

Avoiding information and its relationship to confirmation bias

Hoda Mohamed Ezz El Din El Moussaoui, Sanaa Issa Muhammad Al-Daghestani

Department of Psychology, Baghdad University, College of Arts

Abstract

The current research aims at identifying information avoidance and confirmation bias among university students based on gender connotation as well as the nature of the correlation between information avoidance and confirmation bias and the extent to which confirmatory bias contributes to the avoidance of information. The current research sample consisted of 400 students, 200 male students, and 200 female students, selected from three colleges randomly. To achieve the objectives of the current research, Kate Sweeney's Information Avoidance theoretical model (2010) was relied on to explain information avoidance, and Tagfel's social categorization theory (1976) to explain confirmation bias. The researcher also prepared an information avoidance scale after reviewing the approved theory and previous studies, and a confirmatory bias scale after reviewing the approved theory and previous studies. The researcher analyzed the paragraphs on the research scale according to two methods (the two extreme groups as well as the method of internal consistency). The reliability coefficient of the information avoidance scale using the re-test method was (0.81), and the reliability coefficient of the Cronbach's alpha method was (0.68), while the reliability coefficient of the confirmatory bias scale was (0.74), and it reached the Cronbach's alpha method (0.78). The current research reached the following results:

1. University students have a statistically significant avoidance of information.
2. A- There is a statistically significant difference in avoiding information according to the gender variable in favor of males.

B- There is no statistically significant difference in avoiding information according to the specialization variable.
3. They have a confirmation bias at a statistically significant level.
4. A. There is no statistically significant difference in the confirmation bias according to the sex variable.
B. There is a statistically significant difference in the confirmation bias according to the specialization variable and in favor of the scientific branch.
5. The statistical treatment indicated that there is a direct correlation between information avoidance and confirmation bias.
6. Confirmation bias has a direct, statistically significant contribution to information avoidance.

Chapter one

Research problem

Avoiding information is a defensive mechanism to prevent getting more information. Research shows that avoidance of information is a defensive reaction that occurs when people expect that information will lead to unwanted feelings, challenge prior perceptions, or threaten a person's current chosen behavior (Howell, 2015, p.13). Since human life consists of continuous and

sequential decision-making, then this avoidance can lead to weakness in the decision-making process of individuals. This avoidance occurs when people expect to learn certain information that may undesirably affect their emotions, beliefs, and perceptions, or threaten their behavior, optimism in life, and self-image (Golman et al., 2017, p. 96)). Sweeney divided information avoidance into two types, active avoidance, and passive avoidance, while Coleman (Golamn, 2017)

sees avoiding information as complete avoidance of available information that causes a threat.

Oster et al., 2013 note that people are afraid to learn information about themselves, in their study, they found that only 7% of individuals at risk of developing Huntington's disease choose to know whether they have this condition, despite the availability of free genetic testing as well, but individuals avoid testing. Confirmatory bias is one of the first documented sources and the longest-running study of error judgment. It appeared in the bias literature from the 1950s and in the social behavior literature in the 1960s and 1970s, and it is the strongest and most prevalent of all cognitive biases. In general, confirmation bias is an information-seeking strategy that is motivated by prior beliefs (Ellis, 2018, p.116).

Confirmation bias appears from being directly affected by a desire or belief, and when people want to prove the truth of a particular concept or idea, they end up believing in the truth of that idea, and here they stop collecting information or evidence that does not prove the truth of this idea. Besides, confirmation bias also manifests among people who remember or collect information selectively or interpret it in a biased manner, as this has a stronger impact on emotionally governed issues and deeply entrenched beliefs (Heshma, 2015, p.2). The world has also become more complex as a result of the challenges posed by information and communication technology. The success in facing these challenges depends on how knowledge is used and applied. The process of selection and decision is one of the logical mental processes that follow a path that starts from identifying the problem to reaching a solution. The human mind faces many obstacles that affect life, including affirmative bias. It distorts our thoughts and beliefs and overestimates the validity of our decisions (Passer et al., 2008, p.316). It is an obstacle in the decision-making process when a substitute chooses a person who conforms to his or her views and beliefs and is often unreasonable and may be bad or wrong. This bias may be a disadvantage if the individual is raised to solve problems and make useful decisions (Raheem, 2011, p. 206). When bias affects individuals, the problem escalates, as the mind produces biased ideas that individuals and groups take, and their decisions are poorly established. Confirmation bias does not only affect the individual level, but also

the collective level, which in turn has a clear impact on society. Thus, the problem of current research is reflected in answering the following question: What is the correlation between information avoidance and confirmation bias within a certain demographic framework represented by university students?

The research importance

Human thought is ancient and its beginnings go back to the times of human paradigms that disappeared thousands of years ago. These models have evolved organically continuously and have helped them to acquire higher mental abilities (Al-Daghistani, 2017, p. 17). Also, when the brain becomes more and more sophisticated, the actual decision-making policy of human life is used to achieve many tricks (Dawkins, 2009, p. 88). Interest in the knowledge aspect has become one of the features of this age, as we now live in the information age, with an increasing abundance of data, and with the presence of the Internet, available information is available at the touch of a button (Addison, 2017, p. 3). More information means better knowledge and better decisions. However, economic psychology and behavioral sciences indicate that people often do not live up to this ideal, are unwilling to seek information, and may even avoid it. According to behavioral economist George Loewenstein, pleasures and pains are “in the mind.” People are motivated to hold certain beliefs and leave others because they feel satisfied or conform to those beliefs they choose because they give them “meaning about the world” (Samson, 2017, p.5). Seeing avoidance as a feature of an individual has roots in 1980 when psychologists interested in dealing with behaviors developed a relevant classification that addresses the emotional component of threatening information. Information-seeking techniques have been described as either monitoring or blunting, and individuals who have to cope tend to avoid or distract themselves from threatening information in the environment (Case et al., 2005, p.355). Studies have focused on avoiding information as it is part of everyday life, and it is a conscious choice or reaction to the flow of information in everyday life. Thus, avoiding information may be a conscious decision or automatic reaction as people seek and acquire information to reduce uncertainty or make sense of their world. In mass media,

