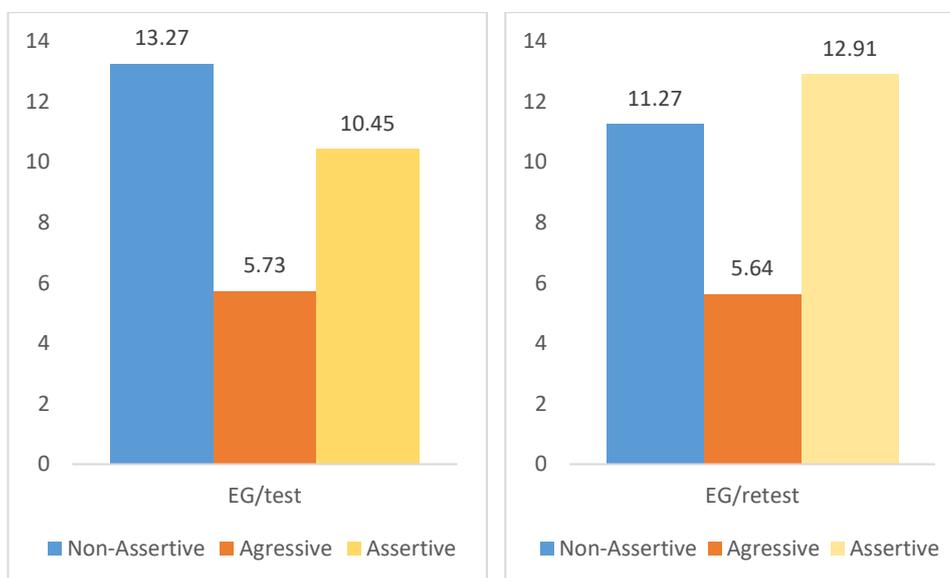


Figure 3. Results on communication styles to EG test and EG retest teachers

Comparing the results of the experimental group in the initial phase (test) and final (retest), we found an increase in values in the Assertive style (EG / test - M = 10.45; EG / retest - M = 11.27) and a decrease in values in the Non-Assertive style (EG / test - M = 13.27; EG / retest - M = 12.91). The analysis of the results by means of the Wilcoxon nonparametric test on communication styles in EG teachers in the test and retest stage showed statistically significant differences in these two communication styles: Assertive style $Z = -1.653$, $p = 0.048$ and Non-assertive style $Z = -0.954$, $p = 0.040$ (see table 3).

Table 3. Wilcoxon test for the variables investigated

EG/CG		Assertiv/retest - Assertiv/test	Agressiv/retest - Agressiv/test	Non-assertiv/retest - Non-Assertiv/test
CG	Z	-1.379	-0.142	-1.190
	p	0.168	0.887	0.234
EG	Z	-1.653	-0.209	-0.954 ^a
	p	0.048	0.834	0.040

The detailed analysis of the data included in figure 3 and table 3 indicates a slight decrease of the Aggressive style in the experimental group (EG), without registering significant differences. The result obtained by us indicates that long-term intervention is needed to model and reduce the aggressive style of communication.

