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Self-esteem and decision-making during adolescence

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Abstract. Cognitive flexibility plays an essential role in the decision-making process of adolescents, allowing them to generate alternatives for problem-solving and to manage them efficiently. Additionally, flexibility is associated with the ability to adapt to environmental changes and establish new goals based on external conditions. Moreover, adolescents' perception of their own capability can influence how they make decisions, as self-confidence and perception of their abilities can affect the outcome of their activities. Thus, self-esteem plays a crucial role in an individual's decision-making process. Individuals with high self-esteem are more likely to trust their abilities and make decisive and clear decisions. In contrast, those with low self-esteem may be less confident in decision-making and may be more affected by fear of failure or others' opinions. Additionally, the level of self-esteem can influence how a person evaluates the risks and rewards associated with different available options, which can lead to more conservative or daring choices. Therefore, developing and maintaining healthy self-esteem can significantly contribute to a person's ability to make effective decisions and pursue their goals and personal values consistently.

Keywords. Self-esteem, decision-making, adolescents.

1. Introduction

In the field of social sciences, self-esteem is an abstract concept that has been quantified through the overall assessment of significant personal traits and characteristics. It is a general affective evaluation of one's own worth, based on the assumption that measuring attitudes or evaluations towards oneself reflects self-esteem. This concept can also be referred to as self-respect or self-acceptance, all of which are compatible with the idea of "self-esteem" (Robinson, Shaver, & Wrightsman, 1991).

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"Self-esteem is a personality trait, in relation to the value that an individual attributes to himself. Along the lines of balance theories, self-esteem is defined as a function of the ratio between satisfied needs and the ensemble of felt needs. According to social comparison theories, it is defined as the result of the comparison that the subject makes between himself and other individuals significant to him" (Doron & Parot, 2006, p. 620).Self-respect or self-esteem, also known as the "immune system of consciousness," represents an essential emotional component of individual identity, involving both positive and negative evaluations of oneself. This process entails forming a unique perception of personal worth, which varies depending on the success or failure experienced in various life experiences. Self-esteem involves confidence in one's ability to make decisions and cope with challenges, along with the belief that the individual deserves to be happy and fulfilled as a result of their own efforts (Branden, 2008, p. 22).

Self-esteem begins to form as early as the first year of life and requires support from parents or adults in the child's life to develop in a healthy manner. Positive self-esteem is characterized by a sense of self-respect and confidence. Children facing low self-esteem may feel insecure and frequently experience negative emotions, especially after negative experiences. It is the duty of adults to recognize these signs of diminished self-esteem and support children in changing their negative attitudes towards themselves. Encouraging children to change negative thinking can help them feel valuable and have more confidence in themselves. Negative thoughts such as "I am not good at anything" or "nobody likes me" are common within children, and it is important for adults to support them in building or reinforcing self-esteem, so they perceive themselves as individuals with valuable personalities (Simion, 2008, p. 124).

Humanistic psychologists, including Carl Rogers, argue that the self represents the unique essence of the individual, an inner personality that cannot be observed from the outside without being fundamentally altered. Regarding the development of identity and self-esteem, Erikson is one of those who have investigated this subject. He argues that developing a solid identity helps individuals better understand the difficulties encountered in childhood and learn to cope with the challenges of adult life. During adolescence, individuals begin to shape their own identity but also face an internal struggle over this process, which can lead to a period of uncertainty and confusion. Puberty represents a crucial moment when these two aspects of identity are balanced, and how individuals manage this period can influence their long-term development. Properly addressing these fluctuations during adolescence is essential to avoid psychological disorders in adulthood. Building a solid foundation of self-confidence and protecting the self from the challenges of the past or future are important aspects in facilitating healthy individual development (Sion, 2003, p. 200).

In the latter part of adolescence, the aspiration for independence becomes predominant, manifested by opposition to norms, customs, and conventions, and seeking to define oneself in a constantly changing world. Adolescence is often associated with phenomena of revolution and non- conformism. Faced with social norms, adolescents may react either positively or negatively, which can create a sense of personality instability. It is important for parents to be aware of these aspects and support young people in their development, facilitating learning and healthy behaviors (Enachi & Pravițchi, 2020, p. 285).