people look for sources of information or at least pay some attention to them. This assumption is deeply ingrained in Western culture, since the time of Aristotle who noted that “all human beings, by nature, desire knowledge” before (around 330 BC) and for this reason, perhaps, the focus of research has always been on the search for information. Many models have also emerged that explain the process of searching for information (for example, the Ellis model, the Colthau model, and the Wilson model), and these models do not consider that the search for information may not occur in cases where people admit their ignorance of a subject. Information seeking is a natural aspect of humans but it has long been observed that people may deliberately avoid information if the attention would cause them mental discomfort or cognitive dissonance (Case et al., 2005, p. 354).

In the field of information science, Savolainen (2007) hypothesizes that people avoid unnecessary or negative information by filtering or withdrawing from a situation in their daily lives, he described filtering as weeding material deemed useless while withdrawal indicates the need to protect oneself from over-providing information. (Fisher et al., 2005) noted that individual coping methods as suggested by (Miller, 1987) in confrontation, which means (the individual's confrontation with information related to his problem) and the response, which means (the avoidance of threatening information or attempts to distract the individual to himself to avoid challenges). These are important aspects of behavior with information. In the economic sphere, it has been noted that people are often unwilling to learn information that can be painful. For example, (Sicherman et al., 2016, p. 870) explain that investors are less likely to log into their stock portfolios on days when the market is low, i.e. when they expect to notice losses in their investments. Research has indicated that avoidance of unwanted new information occurs in cases of depression and stressful life situations and even those that may be positive (such as romantic relationships, marriage, having children, etc.) which can lead to mental health problems, making it difficult to deal with new, unwanted information. Similarly, research on ego depletion indicates that self-control is a limited resource so dealing with one situation makes it difficult to

respond successfully to another. On the other hand, people with several spheres of their lives may be more willing to deal with threatened information than people with limited bands. Research on self-complexity shows that people who can handle many aspects of the self (such as social roles, activities, goals, etc.) are less likely to experience negative stress outcomes in life. Stress in one area is assumed to cause fewer problems in general when people realize success but can cause many problems when people realize that they have little or no success. People with limited resources for adaptation show greater avoidance of unwanted information than people with more resources for adaptation (Sweeny et al., 2010, p. 345). A study conducted by Kim (2019) also found to identify the relationship between information avoidance and bias in beliefs that individuals always strive to maintain a positive self-image and this is due to the benefit of the (Ego Utility). For example, in the field of mental health, individuals fear stigma, refuse to acknowledge depression or any other symptoms, and walk away from any real diagnosis of their condition. Individuals showed positively biased self-assessment and are less willing to receive diagnostic information compared to information that makes a diagnosis against them. Depressed individuals may run into denial and avoid treatment altogether. Confirmation bias is one of the most important cognitive biases that have a clear and very influential impact on human life, and the importance of studying the concept of confirmation bias is that knowledge of its existence and understanding it may help the individual to improve decision-making and make judgments objectively. When people with opposing opinions interpret new information in a biased way, their views can further disintegrate and this is called attitudinal polarization (Khun & Lao, 1996, p.115). At the group level, confirmation bias can lead to and maintain “groupthink,” and in a culture of groupthink, decision-making can be hampered by assuming that group consistency and cohesion are the two most important values for success. This reduces the possibility of disagreement within the group, but it may increase the difference between groups, which in turn leads to fanaticism in all its forms, ethnic fanaticism, and religious and sectarian fanaticism. This bias is expressed in the tendency to seek information that confirms a person's

(negative) viewpoint while ignoring alternative information that challenges the current viewpoint (Dibbets & Meesters, 2022, p. 2327). The importance of theoretical and applied research is that it is one of the important research with a cognitive trend that reveals weaknesses in individuals' cognition, which may affect several joints of life, social, personal, and health, as it is a scientific and cognitive addition since there are a few studies on avoiding information among the youth group (Karim et al.2019, p.3). In response to this research gap, this study explores the avoidance of information among young people in the context of daily life, as this segment is important in society and the university is one of the mainstays on which the progress and development of society are based. It is responsible for meeting its needs of manpower equipped with intellectual and technical skills that respond to the premises of comprehensive development and human education psychologically and socially. Also, the community leaders in various fields are university graduates, as far as these universities can teach and educate people to use the scientific method in solving problems, making decisions, and adapting to developments, the more society advances and develops (Boutana, 1988, p. 68). Young people are the main actors in the information age (Oktem et al., 2014, p.1925). Since students at different levels of education are the subject of the educational process and the basis of its existence, identifying the problems they face in their academic and social lives is one of the priorities of educational work. These students need continuous follow-up and care to raise them to high levels. They are the basic building block of societies, as they are the leaders of the future. Therefore, the importance of the research from the theoretical point of view includes shedding light on the concepts of information avoidance and confirmation bias and enriching the theoretical side in them, and bridging the gap between the concepts of information avoidance and confirmation bias to enrich the scientific library in this field, and highlighting the most important factors affecting information avoidance and confirmation bias among university students, and addressing the differences between university students in avoiding information and confirmation bias according to the variables of gender and specialization, in addition to the importance of

studying the variables of avoiding information and confirmation bias, as they are social, cognitive and psychological variables that have been studied globally. It is also possible to reach a theory that contributes to explaining human behavior in general and biased individuals in their search for information in particular. As for the importance of the research from an applied point of view, it includes studying the variables of research among university students, since there are only a few studies that focused on the youth category, and the study will reveal how people avoid information and why avoidance is sometimes part of their methods in dealing with others in addition to giving explanations for biased thinking in young people's search for information, which helps to formulate guiding methods within universities to move away from the biased view and provide a scientific tool to detect individuals with information avoidance and confirmation bias. It also works on developing and modifying behavior in societies in general, developing thinking and moving away from the prejudices of the youth group in particular.