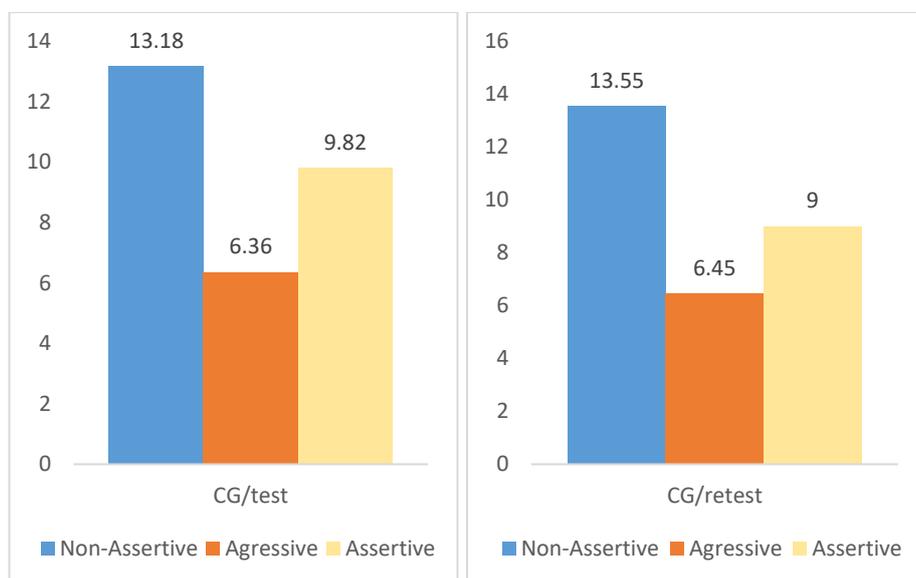


Figure 4. The results regarding the communication styles of the teachers from CG test and CG retest

The test-retest analysis, performed using the Wilcoxon nonparametric test to compare the distribution of ranks for paired samples, indicates that in the case of the control group (CG) no significant differences were obtained between the initial and final values for Assertive, Aggressive, and Non-Assertive communication styles. Teachers included in the control group, not being involved in the psychological intervention program, did not register changes in communication styles, thus experimental results were validated by the control group (CG) and by statistical data processing.

5. CONCLUSIONS

Among the teachers in the experimental group, there were significant increases in the assertive style. Thus, through the training experiment we managed to ensure through 12 sessions a significant change in the style of assertive communication. We also managed to reduce the non-assertive communication style, the teachers showing more involvement in the act of communication with students and colleagues. Working with irrational cognitions related to the fear of not being judged by others, including in assertiveness training, helped teachers in the experimental group to become more open to others, expressing their own opinions. Teachers who have followed the training program have highlighted a better level of acquisition in terms of effective communication as opposed to those teachers who did not participate.

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PERSONAL AUTONOMY IN THE EMERGING ADULT

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Abstract

This article presents the results of the process of increasing personal autonomy for emerging adults through group psychological interventions techniques. We presented, synthetically, some theoretical-conceptual aspects of the psychological construct of personal autonomy.

The research is part of a larger study that investigated the optimization of emerging adult behavior by improving maladaptive mental schemas. One of these schemas refers to the belief that the individual has a limited personal autonomy, and this belief materializes in behavioral self-limitations in a socio-professional context. Thus, 24 young people participated in a longitudinal experiment that aimed to demonstrate the effectiveness of psychological intervention programs in the development of autonomy and its dimensions, as conceptualized in the development of the Autonomy Assessment Questionnaire (Berar and Albu, 2006).

The research results have shown that participation in-group cognitive-behavioral psychological interventions can develop the levels of cognitive, behavioral, emotional and value autonomy. The research was conducted in the context in which one in four young people in Romania belong to the NEET category (neither in employment nor in education and training).

Keywords: *personal autonomy, emerging adult, personal development*

1. INTRODUCTION

The concept of personal autonomy has undergone over time several definitions that appeal to different constructs in psychology: personality trait, decision-making ability, free from influences self-government competence of the individual,

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cognitive skills congruent with one's personal values, or personal freedom. Reviewing the literature on personal autonomy, most references are the ones related to people with disabilities. The theoretical framework circumscribed to the concept of personal autonomy relates to heterogeneous domains and notions, which refer to choices and decision, freedom, independence versus separation, cause and determination, intentionality, and conditioning (Fischer, 2017), motivation, responsibility (Fisher, 2015), control versus self-control (Oshana, 2015), will and purpose (Darwall, 2006), or self against others.