The decision-making process involves a series of cognitive operations that lead to selecting an alternative from a range of available options. The earliest investigations into the decision-making field were conducted by mathematicians and economists, attempting to find strategies to

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optimize the decision-making process. Normative theories, such as expected value theory, expected utility theory, and game theory, tried to optimize the decision-making process by applying rigorous mathematical models. However, research initiated by Herbert Simon and further developed by Amos Tversky and Daniel Kahneman showed that decision-makers do not always approach the decision-making process in a strictly rational manner. Simon's theory of bounded rationality formed the basis for descriptive approaches to the decision-making process, demonstrating that decision-makers use heuristics and not always rational analysis in their choices (Miclea, Porumb, Cotârlea, Albu, 2009, p. 592).

Conceptualizing the decision-making process involves analyzing the set of mental and behavioral processes that individuals use, either voluntarily or involuntarily, to achieve their proposed goals. Research shows that compared to children and preadolescents, adolescents are more predisposed to establish multiple and flexible goals, to distinguish between suitable solutions based on desired objectives, to generate ideas and evaluate their effectiveness, using strategies to analyze the consequences of each option. They are also more capable of learning from past experiences and making effective decisions when they understand metacognitive factors that influence the quality of the decision-making process. Additionally, adolescents accumulate more knowledge and are better able to use it, as cognitive abilities and relevant self-control strategies crystallize during this period for decision-making (Spiță, 2020).

Investigating the decision-making process and the styles used to navigate complex or ambiguous situations is an important direction in psychological research, especially to ensure the functioning of individuals in the face of the continuous changes in everyday life. Through decision-making, adolescents offer themselves the opportunity to reduce uncertainty and establish how to react in a given situation. This action can be precisely defined as a process in which one of the multiple available options is chosen, thus providing the framework for developing a future course of action. Choosing an alternative involves mental selection and reinterpretation of subjective meanings. This choice can be guided by the intentional behavior of the individual or by the use of models and decision-making stereotypes implemented previously (Plesca, 2022).

Cognitive flexibility plays a crucial role in the adolescent decision-making process, allowing the generation of alternatives for problem-solving and control over them. Additionally, flexibility is associated with the ability to adapt to environmental changes and establish new goals based on external conditions. Moreover, the implicit assessment of one's own abilities can influence how adolescents make decisions, with self-confidence and perception of their abilities potentially influencing the outcome of activities. Thus, adolescents' perception of themselves as capable of constant learning and development can indirectly influence the process and outcome of decision-making (Plesca, 2022).

2. Research objectives

Objective 1: Exploring age differences in decision-making capacity.
Objective 2: Exploring gender differences in self-esteem.

3. The research hypotheses

Starting from the established objectives, we have formulated two hypotheses to subject them to experimental verification:

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Hypothesis 1 - It is presumed that there is a significant difference between the age groups of 16- 20 years and 21-25 years regarding decision-making capacity.

Hypothesis 2 - It is presumed that there is a significant difference between girls and boys regarding the level of self-esteem.

4. The participants' group

The participants' group represented in this study is a convenience sample, consisting of 46 subjects, 26 females and 20 males, aged between 16 and 25 years old, of which 33 have a stable urban residence and 13 have a stable rural residence. Among them, 21 are employed and 25 are still students or pupils. Regarding the highest level of education completed, 17 have completed middle school, 15 have completed high school, 3 have completed a post-secondary or vocational school, and 11 have completed undergraduate studies.