Research objectives

The current research aims to identify:

1. Avoiding information among university students.
2. Confirmation bias among university students.
3. Significance of Differences in Avoidance of Information According to:
 1. Gender (male, female).
 2. Specialization (scientific - humanitarian).
4. Significance of differences in confirmation bias according to:
 1. Gender (male, female).
 2. Specialization (scientific - humanitarian).
5. The nature of the correlation between information avoidance and confirmation bias.
6. The extent to which confirmation bias contributes to information avoidance.

The research limit

The current research is limited to the students of the University of Baghdad, Al-Mustansiriya

University, and Aliraqia University of both sexes covering the scientific and humanitarian disciplines, except for graduate and evening studies students. The research variables are determined by information avoidance, confirmation bias, gender, and specialization in 2022-2021.

Terminology identification

First: Information Avoidance

Sweeny (2010) defined it: as behavior intended to prevent or delay the acquisition of available and potentially unwanted information. This avoidance can be either active or passive (Sweeny et al., 2010, p.341).

(Gotebiewska, 2018) defined it as the behavior of the individual to avoid exposure to information when he knows that the information is available and he has the freedom to choose to access or avoid that information (Gotebiewska et al., 2018, p.522).

Second: Confirmation Bias

Tajfel (1969) defined it: It is a cognitive bias in perceiving others based on social classification. This means the perceptual classification of individuals into groups that leads to what is within the group being preferred, and that what is outside the group is not preferred and confronted with prejudice and intolerance (Tajfel, 1982, p.112).

(Ardi, 2021) defined it: It is the mental tendency to support information that confirms initial assumptions and preconceptions rather than to explore information in a more scientific, objective, and impartial manner (Ardi et al., 2021, p.1).

Chapter two

Information avoidance

The concept of information avoidance was introduced by researcher Sweeny (Sweeny et al., 2010) and defined as "a behavior aimed at preventing or delaying the acquisition of available and potentially unwanted information." Avoiding information may entail asking someone not to disclose the information, leaving a situation to avoid learning the information, or simply not taking the necessary steps to disclose the content

of the information. Sweeny's model of information avoidance focuses on immediate decisions about information (ie, seek now or avoid now), as Sweeny divided information avoidance into two types, active and passive, and represented avoidance of information in the form of a terminal chain. Active Information Avoidance is at one end, On the other hand, passive information avoidance. At the active end of the chain, people can avoid unwanted information through verbal or physical actions: such as looking the other way, turning off the television or radio, or asking someone with undesirable information not to disclose it. Avoiding negative information means the failure of people to make the necessary effort to reveal the information through the failure to know it. For example, they may refuse to expose themselves to unwelcome views or opinions (Sweeny et al., 2010, p.341). Sweeny emphasized that avoidance of information is not limited to information about the self only. For example, more than half of the participants in one study reported that they did not want to know whether their partner or spouse was genetically susceptible. Also, a study of husbands diagnosed with prostate cancer revealed evidence that wives act by avoiding any information about prostate cancer and there is no doubt that the information that is avoided has self-implications, but that information may be specific to individuals or groups (Emanuel et al. al., 2015). Sweeny explained that individuals may avoid information with the intent to learn the information at a later time, or may decide to avoid information altogether. Sweeny was also interested in understanding what drives people to avoid information under conditions of uncertainty or ignorance about the content of that information. People are often faced with the choice between learning information or remaining ignorant, and these choices often have major implications for health, relationships, career, and psychological well-being (Sweeny et al., 2010, p. 342). Several studies related to information avoidance have also appeared in medical journals, particularly in relation to genetic testing. These studies have explored factors that predict the decision to undergo genetic or other medical testing that is predictive of various diseases such as breast cancer, Huntington's disease, or Alzheimer's disease. Of course, different motives may predict the avoidance of different types of medical

information, such as results of screening tests for health risk information, predictive genetic tests, and diagnostic tests, in which potentially unwanted information is avoided (Jonas et al., 2006, p.24). People may feel responsible for changes when they see information, even if the actions or changes are difficult or unpleasant. For example, a doctor may need a follow-up appointment to encourage a patient to make healthy changes, or a professor may ask a struggling student to come to classes. In some circumstances, people may feel that avoiding information is the only way to avoid costly or unpleasant changes in their behavior (Sweeny et al., 2010, p. 343).

Second: confirmation bias

Nickerson (1998) defines confirmatory bias as “the tendency to search for evidence or any issue at hand and interpret it in partial ways based on existing beliefs, and expectations of the individual,” Nickerson (1998) asserted that people can construct concepts and deal with them biased because they fit what they think. Nickerson divided confirmation bias into the following:

1. Motivated confirmation bias: It is for people to treat evidence with a bias when they are motivated or willing to defend the beliefs they wish to maintain. (As noted above, this does not mean intentional mistreatment of evidence, one may be selective in seeking or interpreting evidence for a belief without being intentional, or even not necessarily aware of such selectivity.)
2. Unmotivated confirmation bias: It means that people can be biased even in testing hypotheses or selecting evidence in which they have no material stake, personal interest, or motivation to maintain a belief.

Nickerson points out that people always seek to validate their beliefs by using confirmation bias based on spontaneity. It is easier to prove when they are interested in the subject while resorting to objectivity in dissipating the opinion of others and using scientific means sometimes, as religious people do sometimes. Philosophers have always believed that motivational bias has a specific effect on behavior and thought (Nickerson, 1998, p. 175-176).