Briefly, the autonomy refers to the individual's ability to act according to his own values and interests. The etymology of the word leads to the meaning of self-government in ancient Greek. Modern theories and practices strongly argue that individual autonomy is a desideratum, an individual value that must be promoted and respected. Psychologically, autonomy is made up of skills, abilities and attitudes that allow a person to govern itself. Relevant competencies refer to the abilities to reason, to evaluate different points of view, to debate with others various issues of interest to the person, having as result the freely manifesting of person's resolving ability (Buss and Westlung, 2018). In order to govern itself, the self-employed person must have a healthy sense of importance and self-worthiness, doubled by a good self-knowledge that can guarantee the quality and adequacy to reality of its personal decisions and actions (Radoilska, 2012).

The personal autonomy consists in the ability to control one's own life together with the feeling that there is the possibility to exercise this control. The definition integrates this way the concept of autonomy with cognitive and socio-emotional abilities. Berar and Albu (2006) also consider that personal autonomy is formed in ontogenesis through structural and functional assimilations and accommodations of the subject to the models and particularities of his living environment and which, as it is constituted, are expressed in attitudes and behaviors based on laws, rules, and values of their own.

Being theorized in this way, autonomy becomes an essential construct for developmental psychology. To be able to develop personal autonomy, the individual needs opportunities to consider significant alternatives for action, as well as the ways of thinking about what matters to himself. Oppressive or overly protective socio-familial attitudes, rigid hierarchies, and lack of meaningful choices makes the development of the autonomy difficult to develop, as well as the ways of acting and thinking in accordance with one's own interests and values.

Given these assumptions, we can say that while some circumstances support the development of autonomy, some others may undermine it. Without entering the similar controversies in the philosophical field related to the intellectual culture of ideas within contemporary liberal societies, the present research aims to investigate the extent to which autonomy and its dimensions can be developed by participating in a psychological intervention program to optimize self-behavior.

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVE

The main objective of this research is to determine whether a psychological intervention program can develop the global personal autonomy and its various dimensions: cognitive, behavioral, emotional, and valuable.

2.2. HYPOTHESE

The group psychological interventions with cognitive-behavioral methods and techniques can develop personal autonomy in emerging adults.

3. METHOD

The formative research was carried out with the participation of 24 people, aged between 23 and 26 years. Participants were divided into two homogeneous groups, Experimental Group (EG) consisting in 12 participants, 6 females and 6 males, and the Control Group (CG) consisting in 6 males and 6 females.

The selection criteria for participation in the group were: 1. an age between 23 and 26 years; 2. unoccupied for at least 12 months; 3. living together with and maintained by their parents or others (family, friends); 4. unmarried, no children; 5. students who have dropped out of 2 or more faculties in the past and attend another or students who have extended their studies by more than 2 years; 6. willingness to participate in the group intervention for 12 months, one weekend per month.

These criteria were established following the previous research and according to the principle of similarity of the problem area, in this case the difficulty of adaptation and social integration of the emerging adult.

The autonomy was investigated with the *Questionnaire for Assessing Personal Autonomy* (Berar and Albu, 2006).

To validate the working hypothesis, we performed statistical analysis in the IBM SPSS program.

The study is an experimental study, descriptive-inferential, conducted in a longitudinal manner and involved the following steps: initial application of the test of Autonomy, conducting group psychological interventions, reapplying the test of Autonomy to determine the effects produced by this emerging adult autonomy development program.

The obtained investigation was performed by comparing and highlighting the differences between: the young people in the control/retest group and the young people in the experimental/retest group; between the young people of the

experimental/test group and the young people of the experimental/retest group; between the adolescents of the control/test group and the adolescents of the control/retest group, thus following in parallel the evolution of the experimental group compared to the evolution of the control group.

4. RESULTS

The overall goal of the intervention group was to provide each member with support in emotional growth and personal problem solving, helping individuals to better understand the psycho-social context in which they find themselves, in conclusion to be able to make smarter, healthier, and more adaptive choices based on a deeper awareness of feelings, behaviors, reactions, and interpersonal patterns.

