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Regret Bias – Aversion in Latecomers

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Abstract

Studies indicate that cognitive biases, especially regret-aversion bias, which represents "making a decision to avoid making the same mistake for fear of facing the same loss," cause negative reactions from peers, especially new students. This phenomenon often leads to academically backward students withdrawing socially from the school environment. The study aimed to identify regret-aversion bias among academically backward students in high school, and the significance of differences in regret avoidance according to the variable of gender (males/females) and specialization (scientific/literary).

Keywords: *Regret, Motivation, School, Males, Females, Aversion.*

Introduction

To achieve the research objectives, the researchers constructed a scale for regret avoidance based on Kahneman's theory of regret avoidance bias. The scale in its final version achieved reliability coefficients of (0.82) using Cronbach's alpha coefficient and (0.80) using the retest method. The study sample consisted of 400 male and female students who were selected using a stratified random sample from various education directorates in Baghdad (the first, second and third Karkh directorates). The sample was classified according to gender (males/females) and specialization (scientific/literary). The data was analyzed using the Statistical Package for the Social Sciences (SPSS), and the researchers achieved the following results:

1- There is no statistically significant difference in regret-aversion bias according to the gender variable, as the calculated p-value reached (0.32), which is less than the tabular p-value of (3.84) at a significance level of (0.05) and a degree of freedom of (1-396).

2- There is no statistically significant difference in regret-aversion bias according to the branch variable, as the calculated p-value reached (0.99), which is less than the tabular p-value of (3.84) at a significance level of (0.05) and a degree of freedom of (1-396).

3- There is no significant interaction between the variables (gender and branch), as the calculated p-value reached (0.20), which is less than the tabular p-value of (3.84) at a significance level of (0.05) and a degree of freedom of (1-396).

The problem of academic backwardness is one of the most important modern problems that worry educators, parents and students themselves, as it is a source of hindering growth and progress in a renewed life. The student's feeling of failure in his studies may affect his low self-confidence and his feeling that he is not qualified to successfully face the requirements of life,

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which causes him to misadapt with new peers. It is one of the most important problems that hinder the school's progress and prevent it from performing its mission in the most complete manner. It is also one of the factors of cultural and educational backwardness. It is also one of the problems that threaten the safety of society, dissipate much of its human and material wealth and hinder its progress (Binet et.al, 1905, p. 191).

Methodology and Importance of the Article

Researchers have differed in their definition of the meaning of academic delay, due to the criteria on which the concept is built. Some associate delay with intelligence, others with the ability to achieve academically, and others with intelligence and achievement together. Academically delayed students suffer from behavioral problems and psychological disorders such as the emergence of feelings of frustration that accompany the behavior of such students, which appear in the form of aggressive behavior of others against peers, deviating from the system, and other behaviors such as anxiety, depression, withdrawal, etc. Academically delayed students may suffer from a state of aversion to education and school, and sometimes undesirable behaviors including aggression and psychological disorders such as the emergence of feelings of frustration, failure, failure, failure, jealousy, and isolation, which causes them to have a bias of experienced regret and an expectation of aversion to continuing learning (Al-Sharqawi, 1997, p. 256).

From the above, we can say that the case of academic delay appears when the student cannot reach the average level of normal students in the same age group due to the influence of a group of factors that may be mental, physical, social, emotional, etc., and among the factors causing the problem of academic delay that students may suffer from are organic diseases and the tiring psychological factor caused by the mistreatment of one of the faculty members and the student's hatred of the subject matter as well as the factor of poverty and material need and the factor of social upbringing and family disintegration and the student's preoccupation with work in order to raise the standard of living and also poor time management and organization and ignorance of study methods and frequent absence. All of these factors causing academic delay to have personal repercussions including regret, oppression, aversion, regret, isolation, hostility and inferiority complex and social repercussions including deviation towards crimes such as theft and assault and may reach drug abuse. Students who are academically delayed respond faster than others to these matters because of their feeling of failure and inability to continue studying and achieving and it has effects on the state's policy in the educational aspect.

The problem of academic delays is one of the problems that has been of interest to educational scientists and psychologists for a long time and is still considered one of the most important modern problems that worry educators, parents and students themselves, as it is a source of hindrance to growth and progress for a renewed life. The student's feeling of failure in his studies may affect his low self-confidence and his feeling that he is not qualified to face the requirements of life successfully, which causes him to misadapt with new peers if his weakness appears clearly in his studies when compared to other normal students of his chronological age (Barakat, 2005, p. 45).