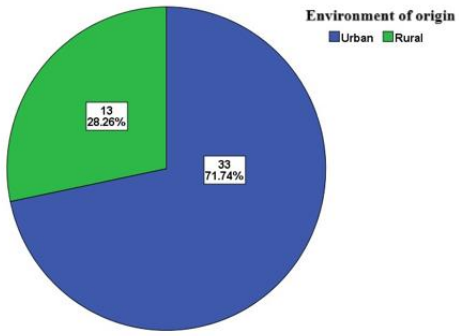

Figure 1. Gender Structure Diagram of Participants

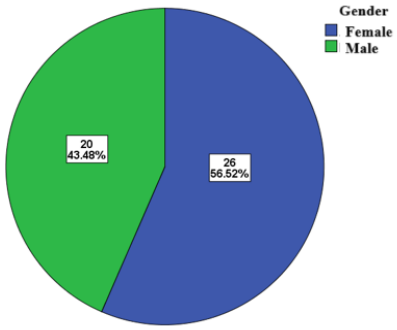

Figure 2. Structural diagram for the origin environment

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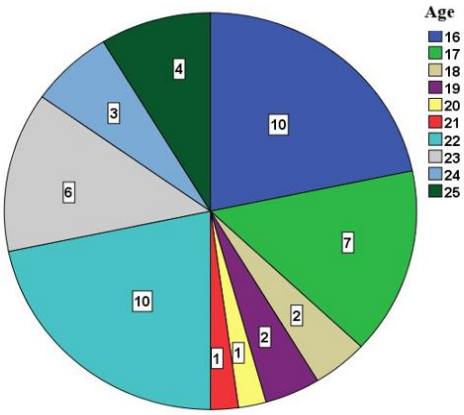

Figure 3. Age Structure Diagram for Participants

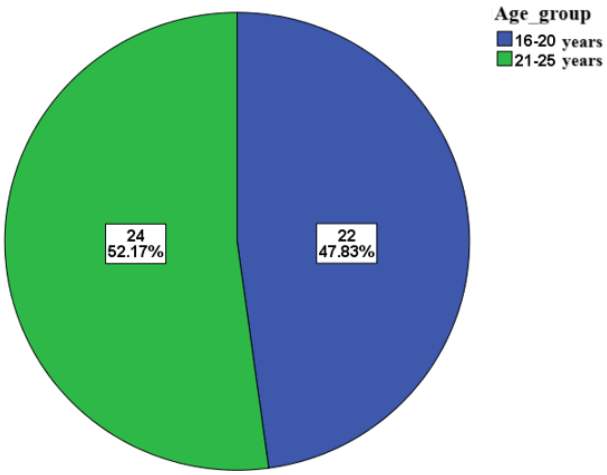

Figure 4. Age Category Structure Diagram for Participants

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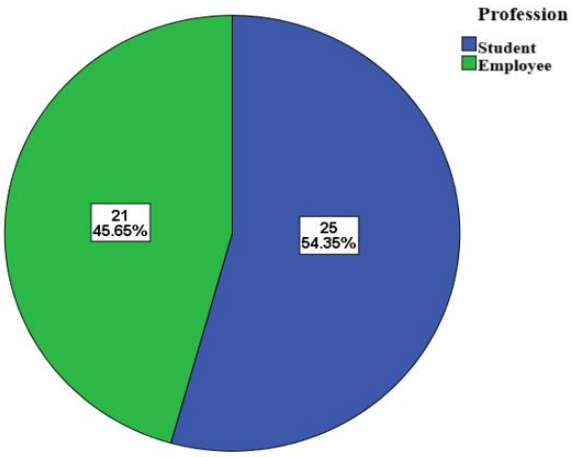

Figure 5. Occupation Structure Diagram for Participants

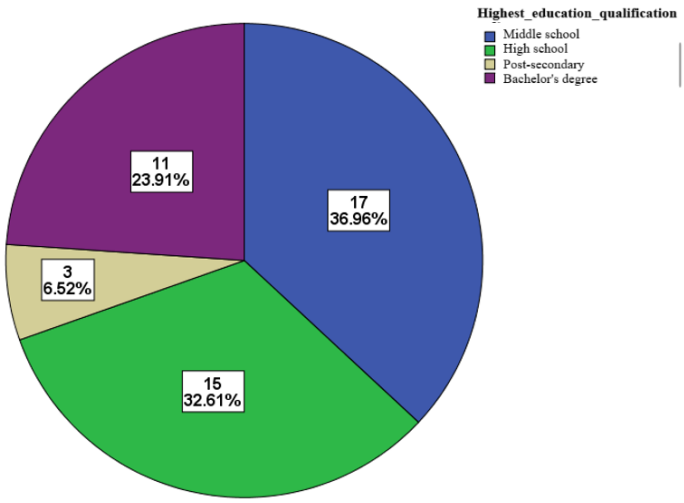

Figure 6. Structure Chart for the Last Level of Education Complete

5. The research instrument

The instruments used in this research are: Rosenberg Self-Esteem Questionnaire and the Decision-Making Capacity Assessment Test from the CAS++ Platform.