We assumed that these interventions would result, among other things, in the development of the level of autonomy and its dimensions conceptualized as follows:

- a. Cognitive autonomy materialized in the ability to reason independently, to think critically, to acquire knowledge and information, the ability to self-evaluate, the feeling of self-confidence, the belief in freedom of choice.
- b. Behavioral autonomy represented by the individual's ability to direct his behavior and to act according to his own decisions and choices.
- c. Emotional autonomy reflected in the individual's ability to form and express feelings independently.
- d. The value autonomy revealed by the individual's capacity to constitute his own set of beliefs, thoughts, and principles resistant to external pressures (exercised by people, cultural environment, and society in general).

Table 1. Means and standard deviations for Autonomy for research groups

Autonomy	MEAN (SD) EG N=12		MEAN (SD) CG N=12	
	test	retest	test	retest
Global	61.17 (10.2)	74.58 (10.5)	64.33 (10.5)	64.46 (10.7)
Cognitive	14.83 (3.9)	18.58 (3.8)	16.08 (3.8)	16.25 (4.09)
Behavioral	15.42 (2.3)	18.33 (2.4)	15.83 (2.1)	15.58 (2.5)
Emotional	16.34 (2.4)	19.42 (1.7)	16.5 (2.8)	16.8 (2.9)
Value	14.58 (2.6)	18.25 (2.3)	15.92 (3.6)	15.83 (3.8)

EG retest/CG retest. The Mann-Whitney U test shows that the level of Global Autonomy investigated with the Autonomy Scale is significantly lower in young people who participated in psychological intervention (EG) than in those who did not participate in intervention (CG) ($U = 28.5$, $N_1 = 12$, $N_2 = 12$, $p = 0.01$).

For the dimensions of Autonomy, we found significant differences between the results EG/retest and CG/retest for Cognitive Autonomy ($U = 29$, $N_1 = 12$, $N_2 = 12$,

$p = 0.012$), Behavioral Autonomy ($U = 20.5$, $N1 = 12$, $N2 = 12$, $p = 0.002$) and Emotional Autonomy ($U = 33$, $N1 = 12$, $N2 = 12$, $p = 0.024$).

For Value Autonomy, the difference between EG / retest and CG / retest is insignificant ($p > 0.05 = 0.347$), as shown in Table 2.

Table 2. Wilcoxon test for autonomy and its dimensions, GE/retest, and GC/retest

	Global Autonomy	Cognitive Autonomy	Behavioral Autonomy	Emotional Autonomy	Value Autonomy
Mann-Whitney U	28.500	29.000	20.500	33.000	55.000
Z	-2.518	-2.509	-2.996	-2.271	-.988
Asymp. Sig. (2-tailed)	.012	.012	.003	.023	.323
Exact Sig. [2*(1-tailed Sig.)]	.010 ^b	.012 ^b	.002 ^b	.024 ^b	.347 ^b

EG test/retest. The Wilcoxon test (difference in ranks for two pairs of samples) shows that the levels of manifestation of Autonomy and its size are significantly higher in young people who participated in the psychological intervention compared to the initial stage, as shown in Table 3 below.

1. Global autonomy ($Z = -3.069$, $\Sigma R + = 0$, $\Sigma R - = 66$, $p = 0.003$).
2. Cognitive autonomy ($Z = -3.075$, $\Sigma R + = 78$, $\Sigma R - = 0$, $p = 0.001$).
3. Behavioural autonomy ($Z = -3.093$, $\Sigma R + = 78$, $\Sigma R - = 0$, $p = 0.002$).
4. Emotional autonomy ($Z = -3.07$, $\Sigma R + = 78$, $\Sigma R - = 0$, $p = 0.002$).
5. Value autonomy ($Z = -3.065$, $\Sigma R + = 78$, $\Sigma R - = 0$, $p = 0.025$).