The problem of regret-aversion bias in a person affects his decisions and choices due to the concern of feeling failure and regret later when making a certain decision. He may tend to avoid options that he fears will lead to regret in the future, even if those options are the best rationally. Fear of loss occurs, which makes individuals averse to reducing the possibility of regret. For example, an individual may avoid risking a high-return financial investment for fear of losing

money and feeling regret. Regret-aversion bias aims to reduce the emotional pain resulting from making wrong decisions, which is mainly related to how the prior expectation of potential regret affects decision-making. People who show regret avoidance avoid taking decisive action because they fear that, in retrospect, any path they choose will prove to be less than ideal. It is a cognitive phenomenon that often arises in risk-averse individuals, causing them to hold on to the loss for a long time to avoid admitting mistakes (Pompian, 2006, p. 211).

Where the individual tends to choose between several alternatives for behavior and that the behavior he chooses is the behavior that he expects to receive its returns and describes a negative emotional bias that pushes individuals to the regret-aversion bias, which may sometimes lead to making wrong decisions (Tversky, and Kahneman, 1979, p. 263).

Late achievers may feel anxious about being rejected by others to deal with and interact with them. Through the experiences that an individual goes through in life, he expects acceptance from a certain group or is rejected by that group. Through the researcher's work as an educational counselor, she felt that some students have a sensitivity to rejecting and accepting social relationships through conducting a survey study. The researcher sought; through a survey she conducted on Al-Karkh schools:

Is it possible to study the regret-aversion bias among academically backward students through a survey study and what the researcher felt that they have problems and biases, especially regret-aversion, and by directing a survey question to a sample of students that reached 80 academically backward students, where two questions were directed (Do you suffer from rejection by new students and why? Have you experienced regret and aversion that affected making new decisions). Through the students' answers, the researcher decided to study these two variables.

Based on the above, the problem of this research is determined by answering the following questions: Do students who are academically behind have a regret-aversion bias?

Importance of Research

The concept of regret-aversion bias has attracted the attention of researchers because it affects people who feel regret when they discover that their decisions were wrong, even if they seemed correct based on the information available beforehand. The term regret-aversion bias is used to describe a feeling of sadness or disappointment because of something that was done or not done. Sadness may arise from comparing the actual outcome to the alternative outcome, and also from feelings of responsibility or self-blame for the disappointing outcome (experienced regret). Bell, Loomis, and Sugdon (1982) indicated that regret is the most relevant emotion in the context of decision-making. Of course, there are other emotions that are relevant to decision-making, such as anxiety, fear, happiness, and euphoria. However, these emotions may occur in the absence of a decision as well, because they are related to aspects of outcome or uncertainty. Regret-aversion bias is directly related to the choice or decision at hand (Zeelenberg and Pieters, 2004, p. 35).

Loomes and Sugden (1982) suggest that people who make decisions under uncertainty may feel regret if their decision turns out to be wrong, even if it seemed right based on the information available in advance. This intuitive assumption follows that a person's utility function must depend, among other things, on the outcomes of the unchosen options, which are in this respect irrelevant (Loomes, Sugden, 1982, p. 55).

The importance of studying regret-aversion bias lies in that it helps improve the decision-making process and helps develop critical thinking skills so that all objective options are analyzed

instead of avoiding them due to fear of regret or loss. The importance of studying regret-aversion bias also helps improve performance in business management, marketing, personal relationships, and improving public policies and decisions that encourage people to follow a successful lifestyle in the academic field. Zeelenberg's study (1999) concluded that the expected utility of any option depends on calculating the pain and pleasure associated with the results of that option. Regret theory differs from expected utility theory in that the expected utility of an option also depends on the regret that a person may feel when comparing the results of this option with the results of the rejected option. People feel regret when the result of the rejected option is better, and joy when the result of the rejected option is worse (Zeelenberg, 1999, p. 14).

Tversky and Kahneman (1979) showed in prospect theory that losses and gains are evaluated differently based on a reference point and thus individuals make their decisions based on perceived gains and how the fear of regret affects their choices, most notably loss aversion, also known as loss aversion theory, which an individual tries to avoid at all costs. The general idea is that if an individual is presented with two equal options, one presented in terms of potential gains and the other in terms of potential losses, the individual will tend to choose the option presented in terms of gains (anticipated regret), which reflects individuals' loss-avoidance bias, where the pain of a loss is greater than the pleasure of achieving similar gains. Prospect theory describes how individuals make decisions when choosing between probable alternatives that involve risks (anticipated regret), where the probability of different outcomes is unknown (Tversky, and Kahneman, 1979, p. 263).

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Sample, Methodology and Procedures:

First: Research methodology: The researcher adopted the descriptive approach as it is the appropriate research approach for the nature of the research and its objectives.

Second: The research community refers to all the components or units of the phenomenon that comprise the research and is defined as "all the individuals who carry the data of the phenomenon that is being studied in the research." Therefore, it is a complete group of individuals and numbers that the researcher wishes to study (Al-Tamimi, 2009, p. 96).

The current research includes male and female high school students who are academically behind in their studies, in both specializations (scientific and literary), for morning studies, for the academic year (2024-2025).