The Rosenberg Self-Esteem Questionnaire, also known as the Self-Esteem Scale (SES), consists of a series of 10 statements about self-esteem, to which participants must respond using a

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scale from 1 to 4, where 1 means "completely disagree" and 4 means "completely agree". The total score of the questionnaire can range from 10 to 40, with higher scores indicating a higher level of self-esteem.

The Decision-Making Capacity Assessment Test aims to assess the rationality of decision-makers. It includes 14 items describing decision-making situations and presenting the alternatives that subjects can choose from, constructed in the form of multiple-choice response situations.

6. Research design

The proposed methodological design is specific to qualitative research, analyzing the self-esteem and decision-making capacity of 46 subjects aged between 16 and 25 years old.

In this study, the questionnaires were administered using the online version, distributed through the Google Forms platform, on social media networks. It included an interview grid through which age, gender, background environment, highest level of education completed, and student/employee status were identified.

Subsequently, the obtained results were statistically processed using the SPSS statistical program by calculating normality using Tests of Normality, applying parametric and non-parametric tests, and correlational tests, followed by the psychological interpretation of the acquired data.

7. The ethical aspects of research

Participants in this research were fully informed about the reason, purpose, and objectives of the investigation, and were made aware of what the research would entail and what would happen to the data obtained.

We obtained their consent, therefore, we used the initials of each participant and their choice of two digits from their phone number, which were recorded to ensure the security of the data that led to participant coding.

The principle of maximizing benefits and minimizing risks/harm was respected. Invasive procedures that could physically or psychologically affect the study participants were avoided. Any participant had the right to request the deletion or cessation of processing of their personal data.

8. Results and Discussions

Hypothesis 1 - It is presumed that there is a significant difference between the age groups of 16- 20 years old and 21-25 years old regarding decision-making capacity.

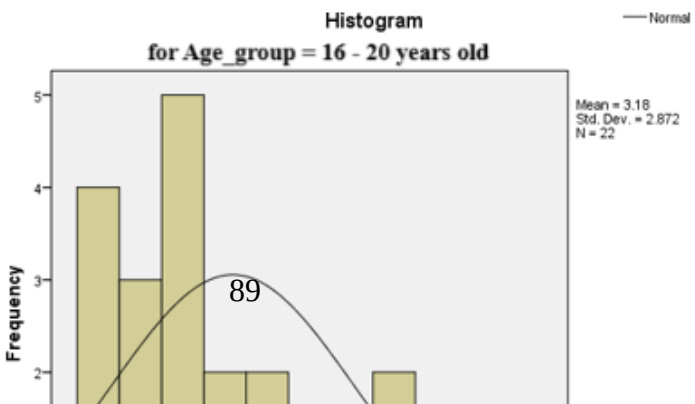

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Figure 7. The distribution of scores for decision-making capacity in the age group of 16-20 years old is as follow

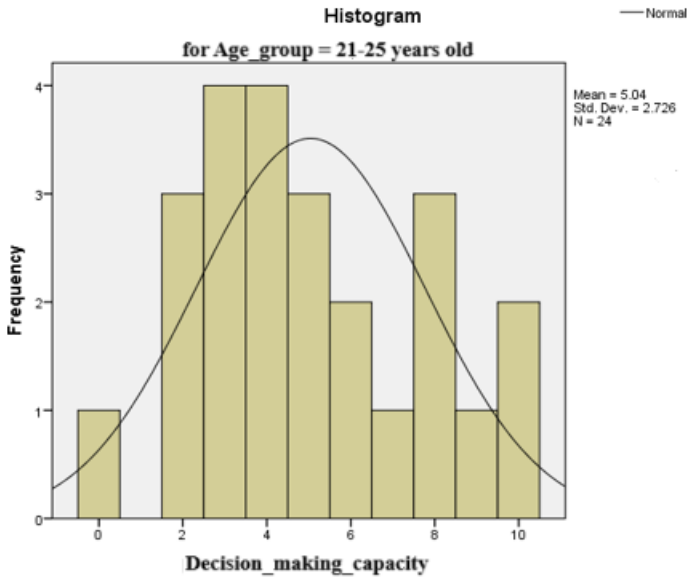

Figure 8. The distribution of scores for decision- making capacity in the age group of 21-25 years old is as follows