Chapter three

Research community

The current research covered from both disciplines (scientific and human) and for both types (males and females) for the academic year (2021-2022) the morning study. The number of the faculties of the University of Baghdad is (24) colleges, and the total number of students at the University of Baghdad was (51072) distributed among the scientific and humanitarian specializations by (14) scientific colleges and (8) humanities colleges. The total number of students in scientific specializations was (30,525) male and female university students, while the total number of students in humanitarian specialties was (20,547) male and female university students distributed by (20087) male and (30985) female students, Table 1 illustrates this.

Table 1 Names of the faculties of the University of Baghdad and the numbers of their students distributed according to specialization and gender for the academic year (2021-2022)

No.	college names	Specialization	Male	Female	Total
1.	Medicine	scientific	871	1334	2205
2.	Alkindi medicine	scientific	337	572	909
3.	Faculty of Dentistry	scientific	326	793	1119
4.	Pharmacy	scientific	322	756	1078
5.	Engineering	scientific	1581	1157	2738
6.	Al-Khwarizmi's engineering	scientific	214	345	559
7.	agricultural engineering sciences	scientific	1828	2102	3930
8.	Veterinary Medicine	scientific	329	389	718
9.	Sciences	scientific	1441	2470	3911

10.	Nursing	scientific	83	370	453
11.	science for girls	scientific	---	1363	1363
12.	Education for pure sciences Ibn al-Haytham	scientific	1846	1824	3670
13.	Administration and Economics	scientific	1608	1952	3560
14.	Fine arts	scientific	1407	1156	2563
15.	Physical Education and Sports Science	scientific	806	468	1274
16.	Political Science	humanitarian	352	540	892
17.	Physical Education and Sports Science for Girls	scientific	---	475	475
18.	Law	humanitarian	174	598	772
19.	Media	humanitarian	786	327	1113
20.	Languages	humanitarian	1039	1806	2845
21.	Literature	humanitarian	1527	2093	3620
22.	Ibn Rushd College of Education for Human Sciences	humanitarian	928	1875	2803
23.	Education for girls	humanitarian	---	3782	3782
24.	Islamic sciences	humanitarian	2282	2438	4720
Total			20087	30985	51072

As for Al-Mustansiriya University, the number of its faculties reached (13) and the total number of students was (29,457) distributed among scientific and humanitarian specializations, with (7) scientific faculties and (6) humanities

faculties. The total number of students in scientific disciplines (11677) and humanitarian specialties (17,780) was male and female university students, 14735 males and 14722 females. Table 2 illustrates this.

Table (2)

The names of the colleges of Al-Mustansiriya University and the numbers of their students are distributed according to specialization and gender for the academic year (2021-2022)

No.	college names	Specialization	Male	Female	Total
1.	basic education	Humanitarian	3228	3588	6816
2.	pharmacy	scientific	291	629	920
3.	Medicine	scientific	495	776	1271
4.	Tourism Sciences	Humanitarian	633	340	973
5.	Political Science	Humanitarian	336	235	571
6.	Law	Humanitarian	224	420	644
7.	Dentistry	scientific	196	336	532
8.	Administration and Economics	scientific	1497	1196	2693
9.	Sciences	scientific	1006	1657	2663
10.	Engineering	scientific	1718	1283	3001
11.	Literature	Humanitarian	2004	2009	4013
12.	Education	Humanitarian	2617	2146	4763
13.	Physical Education and Sports Science	scientific	490	107	597
Total			14735	14722	29457

The research sample

Four colleges were selected from the University of Baghdad, with scientific specialization (College of Engineering and College of Science), humanistic (College of Arts and College of Education Ibn Rushd), and four colleges from Al-Mustansiriya University with scientific specialization (College of Engineering and College of Science) and humanistic (College of Arts and College of Education). The sample was distributed equally according to specialization and gender, at the rate of (200) male and female students for the scientific specialization, and (200) male and female students for the humanitarian specialization. Table 3 illustrates this.

Table 3

The research sample is distributed according to specialization and gender

No.	college names	University	Specialization	Male	Female	Total
1.	Arts	Baghdad	Humanitarian	25	25	50
2.	Ibn Rushd for the Humanities	Baghdad	Humanitarian	25	25	50
3.	Engineering	Baghdad	scientific	25	25	50
4.	Sciences	Baghdad	scientific	25	25	50
5.	Arts	Mustansiriya	Humanitarian	25	25	50
6.	Education	Mustansiriya	Humanitarian	25	25	50
7.	Engineering	Mustansiriya	scientific	25	25	50
8.	Sciences	Mustansiriya	scientific	25	25	50
Total				200	200	400

In addition to the main research sample, the research procedures required the use of another sample as well, which is a sample of the clarity of instructions and scale items, and Table 4 illustrates this.

Table (4)

Samples, number of their members, the purpose of use, and source

No.	sample type	People No.	purpose of using	Source
1	Random	30	The exploratory sample is a sample of the clarity of instructions.	Baghdad University
1	Random	40	Checking the consistency in answering the items of the two research scales (avoidance of information) and (confirmation bias).	Baghdad University
2	stratified randomness	400	Scale sample, construct (information avoidance) and (confirmatory bias), obtain research results, and extract the stability of the two scales.	The University of Baghdad and Mustansiriya University
Total		470		

Research tools

To achieve the research requirements, the researcher built a tool to measure information avoidance, and confirmation bias, as follows:

First: Building the Information Avoidance Scale:

1. Defining and collecting the items of the scale:

In collecting the scale items, the researcher relied on the following:

1. Howell et al., 2016
2. Colin Victoria Edson's Informational Avoidance Scale (Addison, 2017).
3. Shannon Foglia's Risk Information Avoidance Scale (Foglia, 2019).
4. The Goodwin et al. scale of political news avoidance (Godwin et al., 2020).
5. Scale for detecting avoidance of information in social networking sites by (Dai et al., 2020).
6. According to the adopted theory, which is Sweeny's theory (Sweeny et al., 2010), the researcher found that avoiding information consists of two forms:
 1. Active Information Avoidance: It means that individuals avoid certain types of information under certain, instantaneous, or imposed circumstances, often related to a disease, personal matters, relationships, or financial circumstances. The number of its paragraphs on the scale is eleven.
 2. Passive Information Avoidance: It is a continuous long-term behavior that appears when a person avoids certain types of information that he encounters in his life, as this information is processed cognitively and for a long time so that it becomes a negative and involuntary behavior and mostly includes information related to religious and political beliefs and a comprehensive view of life. The number of its paragraphs on the scale is eleven.