Specialization	**Sex**	**Total**

	Males	**Females**	
Scientific	152	69	221
Humanities	81	98	179
Total	**233**	**167**	**400**

Third: Arctic Research:

After determining the research community, it was necessary to select the research sample in order to analyze the paragraphs and extract the psychometric properties to build the regret-aversion bias scale that was used in the current research.

1- **Survey sample:** The research scale was applied to a survey sample of (50) individuals, who were randomly selected as (25) males and (25) females.

2- **Construction sample:** This sample was selected using a stratified random sample with proportional allocation, according to the gender and academic achievement variables. Because the research community consists of (males - females), Nunnally (1978) set a criterion that determines the sample size necessary to achieve the correct structure, which is that the number of sample members should not be less than (10-5) times the number of paragraphs (Awda and Khalil, 1988, p. 178), which is the criterion that the researcher adopted in determining the size of the construction sample, and the construction sample consisted of (400) individuals for both males and females, as shown in Table (1).

To meet the requirements of the current research, there had to be a tool to measure (regret-aversion bias), and for that it was necessary to construct a regret-aversion bias scale (Tversky and Kahneman, 1979). The following is a description of the procedures that were carried out for each scale separately:

The current research is limited to students who are academically behind in the Karkh region (the first, second and third Karkh directorates) in Baghdad for morning studies (males - females) and specializations (scientific - literary) for the academic year 2024-2025.

Define terms

Regret-aversion bias:

It is known as the desire of individuals to avoid choices to which they may show negative reactions after making the decision, even if those choices may come with potential rational benefits (Samuelson, 1937, p. 65).

Vroom (1964) defined it as: a cognitive bias that causes individuals to make decisions aimed at reducing the potential regret associated with making a bad choice (Vroom,1964, p. 54).

Tversky and Kahneman (1979) defined it as: the tendency of individuals to make decisions aimed at reducing the likelihood of feeling regret in the future. This bias arises from the anticipation of emotional discomfort when realizing that an alternative choice could have led to a better outcome (Tversky, and Kahneman, 1979, p. 67).

Loomes and Sugden (1982) defined it as: The tendency of individuals to make decisions that are designed to reduce the likelihood of experiencing regret in the future. Or it is the process by which it influences decision making. This bias refers to the tendency of individuals to avoid decisions or choices that may lead to regret later. (Loomes and Sugden, 1982, p.12)

Yohson (2008) defined it as: It is a decision to avoid the same mistake due to the fear of facing loss in the person, as people avoid making certain decisions, not because they are necessarily wrong or inappropriate, but for fear of the possibility that they will lead to negative results that make them feel regret (Yohson, 2008, p. 34).

Michael Pompian (2012): People avoid making decisions that could lead to negative outcomes, even if these decisions may have benefits, and prefer to choose safer options, even if they are less profitable, in order to avoid feeling regret later (Pompian, 2012, p. 23).

Theoretical definition: The researcher adopted the definition of Tversky and Kahneman (1979) which states that (the tendency of individuals to make decisions aimed at reducing the likelihood of feeling regret in the future) and this arises from an attempt to avoid the emotional pain of regret associated with making bad decisions. People who avoid regret try to avoid the distress resulting from errors of action and errors of omission and anticipate emotional discomfort when realizing that an alternative choice could have led to a better outcome) based on their theory called prospect theory (Tversky, and Kahneman, 1979).

The operational definition of regret-aversion bias is the total score that the respondent obtains on the instrument used in the current research to measure regret-aversion bias among academically backward students.

Theoretical Framework:

First: Regret-Aversion Bias

-Cognitive biases

Cognitive biases, sometimes called cognitive biases, are systematic tendencies or tendencies in human thinking and reasoning that often conflict with the principles of logic, probability, or reasonableness. These automatic and unconscious tendencies form the basis of human judgments, decision-making, and the behavior that results from them. Psychological frameworks explain these biases as a result of the use of inappropriate cognitive strategies (mental shortcuts) that people resort to to deal with limited data or information processing capabilities, or due to lack of experience. In contrast, neuro-evolutionary frameworks provide a deeper explanation for these biases, as they consider them to result from the intrinsic properties of the design of our brains as neural networks that were developed primarily to perform basic physical, cognitive, and motor functions, and to enhance survival (Al-Tayeb, 2020, p. 96).

First: Regret-Aversion Bias

Regret bias is a type of cognitive bias that affects our decisions and choices due to the concern of feeling regret later when making a certain decision. We may tend to avoid choices that we fear will lead to regret in the future, even if those choices are the best rationally. Fear of loss occurs, which makes people averse to reducing the possibility of regret. For example, a person may avoid risking a high-return financial investment for fear of losing money and feeling regret.

Regret avoidance bias is an aversion that aims to reduce the emotional pain of making bad decisions. It is primarily concerned with how the anticipation of potential regret influences decision-making. People who exhibit regret avoidance avoid taking decisive action because they fear that, in retrospect, any course they choose will prove to be less than ideal. It is a cognitive phenomenon that often arises in risk-averse individuals, causing them to hold on to loss for too long to avoid admitting mistakes (Pompian, 2006, p. 211).