As we can observe in the histograms attached above, the distribution of scores for decision-making capacity in the age group of 16-20 years old is non-normal, with a mean of 3.18 (Fig. 7), while for the age group of 21-25 years old, it follows a normal distribution, with a mean of 5.04 (Fig. 8).

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To verify the normality and homogeneity of the data distribution, we will proceed with applying the Kolmogorov-Smirnov test.

Table 1. Normality Calculation for Decisional Capacity in Age Groups 16-20 Years and 21-25 Years

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Age_group	Statistic	df	Sig.	Statistic	df	Sig.
Decision_making_capacity	16 - 20	.205	22	.017	.899	22	.028
	21 - 25	.149	24	.181	.952	24	.295

a. Lilliefors Significance Correction

According to Table 1, following the normality test using the Kolmogorov-Smirnov test, the significance level is less than 0.05 for the 16-20 age group, and in the case of the 21-25 age group, it is also less than 0.05, indicating that non-normal distributions were obtained.

Following the verification of the normality of the data distribution, to test the validity of hypothesis 1, we applied a non-parametric testing method, namely the Mann-Whitney U test.

Test Statistics[a]

	Decision_making_capacity
Mann-Whitney U	156.500
Wilcoxon W	409.500
Z	-2.379
Asymp. Sig. (2-tailed)	.017

a. Grouping Variable: Age_group

Table 2. Statistical Test Calculation for Decision-Making Capacity by Age Groups

From Table 2, we observe that Sig. (2-tailed) has a value of 0.017. The obtained result is less than 0.05, which means that there are significant differences regarding decision-making capacity between the age groups of 16-20 years and 21-25 years.

Psychological interpretation of the data

The main aim of this hypothesis was to explore the differences between the age groups of 16-20 years old and 21-25 years old regarding decision-making capacity. Based on the comparison reported in this study, it appears that the 21-25 years old age group has a higher level of decision-making capacity than the 16-20 years old age group. These findings were consistent with previous research studies.

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In a study conducted in 2013, it was found that older participants demonstrated equal or superior decision-making performances compared to the younger ones in our group, showing a greater ability to delay gratification and a deeper understanding of financial aspects and debt management. Our conclusions regarding the capacity for delayed gratification are in line with other research highlighting that older adults exhibit higher levels of patience (Li, Baldassi, Johnson, Weber, 2013).

Worthy and Maddox implemented a dynamic decision-making task in which the reward was influenced by previous choices. According to the results, older adults excelled in this task compared to younger ones. Through the use of computational approaches, the authors demonstrated that this effect was generated by the tendency of older adults to rely on decision heuristics, such as the "win-stay, lose- shift" strategy, while younger adults preferred reinforcement learning (Worthy, Gorlick, Pacheco, Schnyer, Maddox, 2011).

Mata's conclusions suggest that older adults perform poorer in a probabilistic inference task compared to younger ones when the decision environment favors the use of a more cognitively demanding strategy. This is in line with the hypothesis that strategic cognitive processes related to planning are limited resources, especially in older adults. Overall, these results suggest that age-related difficulties in decision-making may depend on the complexity of the decision environment. Thus, older adults may perform well or even better than younger ones in tasks that favor the use of decision- making strategies with shorter time horizons, such as "win-stay, lose-shift", while they may encounter difficulties in decision-making when they need to rely on model-based strategic processes (Mata, von Helversen, Rieskamp, 2010).

A relevant reason for this phenomenon could be related to cognitive development and accumulated experience over a five-year interval. While adolescents aged 16 to 20 are still in the process of brain maturation and emotional development, young adults in the 21-25 age group have had the opportunity to accumulate more life experiences and test their skills in different contexts. This provides them with a more solid framework for decision-making, as they have had the chance to learn from mistakes and develop their critical thinking and analytical skills in a more complex and refined manner.