Validity of the scale and its clauses: submitting the tool to the arbitrators:

To verify the validity of the paragraphs in their initial form for the numbers of the scale, which

numbered (62) items, appendix (2), the researcher presented them with the answer alternatives to (16) arbitrators from specialists in psychology in a questionnaire prepared for this purpose to verify the validity of the paragraphs, (4) paragraphs were deleted by the arbitrators¹, with the proposed amendments to some paragraphs.

¹ Professor Dr. Ahmed Latif Jassim - University of Baghdad - College of Arts - Department of Psychology.

2. Professor Dr. Inaam Lafta Al-Hindawi - University of Baghdad - College of Arts - Department of Psychology.

3. Professor Dr. Ibrahim Murtada Al-Araji - University of Baghdad - College of Arts - Department of Psychology.

4. Professor Dr. Buthaina Mansour Al-Helou - University of Baghdad - College of Arts - Department of Psychology.

5. Professor Dr. Khalil Ibrahim Rasoul - University of Baghdad - College of Arts - Department of Psychology.

6. Professor Dr. Khaled Jamal Jassim - University of Baghdad - College of Education - Educational and Psychological Sciences.

7. Professor Dr. Khadija Haider Nouri - Al-Mustansiriya University - College of Arts - Department of Psychology.

8. Professor Dr. Ali Odeh Al-Halfi - University of Baghdad - Psychological Research Center.

9. Professor Dr. Saad Al-Hasnawi - Al-Mustansiriya University - College of Arts - Department of Psychology.

10. Professor Dr. Riyadh Aziz - Al-Mustansiriya University - College of Arts - Department of Psychology.

11. Assistant Professor Dr. Amal Ismail Ayez - Al-Mustansiriya University - College of Arts - Department of Psychology.

12. Assistant Professor Dr. Soraya Ali Hussein - University of Baghdad - College of Arts - Department of Psychology.

13. Assistant Professor Dr. Sawsan Abdul Ali Al-Sultani - University of Baghdad - College of Arts - Department of Psychology.

Scale and Correction Instructions

The researcher resorted to both methods in analyzing the paragraphs of the information avoidance scale, as follows:

The method of the two extreme groups

To find the discriminatory power of the items of the avoidance scale, the researcher applied the scale consisting of (22) items on the statistical analysis sample of (400) male and female students. Thus, the sample size fulfilled the requirement of statistical analysis. Then the researcher performed the following procedures to extract the discriminatory power of the paragraphs:

- Correct each form, and determine the total score.
- Arrange the forms (400) in descending order from the highest score to the lowest score.
- A percentage (27%) of the group selected the highest degrees of the forms, which numbered (108) forms, which are the forms whose members got the highest degree in answering the information avoidance scale, and (27%) of the forms were chosen, which numbered (108) forms, these are the forms whose members got the lowest score in answering the information avoidance scale.
- Thus, the number of members of the two extremist groups reached (216) respondents.
- The arithmetic mean and standard deviation of the scores of each group were calculated on each item of the avoidance scale.

Relationship of the paragraph to the overall score (internal consistency)

14. Assistant Professor Dr. Saif Muhammad Radif - University of Baghdad Center - Psychological Research.

15. Assistant Professor Dr. Suhaila Abdel Reda - Al-Mustansiriya University - College of Arts - Department of Psychology.

16. Assistant Professor Dr. Ali Turki Nafel - University of Baghdad - College of Arts - Department of Psychology.

The Pearson correlation coefficient was calculated to extract the correlation between the score of each paragraph and the total score of the scale.

Validity Indicators: The researcher verified the validity of the information avoidance scale through two indicators, as follows:

1. Apparent validity: this type was verified when the researcher presented the paragraphs of the information avoidance scale to a group of arbitrators, where all their observations were taken with regard to the deletion and modification of some paragraphs.
2. Indicators of construction validity: The researcher has verified this type through two indicators, namely the discriminatory strength of the paragraphs as shown in Table (9), as well as the relationship of the paragraph with the total score of the scale as in Table (10).

Indicators of the validity of the current scale were obtained by the method of factor analysis, as follows:

c. Exploratory factor analysis method:

It was calculated by saturating the paragraphs with one factor, and there is almost unanimity that the saturation of the paragraphs is significant if it reaches (0.30) or more. After analyzing the items of the information avoidance scale consisting of (22) items, the statistical bag (SPSS) was used to perform the factor analysis and the Principal Component Method. In this method, the indicative factors are those whose latent root is greater than or equal to (1) and the size of the saturation in the factor is not less than (0.30), and it is excluded if it is less because it is not significant.

The result of the factor analysis was the extraction of two factors. The researcher conducted the rotation process using Orthogonal Rotation using Kaiser's Varimax Rotation method, and it is considered the best solution that fulfills the characteristics of the simple construction developed by Thurston (Faraj, 1980, p. 275), where the value of the (Kaiser-Mayer-Olen) test was (0.74) as in the above table, compared with (0.50), which indicates that the size of the research sample is suitable for factor analysis

Stability: The researcher extracted stability through two indicators:

Retest: to calculate the reliability coefficient by (test-retest) method for the current scale, the researcher applied the information avoidance scale to a sample of (40) respondents who were randomly selected from (Al-Mustansiriya University), two weeks after the first application on the scale, the researcher re-applied the same scale again on the same sample using the Pearson Correlation Coefficient.