The individual tends to choose between several alternatives for behavior and the behavior he chooses is the behavior that he expects to receive the most reward from. Kahneman and Tversky classified the regret-aversion bias as a concept within the prospect theory introduced by Daniel Kahneman and Amos Tversky in 1979 and describes a negative emotional bias that leads individuals to a regret-aversion bias, which may sometimes lead to making wrong decisions (Tversky, and Kahneman, p. 263).

Loomes and Sugden (1982) presented a model of regret-aversion bias based on two basic assumptions: first, that many people experience emotions known as regret and elation (experienced regret); and second, that in making decisions under uncertainty (anticipated regret) they try to anticipate and take these emotions into account. In other words, regret theory assumes that agents are rational but that they base their decisions not only on expected returns but also on anticipated regret. On this basis, Loomes and Sugden (1982) do not claim that acting according to their theory is the only rational way to act, nor do they suggest that all individuals who act according to their theory must violate conventional expectations. Rather, they challenge the idea that conventional expectations constitute the only acceptable basis for rational choice under uncertainty. Regret theory suggests that individuals focus not only on the actual outcome of their choices, but also on the outcomes that could have been achieved had they made different decisions. If the actual outcome is worse than the possible alternatives, the person feels regret, and if it is better, he feels satisfaction (Loomes and Sugden, 1982, p. 19).

In general, the term regret-aversion bias is used to describe a feeling of sadness or disappointment as a result of something done or not done. Sadness may arise from comparing the actual outcome with an alternative outcome, as well as from feelings of responsibility or self-blame for the disappointing outcome (experienced regret). According to Bell et al. (1982), regret appears to be the most relevant emotion in the context of decision-making. Of course, there are other emotions that are relevant to decision-making, such as anxiety, fear, happiness, and euphoria. However, these emotions may occur in the absence of a decision as well, because they are associated with aspects of outcome or uncertainty. Regret, on the other hand, is directly related to the choice or decision at hand (Zeelenberg and Pieters, 2004, p. 35).

The term "regret-aversion bias" is used to describe the feeling of regret experienced after deciding that later turns out to be a bad or at least inferior decision, which leads to people being reluctant to make decisions. Regret avoidance focuses primarily on how the anticipation of potential regret affects the decision-making process. People who exhibit regret-avoidance behavior avoid or tend to be reluctant to make critical decisions because they fear that, over time, the choice they made will turn out to be less than ideal. This cognitive phenomenon often arises in individuals who tend to have a regret-aversion bias, which leads them to hold on to losing positions for a long time to avoid admitting mistakes and realizing losses. Regret avoidance also makes people feel excessively anxious about entering into new experiences in which they may be exposed to losses, so they tend to be reluctant to make new decisions. (Pompian, 2006, p. 66)

Third: Daniel Kahneman and Amos Tversky's 1979 theory (Prospect theory)

Prospect theory came after expected utility theory had long been the dominant model for decision-making under uncertainty, both normatively and descriptively. However, this theory has been heavily criticized in recent years for not providing an adequate description of individual choice, as a large body of evidence shows that decision-makers regularly violate their basic principles. Based on this empirical challenge, several alternative models have been proposed, including a choice theory called prospect theory of Tversky and Kahneman (1979), which

explains major violations of expected utility theory in choices between profitable offers that contain few outcomes.

Regret-aversion bias is a concept within prospect theory introduced by Daniel Kahneman and Amos Tversky in 1979. It describes a negative emotional bias that leads individuals to regret-aversion, which can sometimes lead to poor decisions. Prospect theory assumes that losses and gains are evaluated differently based on a reference point and thus individuals make their decisions based on perceived gains and how the fear of regret influences their choices. The most prominent of these is loss aversion, also known as loss aversion theory, which the individual tries to avoid at any cost.

The general idea is that if an individual is presented with two equal options, one presented in terms of potential gains and the other in terms of potential losses, the individual will tend to choose the option presented in terms of gains (anticipated regret) (Tversky, and Kahneman, 1979, p. 266).

This reflects individuals' loss-avoidance bias, where the pain of a loss is greater than the pleasure of a similar gain. Prospect theory describes how individuals make decisions when choosing between probable alternatives involving risk (anticipated regret), where the probability of different outcomes is unknown. This theory was first formulated in 1979 and further developed in 1992 by Amos Tversky and Daniel Kahneman. It is considered a more psychologically accurate description of how decisions are made than expected utility theory (Tversky, and Kahneman, 1979, p. 263).