Hypothesis 2 – It is presumed that there is a significant difference between girls and boys regarding the level of self-esteem.

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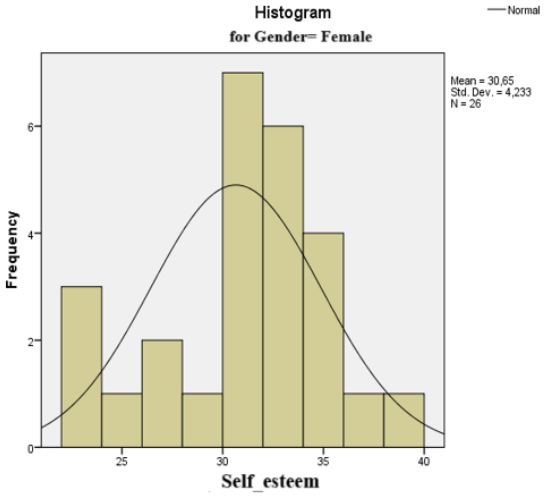

Figure 9. Distribution of scores for self-esteem for the female gender

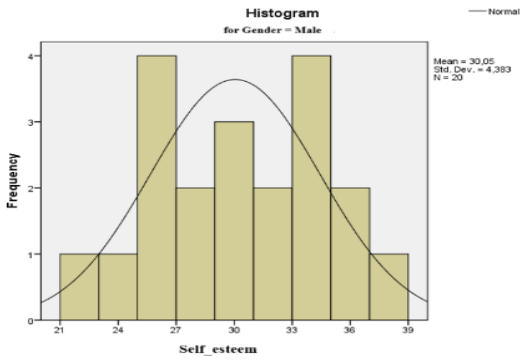

Figure 10. Distribution of scores for self-esteem for the male gender

As we can observe in the figures above, we have a normal distribution of scores on the self-esteem scale according to the gender of the subjects. For the female gender sample, we had 26 subjects and obtained a mean of 30.65 (Fig. 3), while for the male gender sample, we had 20 participants, obtaining a mean of 30.05 (Fig. 4).

To verify the normality and homogeneity of the data distribution, we will proceed to apply the Kolmogorov-Smirnov test. Following the normality test conducted using the Kolmogorov-Smirnov test, the significance level is > 0.05, indicating that both samples, for both genders, have a normal distribution.

Following the verification of the normality of the data distribution and the identification of normality in both samples, to verify the validity of hypothesis 2, we applied a parametric testing method, namely the T-test

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Table 4. Calculation of the T-statistic for self-esteem by gender

		Levene's Test for 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
Self_esteem	Equal variances assumed	,307	,582	,472	44	,639	,604	1,278	-1,973	3,180
	Equal variances not assumed			,470	40,284	,641	,604	1,284	-1,991	3,199

Independent Samples Test

As we can observe in Table 4, on the first row of the table, the significance coefficient Sig.(2- tailed) is > 0.05 (p = 0.639), indicating that there is no significant difference in self-esteem based on gender. Thus, the hypothesis is not confirmed.

Psychological Interpretation of Data:

In my view, adolescents are in a specific period of self-esteem development, where it fluctuates easily and is particularly influenced by external factors. Specifically, during the ages of 14-18, adolescents often emulate the lives of individuals admired by their peers without critically evaluating whether it is beneficial, real, or valid.

Studies in the literature have explored self-esteem between girls and boys, with findings indicating no significant differences between the two genders. Instead, adolescents with both high and low self-esteem have been identified. Those with high self-esteem are characterized by self-confidence, a positive self-image, self-acceptance, self-awareness, and the ability to assert themselves calmly in the face of criticism. On the other hand, adolescents with low self-esteem may exhibit shyness, frustration, and often aggression, making it challenging for them to integrate into peer groups.

Therefore, the statistical analysis conducted in this study using the Student's t-test did not establish statistically significant differences in self-esteem based on gender (Racu, 2021).