It appeared that the value of the reliability coefficient of the information avoidance scale was (0.81). Also, by comparing it with previous studies, including Foglia's scale in her study of avoiding information (Foglia, 2019), where the stability was (0.78) and Howell's scale (Howell, 2011) in avoiding information, which amounted to (0.83).

Response consistency coefficient using alpha-Cronbach: The researcher extracted the stability of the scale using the Alpha-Cronbach coefficient, and this method is used to extract stability from the scale. It is based on calculating the correlations between the item scores on the basis that each item of the scale is self-contained. The researcher verified the stability of the information avoidance scale using the Alpha Cronbach method, based on the data of the total sample. In this way, the reliability coefficient reached (0.68) after deleting the two paragraphs (7-19) that fell out of the factor analysis.

Construction of the confirmation bias scale:

Defining and collecting the items of the scale:

The researcher prepared a scale of confirmatory bias, which in its psychological and social content is based on social classification theory (Tajfel, 1976) as the theory adopted for confirmation bias. The researcher has translated some scales and questionnaires on the subject. In collecting the items, the researcher relied on the following:

1. The Rassin Scale of Individual Differences in Confirmatory Bias (2008, Rassin)).
2. (Ardi et al., 2021) scale.
3. Hadi's measure of confirmation bias (Hadi, 2019).

To extract the discriminatory power of the confirmatory bias scale items, and exclude items that do not sufficiently distinguish between the highest scorers and the lowest scores, the researcher applied the research tool to the members of the research sample, in two methods:

The two extreme groups' method: to find the discriminatory power of the paragraphs of the confirmatory bias scale, the researcher applied the scale to the research sample of (400) respondents, and thus the sample size met the analysis condition.

- Correct each form and determine the total score.
- Arrange the (400) forms in descending order from the highest score to the lowest.
- 27% of the group of higher grades and 27% of the group of lower grades were selected. The number of applications was (108) each, and thus the number of members of the upper and lower extreme groups reached (216) respondents.
- The arithmetic mean and standard deviation of the scores of each of both groups were calculated on each item of the confirmatory bias scale, table Table (17) illustrates this.
- Relationship of the degree of the paragraph with the total degree (internal consistency):
- To achieve this, the Pearson correlation coefficient was calculated to extract the correlation between the scores of each item and the total score of the scale. The results showed that all items are significant because their values are higher than the value of the Pearson tabular coefficient of (0.14) at the level (0.05) and the degree of freedom (198).

Validity indicator

Indicators of the validity of the confirmatory bias scale were verified as follows:

1. **Apparent validity:** This type of validity was achieved when the researcher submitted the confirmatory bias scale to a group of arbitrators, where all the observations of expert professors were

taken, regarding the deletion and modification of some paragraphs, as indicated in Table (15) and Table (16).

2. Construction validity indicators: The researcher verified this type of validity through two indicators: the discriminatory strength of the paragraphs as shown in Table (17), as well as the relationship of the paragraph with the total score of the scale as in Table (18).

c. Exploratory factor analysis of confirmation bias:

The result of the factor analysis is to extract two factors. The researcher conducted the rotation process using the Orthogonal Rotation by Kaiser's Varimax Rotation, and it is considered the best solution that meets the characteristics of the simple construction developed by Thurston (Farraj, 1980, p. 275). Where the value of the (Kaiser-Meyer-Ohlen) test was (0.78). It is compared with (0.50), which indicates that the size of the research sample is suitable for factor analysis.

Stability indicators: The researcher verified it through two indicators:

1. Retest: To calculate the reliability coefficient by (test-retest) method for the current scale, the researcher applied the confirmatory bias scale to a sample of (40) respondents who were randomly selected from (Al-Mustansiriya University). Two weeks after the first application on the scale, the researcher re-applied the same scale again on the same sample using the Pearson Correlation Coefficient. It appeared that the value of the reliability coefficient of the confirmatory bias scale was (0.74). By comparing it with the reliability coefficient of previous studies, it reached a study of the confirmation bias of Dibbets (Dibbets, 2020) (0.87). In a study by Zhao (Zhao, 2020), it reached (0.73).

Consistency coefficient of response using alpha-Cronbach: The researcher verified the stability of the confirmatory bias measure using the alpha-Cronbach method, depending on the data of the total sample.

Statistical means:

Statistical means: In analyzing the data, the researcher relied on the Statistical Package for Social Sciences (SPSS), in the procedures for constructing the two scales, and in analyzing the research results, using the following statistical methods:

1. Two independent samples t-test: It was used to extract the discriminatory power of the two scales and to find the difference in information avoidance and confirmation bias by gender and specialization.
2. Pearson's correlation coefficient: It was used to extract the relationship of the paragraph score with the total score of the two scales and to find the relationship between information avoidance and confirmation bias.
3. Cronbach's alpha coefficient: It was used to extract the stability of the two scales using the internal consistency method.
4. One-sample t-test: used to measure information avoidance and confirmation bias.
5. One-way analysis of variance: used to identify differences in information avoidance and confirmation bias by sex.
6. Simple regression analysis: Use to determine the extent to which confirmation bias contributes to information avoidance.