Prospect theory shows that people do not always act rationally when faced with risks but are influenced by concepts such as loss aversion and outcome framing, which lead to obvious behavioral biases that influence their decisions such as regret-aversion bias. The basic explanation for individuals' behavior according to prospect theory is that choices are considered independent and individual. It is assumed that the probability of achieving a gain, or a loss, is 50/50, regardless of the actual probability presented. In essence, the probability of achieving a gain is perceived as greater than the loss, as Amos Tversky and Daniel Kahneman (1979) suggested.

Losses have a greater emotional impact on individuals than gains of equal value, so when options are presented that are equivalent but presented in two different ways one focuses on potential gains and the other on potential losses, individuals tend to choose the option that offers the perceived gain (anticipated regret). This reflects the phenomenon of loss aversion, where people are more sensitive to losses, preferring to avoid them rather than seeking similar gains. The theory suggests that people do not focus on outcomes but rather consider future feelings such as regret, so risk aversion does not occur, as fear of regret prevents them from choosing the more daring option (Tversky, and Kahneman, 1979, p. 268).

Prospect theory also suggests that individuals tend to prefer certainty over probability. It also asserts that people tend to underestimate (or even ignore) outcomes with low probability. As a result, they also tend to overestimate the likelihood of more likely events, leading to a bias that ignores unlikely outcomes. Understanding probability theory can help individuals overcome their biases and make more rational decisions. For example, an individual who is aware of his or her bias toward high-probability events can compensate for this by paying extra attention to low-probability events. Kahneman's research suggests that people anticipate feeling regret in advance and try to avoid it, which makes them more conservative in making decisions. This

anticipation can lead to less effective or less profitable decisions. He also suggests that people evaluate gains from losses relative to a reference point. If the outcome is lower than the reference point, it is considered a loss even if it is not an actual loss, leading to the regret aversion bias. Reframing potential outcomes in a way that reduces the influence of cognitive biases also helps. Instead of thinking in terms of gain or loss, one can think in terms of the expected value of outcomes (anticipated regret), without using the current situation as a reference point.

This approach can reduce individuals' loss aversion bias. In this way, individuals become more focused on objective probabilities and outcomes rather than being influenced by emotions that may distort decision-making as a result of regret-aversion bias (Tversky, and Kahneman, 1992, p. 297).

The main elements of probability theory are:

-The value function is concave for gains, convex for losses, and steeper for losses than for gains. This interpretation highlights the difference in how people evaluate gains and losses, with the effect of loss being more pronounced and stronger than the effect of gain itself, which contradicts the traditional assumptions made by expected utility theory (Camerer, 1989, p. 76).

-Nonlinear bias of the probability scale, which refers to the tendency in thinking or behaving when the relationship between inputs and outputs is not linear or direct, which enhances small probabilities and underestimates medium and high probabilities. To be a new representation called the dependent order theory or cumulative function, which transforms cumulative probabilities rather than individual probabilities (Quiggin, 1982, p. 44)

Prospect theory is used to understand how individuals make decisions in the presence of risk and uncertainty. It is an evolution of traditional expected utility theory and improves some of the criticisms of ignoring actual behavior of individuals, particularly the tendency to make decisions that are not consistent with traditional rational assumptions. Prospect theory (Tversky and Kahnkman 1979) is based on the notion that individuals do not evaluate probabilities in the same way as traditional theory assumes. Instead, they “re-rank” probabilities according to their subjective perception, and then evaluate options based on these adjusted estimates (Cramer, 1989, p. 34).

Regret-Aversion Bias Scale

The researcher constructed the regret-aversion bias scale by reviewing the theoretical framework and previously prepared studies, including the theory of Kahneman and Tversky (Tversky, and Kahneman, 1979). In order to construct the regret-aversion bias scale, the researcher took the following steps:

Collection of Items of the Regret-Aversion Bias Scale

The researcher constructed (33) paragraphs with five-point alternatives that apply to (always, often, sometimes, rarely, never) as in Appendix (1) by using Kahneman and Tversky’s theory. The researcher adopted the Likert Method in constructing these paragraphs, and each paragraph had five alternatives for the answer in order to reduce the effect of the factor (social desirability), which represents the individual’s tendency to answer the paragraph in a socially desirable way (Faraj, 2007, p. 120).

Scale Instruction Numbers

The researcher was keen to ensure that the instructions for the Regret-Aversion Bias Scale were accurate and clear when presented to the respondents, with the importance of the response expressing their personal opinions without being influenced by the opinions of others.

Show the Tool to the Judges

After the scale instructions and their (31) paragraphs were formulated, they were presented after their initial formulation to a group of specialists and arbitrators (Appendix (2)) in psychology by setting the approved theoretical definition and type of sample and requested their opinions and comments on the scale paragraphs to demonstrate their effectiveness in measuring what they were designed for. The researcher adopted a percentage of (80%) as a minimum for accepting the paragraph and its validity. The researcher found that all paragraphs of the regret-aversion bias scale had obtained the approval of the arbitrators, and the approval percentage was (100%).