Another study conducted on preadolescents and adolescents analyzed data for preadolescents with low self-esteem, observing that these were roughly balanced between girls and boys. Regarding self-perception, the difference between boys and girls was insignificant, representing only 1.2%. Preadolescents primarily self-evaluate as physical entities, considering external aspects and forming a more or less objective and complete image of their own bodies. A child's self-esteem can be affected by both peer attitudes and excessive criticism from adults. Personal issues, inability to cope in certain situations, and lack of everyday skills can also influence a person's self-perception. Preadolescents with low self-esteem may be shy and excessively vulnerable, feeling uncomfortable in society and tending to withdraw. Studies have shown that low self-esteem can contribute to appetite disorders, depressive states, and the formation of unhealthy habits. These children are often avoided as leaders, rarely participate in school or community activities, and have difficulty expressing their own opinions and concerns. Such preadolescents may more frequently develop feelings of loneliness than others (Losîi, 2021).

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Other studies have identified a gender difference in self-esteem among adolescents, indicating that girls have lower self-esteem than boys. This is attributed to social pressure and gender stereotypes, with girls often being exposed to social pressures that affect their self-confidence. They may feel the need to conform to a standard of beauty, behavior, or performance, leading to the development of insecurities or doubts about themselves. Also, experiences that have affected them and have been subjected to abuse have led to the development of low self-esteem. Thus, the experiences that adolescents go through can leave emotional scars and influence their perception of their own worth (Secrieru, 2019).

The difference between the results of the studies encountered in the specialized literature is also given by the specificity of the adolescent period, representing a significant transition period between childhood and mature adult life, characterized by a series of physical, emotional, social, and cognitive changes, representing a crucial stage in individual development. Thus, during adolescence, individuals begin to explore and define their own identity, including their values, interests, aspirations, and preferences. This search for identity can sometimes be tumultuous from individual to individual, regardless of gender, and involves experimenting with different roles and identities, disrupting the level of self-esteem. Thus, there is no concrete pattern such as adolescent girls having low self-esteem or boys being more confident, as there are also studies showing that there are no significant gender differences in self-confidence, everything depending on their emotional changes, experiences, and social relationships encountered.

Conclusions

Following the applied questionnaire, the research objectives were achieved in this study. However, upon analysis, several differences were observed compared to existing studies in the specialized literature. These differences may arise from the convenience sampling method used and the small number of subjects who participated in this research. Another contributing factor could be the way the questionnaires were administered, with subjects being exclusively sampled online through surveys designed on Google Forms. Ideally, these surveys would have been conducted under the supervision of an objective observer, physically participating in activities aimed at achieving the research objectives, thus having the opportunity to analyze subjects over a longer period, thereby eliciting the most objective and genuine responses.

Self-esteem significantly influences an individual's decision-making capacity. Individuals with high self-esteem are more likely to trust their own abilities and make decisions with more firmness and clarity. In contrast, those with low self-esteem may be more insecure in decision-making and may be more affected by fear of failure or the opinions of others. Additionally, self-esteem can influence how a person evaluates the risks and rewards associated with different available options, potentially leading to more conservative or, conversely, more daring choices. Therefore, developing and maintaining healthy self-esteem can contribute to improving a person's ability to make decisions efficiently and in line with their own goals and values.

This decision-making process, within our sample, was found to be influenced by age. The difference in decision-making capacity between the age group of 21-25 and 16-20 can be attributed to the ongoing process of cognitive development and accumulated experience during these critical years. While adolescents are still in the process of forming their identity and exploring the world, older young adults have had the opportunity to accumulate experiences and

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learn from the consequences of their actions. As a result, they have gained more confidence in their critical and analytical thinking abilities, being more prepared to make informed decisions and manage life's challenges more effectively.

The absence of a significant difference between girls and boys regarding the level of self-esteem could be explained by cultural and social changes in recent decades, which have contributed to greater gender equality in opportunities and social expectations. In modern societies, girls and boys are similarly exposed to ideas and models of success, encouraged to develop their skills, and pursue their passions, and personal success is no longer exclusively associated with certain gender characteristics. Thus, young individuals of both sexes have equal opportunities to build healthy self-esteem based on their individual achievements and experiences, regardless of their gender.

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