Chapter four

Presentation, discussion, and interpretation of results

The first objective: is to measure the avoidance of information among the research sample:

The information avoidance scale was applied to the research sample of (400) individuals, and the results showed that their average score on the scale amounted to (53.66) degrees and a standard deviation of (8.12) degrees, and when balancing this average with the hypothetical average ² of the

² The hypothetical average of the (avoiding information) scale was extracted by summing the weights of the four scale alternatives and dividing them by their number, then multiply the result by the number of paragraphs of the scale, which is (20) paragraphs.

scale, which is (50) degrees. Using the t-test for one sample, it was found that the difference was statistically significant and in favor of the arithmetic mean, as the calculated t-value was

higher than the tabular t-value of (1.96) with a degree of freedom (399) and a level of significance (0.05), table 5 illustrates this.

Table 5

T-test for the difference between the sample mean and the hypothetical mean of the information avoidance scale

Sample size	Arithmetic mean	Standard deviation	Hypothesis mean	Calculated t-value	Tabulated t-value	Degree of freedom	Significance
400	53.66	8.12	50	9.03	1.96	399	significant

Table 5 indicates that the research sample had a high level of information avoidance. The researcher concluded that university students avoid information about self, relationships, health, religion, family, and politics in their daily lives. This is explained by the fact that social relations, religion, family, and self-image are all important aspects of most individuals' lives, which provide them with a tangible sense of stability and continuity by denying uncertainty and a sense of inevitability, especially in the age of young people who are motivated to strengthen themselves and to maintain certain perspectives and beliefs about the world and others to feel psychological stability.

Students also avoid information to avoid making any extra effort in thinking and for not testing the feeling of anxiety generated by cognitive dissonance in the event of obtaining new inconsistent information because the nature of the cognitive structure prompts individuals to maintain consistency in their self-views. Because young people failed to engage in deep thinking about things, students avoid information to enjoy life and keep hope even if it is naive. Avoidance is one strategy to mitigate or move away from the negative feelings of that information. Avoidance is one of the strategies to mitigate or stay away from the negative feelings that this information leaves. Besides, the individual's acceptance of confronting new and inconsistent information depends not only on individual factors but also on family education and upbringing.

The second objective

Measurement of confirmatory bias in the research sample:

The confirmatory bias scale was applied to the research sample of (400) individuals, and the results showed that their average score on the scale amounted to (62.29) degrees and a standard deviation of (9.72) degrees. When balancing this average with the hypothetical³ mean of the scale of (55) degrees, and using the t-test for one sample, it was found that the difference was statistically significant and in favor of the arithmetic mean, as the calculated t-value was higher than the tabular t-value of (1.96) degrees of freedom (399) and the level of significance (0.05). Table 6 shows this.

³ The hypothetical mean of the scale (confirmation bias) was extracted by summing the weights of the four scale alternatives and dividing them by their number, then multiplying the result by the number of items of the scale, which amounted to (22) items.

Table (6) t-test for the difference between the sample mean and the hypothetical mean of the confirmatory bias scale

Sample size	Arithmetic mean	Standard deviation	Hypothesis mean	Calculated t-value	Tabulated t-value	Degree of freedom	Significance
400	62.29	9.72	55	15.01	1.96	399	significant

Table 6 indicates that the research sample has a confirmation bias at a statistically significant level. This result can be explained by the fact that the sample has a social confirmatory bias, as the student is biased towards his group and his opinion in making decisions and passing judgments on others and sees that the group to which he belongs is better than the groups of other students and classifies himself socially and this may give him a positive image of himself. It gives him a sense of belonging. To obtain social acceptability, and maintain a positive subject, the student classifies himself using the principle of perceptual confirmation that is, emphasizing the similarities between the members of the group to which he belongs and the differences with the group to which he does not belong. Thus, he makes biased

comparisons between his group and other groups according to the social contexts he perceives. These classifications are also affected by the individual's motives, goals, and desires in life, thus, he chooses the group to which he belongs.

The third objective

Identify the differences in avoiding information according to the variables of sex and specialization.

A two-way analysis of variance was applied to identify the significance of the differences in avoiding information according to the variables of sex and specialization, and tables 7 and 8 illustrate this.

Table (7) Arithmetic averages and standard deviations of the information avoidance scale according to the variables of gender and specialization

Variables	No.	Arithmetic mean	Standard deviation
scientific male	100	55.30	7.85
human male	100	53.70	8.88
total Males	200	54.50	8.40
female scientific	100	52.05	7.51
female human	100	53.60	7.96
total Females	200	52.83	7.76
total Scientific	200	53.68	7.83
Total human	200	53.65	8.41
Total	400	53.66	8.12

Table (8) the results of the two-way analysis of variance to reveal the significance of the differences in avoiding information according to the variables of sex and specialization

s.of.v	s.of.s	D.F	M.S	F value	Sig
Gender	280.563	1	280.563	4.314	Sig
Specialization	0.063	1	0063	0.001	Not sig
Gender Specialization	248.063	1	248.063	3.814	Not sig
Error	25756.75	396	65.042	---	---
Total	1178151	400	---	---	---

The results of Table 8 indicate the following:

1. There is a statistically significant difference in avoiding information according to the gender variable and in favor of males, as the calculated t-value reached (4.314), which is higher than the tabular t-value of (3.84) at the level of significance (0.05) and the degree of freedom (1-396). The researcher explains this result based on the socialization methods followed, and that the unequal view of parents between males and females can lead to unequal confidence. According to the adopted theory, trusting information has a role in avoiding feelings of uncertainty and thus avoiding new information that may be in contradiction to previous information. The methods of upbringing in our society are usually biased by giving more importance to the opinions and ideas of males than females, which makes them more adherent to their opinion and avoids everything that contradicts their thoughts and beliefs.
2. There is no statistically significant difference in avoiding information according to the specialization variable, as the calculated t-value reached (0.001) which is less than the tabular t-value of (3.84) at the level of significance (0.05), and the degree of freedom (1-396). The researcher attributes this to the great role of social and cultural factors in

influencing the individual's adaptation to new information. Static societies are societies that urge their members within their prevailing culture to bias their ideas and information and avoid new ideas and information different from the prevailing beliefs and traditions in society and confront and suppress them to get rid of their impact on that society. In the current situation and what we are witnessing now, the Iraqi society can be considered one of the societies that preserve everything that is prevalent and familiar.