Survey Study

The researcher clarified the concept of the paragraphs and explained them in a simplified manner, and they were answered smoothly. The time to answer the scale ranged between (10-5) minutes.

Scale Paragraph Analysis

After completing the correction of the (400) questionnaires, the total score for each questionnaire was calculated (using the SPSS statistical package) and the invalid ones were excluded due to inaccuracy in the answer and some paragraphs were left. The researcher followed a number of methods in the analysis process, which are as follows:

Two-Party Method

The researcher adopted the two-party group method, as shown in Table (2).

	Group	Mean	Standard Deviation	Calculated t-value	Significance
1	High	3.85	1.05	8.11	Significant
	Low	2.64	1.15		
2	High	4.34	1.02	9.71	Significant
	Low	2.77	1.34		
3	High	3.6	1.27	5.15	Significant
	Low	2.65	1.44		
4	High	3.65	1.19	8.19	Significant
	Low	2.27	1.28		
5	High	3.56	1.29	8.48	Significant
	Low	2.13	1.19		

6	High	3.62	1.2	4.83	Significant
	Low	2.79	1.33		
7	High	4.34	1.17	10.69	Significant
	Low	2.5	1.36		
8	High	4.06	1.1	11.56	Significant
	Low	2.25	1.21		
9	High	4.04	1.1	8.15	Significant
	Low	2.62	1.43		
10	High	4.3	1.03	13.57	Significant
	Low	2.23	1.2		
11	High	4.39	1	3.24	Significant
	Low	3.88	1.29		
12	High	2.01	1.34	2.99	Significant
	Low	1.52	1.06		
13	High	3.73	1.2	5.78	Significant
	Low	2.77	1.24		
14	High	4.25	1.05	5.6	Significant
	Low	3.32	1.36		
15	High	3.92	1.38	3.69	Significant
	Low	3.15	1.67		
16	High	2.84	1.58	5.27	Significant
	Low	1.8	1.33		
17	High	3.93	1.16	2.43	Significant
	Low	3.51	1.36		
18	High	3.81	1.34	6.89	Significant
	Low	2.55	1.34		
19	High	3.8	1.24	4.42	Significant
	Low	3	1.4		
20	High	4.28	0.99	5.4	Significant
	Low	3.42	1.33		
21	High	3.65	1.26	7.52	Significant
	Low	2.32	1.33		

22	High	3.68	1.15	3.47	Significant
	Low	3.06	1.42		
23	High	4.41	1.03	9.89	Significant
	Low	2.75	1.4		
24	High	4.55	0.8	6.43	Significant
	Low	3.58	1.33		
25	High	4.23	0.98	5.93	Significant
	Low	3.27	1.37		
26	High	4.44	1.01	8.77	Significant
	Low	2.94	1.47		
27	High	4.51	0.86	4.3	Significant
	Low	3.84	1.36		
28	High	3.68	1.3	7.91	Significant
	Low	2.28	1.3		
29	High	3.87	1.14	6.38	Significant
	Low	2.8	1.32		
30	High	3.39	1.55	5.66	Significant
	Low	2.25	1.4		
31	High	4.12	1.1	7.54	Significant
	Low	2.85	1.36		

Table (2): Discriminatory Power of the Regret-Aversion Bias Scale Using the Two Extreme Groups

From the above table, it is clear that all paragraphs are distinct because their calculated T-values are higher than the tabular T-value of (1.96) at the level of (0.05) and a degree of freedom of (214).

The relationship between the item score and the total score of the scale (item validity).

To achieve this, Pearson's correlation coefficient was used to extract the correlation between the score of each paragraph of the regret-aversion bias scale and the total score of (400) questionnaires. When balancing the correlation values with the tabular correlation coefficient value of (0.098) at the level of (0.05) and a degree of freedom of (398), it became clear that all correlations were statistically significant, and Tables (3) illustrate this.

Paragraph	**Correlation Coe**	**Significance**	**Paragraph**	**Correlation Coe**	**Significance**	**Paragraph**	**Correlation Coe**	**Significance**	**Paragraph**	**Correlation Coe**	**Significance**

	ffici ent			**ffici ent**			**ffici ent**			**ffici ent**	
1	0.46	Sign ifica nt	9	0.41	Sign ifica nt	17	0.16	Sign ifica nt	25	0.38	Sign ifica nt
2	0.49	Sign ifica nt	10	0.55	Sign ifica nt	18	0.34	Sign ifica nt	26	0.45	Sign ifica nt
3	0.3	Sign ifica nt	11	0.32	Sign ifica nt	19	0.28	Sign ifica nt	27	0.29	Sign ifica nt
4	0.41	Sign ifica nt	12	0.16	Sign ifica nt	20	0.33	Sign ifica nt	28	0.41	Sign ifica nt
5	0.41	Sign ifica nt	13	0.33	Sign ifica nt	21	0.4	Sign ifica nt	29	0.3	Sign ifica nt
6	0.31	Sign ifica nt	14	0.36	Sign ifica nt	22	0.24	Sign ifica nt	30	0.28	Sign ifica nt
7	0.49	Sign ifica nt	15	0.23	Sign ifica nt	23	0.47	Sign ifica nt	31	0.4	Sign ifica nt
8	0.51	Sign ifica nt	16	0.31	Sign ifica nt	24	0.34	Sign ifica nt			