Table 3. Wilcoxon test for Autonomy and its dimensions, GE/test, and GE/retest

	Global Autonomy	Cognitive Autonomy	Behavioral Autonomy	Emotional Autonomy	Value Autonomy
Z	-3.069b	-3.075b	-3.093b	-3.070b	-3.065b
Asymp. Sig. (2-tailed)	.002	.001	.002	.002	.025

CG test/retest. The Wilcoxon test shows insignificant differences for CG in the test and retest stages, as shown in Table 4.

Table 4. Wilcoxon test for Autonomy and its dimensions, CG/test, and CG/retest

	Global Autonomy	Cognitive Autonomy	Behavioral Autonomy	Emotional Autonomy	Value Autonomy
Z	-.791 ^b	.000 ^c	-1.414 ^b	.000 ^c	-.378 ^b
Asymp. Sig. (2-tailed)	.429	1.000	.157	1.000	.705

5. CONCLUSIONS

In conclusion, we can say that the young people who participated in the intervention group registered an increase in the level of personal autonomy at global level and in its size, too.

In other words, the participants registered an increase in the capacity to act on their own behaviors, cognitions, feelings, and values. Thus, the participants significantly developed their set of skills and attitudes subsumed to the autonomy construct, as defined above.

Emerging adults who participated in the intervention program initially needed to increase their capacity for personal autonomy prior to make those decisions designed to decide for themselves a way forward in life, to embark on meaningful and valuable lives. One of the questions that the psychological intervention program had to answer was „*how can we support and improve the capacity to develop young people's autonomy?*”

Parents and educators obviously play an important role and we need to ask ourselves how they can be supported and activated. Reflecting on the significance of its root, autonomy is often seen as an individual matter. In fact, it develops in our relationships with others. Children and then young people are members of families, of schools and a part of a wider society. Everyone can play a role in encouraging the ability of children and young people to make good choices for themselves. Moreover, they all have a responsibility to challenge the factors that undermine their autonomy.

In its Greek etymology, autonomy means self-transcendence and is a term, which is synonymous with freedom, the individual freedom to make choices for himself and to go toward self-chosen direction. Paternalism is opposed to autonomy, understood as the refusal of the individual's autonomy for his own good.

Extrapolating and corroborating the research data gathered during the group psychological intervention, we can say that not only the autonomy of young people is a legitimate goal of them and society in general, but also the diminishing of the paternalistic attitudes of adults and awareness of the inherent damage must be an equally important desideratum.

Each generation has had its merits and shortcomings in social development, but the current figures are worrying. Against the background of the aging active population, we have a young generation that practically does not find its place in society.

Recent research suggests that psychological interventions in emerging age are more effective than those performed in the adolescence (Schuller et al., 2014). Antunes and Correia (2016) state the need for psychoeducational programs that encourage a sense of responsibility, autonomy and independent living. Arnett (2015) found significant results between well-being and autonomy, as did Joshanloo (2019), Jorgensen and Nelson (2018). Liga et al. (2018) states the role of the family in family development and support groups that can compensate families who have not encouraged families' efforts to develop autonomy. The study conducted by Boglut et. al (2016) confirmed the existence of bivariate correlation between personal development and positive relationship and personal development and self-acceptance.

Arnett and Tanner (2016), and Schoon and Lyons-Amos (2016) stated that there are three social institutions that mature young people through autonomous development: family, school and work. Munson et al. (2013), found, following the research, the need to study socially disadvantaged young people in order to understand the processes of emerging maturation, stating that studies were limited to students and people employed in the labor market.

In Romania, one in four young people does not have a job or study (so-called NEET - neither in employment nor in education and training). This trend was also registered at European level (with 8% in Sweden and 28.9% in Italy, according to Eurostat 2018). For the 25-29 age group, the general percentage is of 24.7%, but for the emerging adults in our study (20-24 years) the percentage is 68.4% (out of which 80% are female).

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