Table (3): Validity of The Items of the Regret-Aversion Bias Scale Using the Method of the Relationship Between the Item Score and the Total Score

The Relationship Between the Domain Score and the Total Score and the Domain Score and the Domain Score of the Regret-Aversion Bias Scale:

This was achieved by finding the correlation between the scores of the sample individuals within each domain of the scale and the total score of the regret-aversion bias scale, as well as the relationship of the domain to the domain. It became clear that the correlation coefficients were statistically significant when they were compared with Pearson's tabular value of (0.098) at the level of (0.05) and a degree of freedom of (398), and Table (4) illustrates this.

Domain	**Experienced Regret**	**Anticipated Regret**	**Regret-Aversion Bias**
Experienced Regret	**1**	**0.54**	**0.86**

Anticipated Regret	**---**	**1**	**0.89**

Table (4): Validity of the Regret-Aversion Bias Scale Using the Relationship of Domain Score to Total Scale Score and Domain to Domain

Exploratory Factor Analysis of the Regret-Aversion Bias Scale:

Factor analysis aims to determine whether there are one or more clusters of tests in which respondents perform relatively similarly. The number and composition of clusters are determined by the correlations between all pairs of tests (Crocker and Algina, 2009, p. 382), meaning determining the number of common factors that contribute to explaining the pattern of correlations between different pairs of tests in a group of tests. A common factor is a latent or unobserved variable that links the scores of two or more tests. The relationship between test scores and scores on the common factor is referred to as test saturation with the specific common factor (Crocker and Algina, 2009, p. 406). The value of the Kaiser-Meyer-Olen test reached (0.79) compared to (0.50) cut-off score, which is higher than the cut-off score, indicating that the size of the research sample is suitable for factor analysis.

Paragraph Sequence in the Scale	Factor 1	Factor 2	Factor 3
1	0.47		
2	0.57		
3	0.43		0.32
4	0.44		0.33
5	0.58		
6	0.4		
7	0.57		
8	0.61		
9	0.46		
10	0.69		
11	0.57		
12	0.47	-0.45	0.3
13	0.53		0.42
14		0.4	
15		0.51	
16	-0.38	0.38	
17		0.31	
18		0.5	0.36
19		0.36	0.33
20		0.36	
21	0.3	0.4	
22	0.43	0.53	-0.36
23		0.33	
24		0.4	
25	0.56		

26	0.35		
27	0.43	0.65	
28	0.35	0.5	0.39
29		0.44	
30		0.31	
31	0.35	0.45	

Table (5): Factor Matrix for the Regret-Aversion Bias Scale After Rotation

From the table above, it is clear that the result of the exploratory factor analysis of the regret-aversion bias scale produced two factors, and that these two factors explain (20.41%) of the total variance, and that the first factor represents (experienced regret) and paragraphs (1-13) are saturated on it, and the second factor represents (anticipated regret) and paragraphs (14-31) are saturated on it, and thus the scale was considered constructively valid and the number of paragraphs of the scale is (31) paragraphs in its final form.

Descriptive Statistical Properties of the Regret-Aversion Bias Scale

After applying the two scales of regret-aversion bias to the research sample members, numbering (400) of the late students, the researcher obtained a number of statistical indicators shown in Table (6). Since the distribution of the sample members' scores on the scale was a moderate distribution, Figure (1-2) if the skewness values were within a standard range (±1.96) (Cleophas, 2017, p. 107), the researcher resorted to using parametric statistical methods to statistically analyze her research data.

Measure /Indicators	**Regret-aversion bias**
Mean	104.8
Median	107
Mode	103
Standard Deviation	14.92
Skewness	-0.44
Kurtosis	1.92
Minimum	34
Maximum	139

Table (6): Descriptive Statistical Properties of the Regret-Aversion Bias Scale

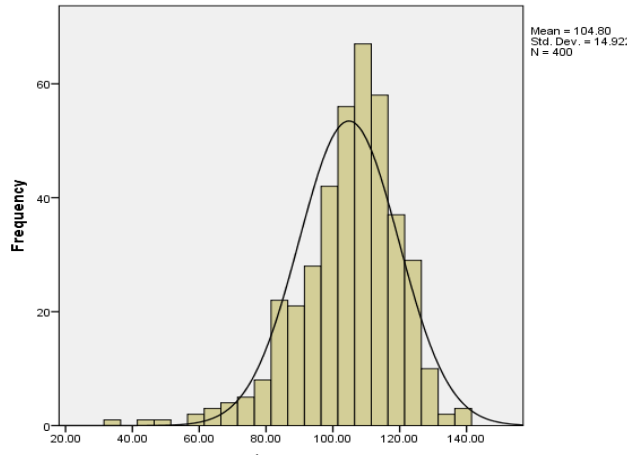

Figure No 2: Regret-Aversion Bias

Presentation and Discussion of Results

Objective (1): To identify the regret-aversion bias among academically backward students.

To achieve this goal, the regret-aversion bias scale was applied to the research sample of (400) academically backward female students. The results showed that their average score on the scale was (104.8) degrees with a standard deviation of (14.92) degrees. When comparing this average with the hypothetical average of the scale, which was (93) degrees, and using the t-test for one sample, it was found that the difference was statistically significant and in favor of the arithmetic average, as the calculated t-value was higher than the tabular t-value, which was (1.96) with a degree of freedom (399) and a significance level of (0.05), and Table (8) shows this. The hypothetical average for the (regret-aversion bias) scale was extracted by adding the weights of the five alternatives of the scale and dividing them by their number, then multiplying the result by the number of paragraphs of the scale, which was (31) paragraphs.

Sample Size	Mean	Standard Deviation	Hypothetical Mean	Calculated t-value	Critical t-value	Degrees of Freedom	Significance Level
400	104.8	14.92	93	15.82	1.96	399	Significant

Table (8): T-Test For The Difference Between the Sample Mean and the Hypothetical Mean for the Regret-Aversion Bias Scale

The results of Table (8) indicate that the research sample has a high level of regret-aversion bias.

Objective (2): To identify differences in regret-aversion bias according to gender and branch variables.

To achieve this goal, the researcher used the two-way Anova analysis to identify the significance of the differences in regret-aversion bias according to the variables of gender and branch, and Tables (9) illustrate this.

Variables	Count	Mean	Standard Deviation
Male Scientific	152	103.47	16.71
Male Literary	81	105.73	14
Total Males	233	104.26	15.83
Female Scientific	69	105.06	14.89
Female Literary	98	105.91	12.62
Total Females	167	105.56	13.57
Total Scientific	221	103.97	16.15
Total Literary	179	105.83	13.22
Total	400	104.8	14.92

Table (9): Arithmetic Means and Standard Deviations of the Regret-Aversion Bias Scale According to Gender And Branch Variables

Source of Variance (S.O.V)	Sum of Squares (S.O.S)	Degrees of Freedom (D.F)	Mean Squares (M.S)	F-value	Significance (Sig)
Gender	71.339	1	71.339	0.32	Not Significant
Branch	221.002	1	221.002	0.99	Not Significant
Gender * Branch	45.223	1	45.223	0.2	Not Significant
Error	88,385.86	396	223.197		---
Total	4,482,064	400			---

Table (10): Results of the Two-Way Analysis of Variance to Detect the Significance of Differences In Regret-Aversion Bias According to the Variables of Gender And Branch

The results of Table (10) indicate the following:

4- There is no statistically significant difference in regret-aversion bias according to the gender variable, as the calculated p-value reached (0.32), which is less than the tabular p-value of (3.84) at a significance level of (0.05) and a degree of freedom of (1-396).

5- There is no statistically significant difference in regret-aversion bias according to the branch variable, as the calculated p-value reached (0.99), which is less than the tabular p-value of (3.84) at a significance level of (0.05) and a degree of freedom of (1-396).

6- There is no significant interaction between the variables (gender and branch), as the calculated p-value reached (0.20), which is less than the tabular p-value of (3.84) at a significance level of (0.05) and a degree of freedom of (1-396).

Recommendations

Based on the findings of regret and aversion bias among academically backward students, the following recommendations can be made to help these students overcome the challenges they face:

1. Providing psychological and emotional support

Providing psychological counseling sessions: Individual or group counseling sessions should be provided to help students deal with feelings of regret and failure and enhance their self-confidence.

2. Promoting positive thinking: Encouraging students to focus on solutions instead of focusing on past mistakes, and training them on stress management techniques

3. Improving the educational environment and providing a supportive environment where the school environment should be free of negative criticism and ridicule and promoting a culture of learning from mistakes.

4. Enhancing the role of the family

Awareness of families: Providing workshops for parents on how to support their children psychologically and academically without pressuring them. Continuous communication between the school and the family: Establishing effective communication channels between teachers and parents to follow up on students' progress and provide the necessary support.

5. Training teachers

Training teachers to deal with late students: Providing teachers with educational methods that help them understand the needs of late students and provide appropriate support.

6.Reducing social stigma:

Promoting a culture of cooperation: Encouraging teamwork among students to create a supportive educational environment instead of a competitive one. Student Awareness: Organizing awareness activities to reduce the stigma associated with academic delay and promote acceptance of differences among students.

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