3. There is no statistically significant interaction in avoiding information according to the interaction of the two variables (sex and specialization), as the calculated t-value reached (3.814), which is less than the tabular t-value of (3.84) at the significance level (0.05) and the degree of freedom (1-396). This indicates the presence of other variables that did not fall within the limits of the current research.

Objective 4: To identify differences in confirmation bias according to gender and specialization.

A two-way analysis of variance was applied to identify the significance of the differences in confirmation bias according to the variables of sex and specialization, and tables 9 and 10 illustrate this.

Table (9) Arithmetic averages and standard deviations of the confirmation bias scale according to the variables of gender and specialization

Variables	No.	Arithmetic mean	Standard deviation
scientific male	100	65.36	8.51
human male	100	60.50	9.83
total Males	200	62.93	9.49
female scientific	100	62.38	9.75
female human	100	60.93	10.09
total Females	200	61.66	9.92
total Scientific	200	63.87	9.25
Total human	200	60.72	9.94
Total	400	62.29	9.72

Table (10) the results of the two-way analysis of variance to reveal the significance of the differences for confirmation bias according to the variables of sex and specialization

s.of.v	s.of.s	D.F	M.S	F value	Sig
Gender	162.563	1	162.563	1.777	Not Sig
Specialization	995.402	1	995.402	10.879	sig
Gender Specialization	290.702	1	290.702	3.177	Not sig
Error	36234.11	396	91.500	---	---
Total	1589825	400	---	---	---

Table 10 indicates the following:

1. There is no statistically significant difference in the confirmation bias according to the gender variable, as the calculated t-value reached (1.777), which is less than the tabular t-value of (3.84) at the significance level (0.05), and the degree of freedom (1-396). According to the researcher, this is because both sexes in the sample are of similar ages and therefore have similar tendencies to stay away from what is unfamiliar and use similar cognitive processes and strategies, including social classification, and because classification is useful in organizing ideas, university students at an age group push them to organize and simplify their thoughts and social environments and create meaning for their social life, and this motivates them to tend to social classification and bias towards their group. What we are witnessing in universities is a lack of awareness-raising activities for university students about the importance of critical thinking and its development. This causes a high confirmation bias for them and a lack of acceptance of everything new, whether on the social level (different groups) or the cognitive level (information contrary to beliefs).
2. There is a statistically significant difference in the confirmation bias according to the variable of specialization and in favor of the scientific, as the calculated t-value reached (10.879) which is higher than the tabular t-value of (3.84) at the level of significance (0.05) and the degree of freedom (1-396). This finding is explained by the researcher that society's

perception of a university student's specialization usually influences his level of self-confidence and self-assertion. Students with scientific disciplines are usually preferred to those with human disciplines in our society and may generate overconfidence and misleading belief that makes them believe they are better than the community of literary disciplines, besides, the University students from scientific disciplines, especially medical and pharmacy students, they are a segment that will interact with humans directly, requiring them to increase their efficiency, self-realization, and increase confidence in their information because it is reflected in their work, however, it is excessive trust that may generate errors in perception and monopolization of opinion and decision, since confirmation bias supports exaggerated confidence in personal beliefs and opinions, and preserves and strengthens beliefs in facing of opposite evidence.

3. There is no statistically significant interaction in the confirmation bias according to the interaction of the two variables (sex and specialization), as the calculated t-value reached (3.177), which is less than the tabular t-value of (3.84) at the significance level (0.05) and the degree of freedom (1-396). This indicates the presence of other factors that did not fall within the framework of the current research.

Fifth objective: Knowing the correlation between information avoidance and confirmation bias in the research sample.

To achieve this goal, the Pearson correlation coefficient was used to calculate the correlation coefficient between the total scores obtained by the sample members on the scale of information avoidance and confirmation bias. It was found from the results that there is a direct, statistically significant correlation between information avoidance and confirmation bias, as the calculated correlation value reached (0.50), which is higher compared to the value of the Pearson tabular correlation coefficient of (0.098) at the level (0.05) and the degree of freedom (398). This means that the higher the avoidance of information, the higher the confirmatory bias in individuals, and this result can be explained by what the theory confirmed, that this relationship is expected between the two variables, because whoever has the avoidance of information is characterized by a kind of cognitive biases that confirm his beliefs and opinions to preserve and adhere to them, and he overlooks and avoids the opposite opinions and beliefs that differ.

Sixth Objective: To identify the extent to which confirmation bias contributes to avoiding information:

The Pearson correlation coefficient was extracted between the total scores obtained by the research sample on the confirmatory bias scale and their scores on the information avoidance scale. The correlation coefficient reached (0.50), which is higher compared with the value of the Pearson tabular correlation coefficient of (0.098) at the level (0.05) and the degree of freedom (398), which indicates the existence of a direct statistically significant relationship. To find out the extent to which confirmation bias contributes to avoiding information, a simple regression analysis was performed, table 11 illustrates this.

Table (11) analysis of regression variance to identify the statistical significance of the contribution of confirmation bias in avoiding information

s.of.v	s.of.s	D.F	M.S	F value	Sig
Regression	6556.599	1	6556.599	2.27	Sig
Residual	19728.839	398	49.570		
Total	26285.437	399			

Through the above table, it is evident that the confirmation bias contributes significantly to the avoidance of information, as the t-value calculated for the regression variance analysis reached (132.27) which is higher than the

tabular t-value of (3.84) at the level (0.05) and the degree of freedom (1-398). To identify the relative contribution of confirmation bias to avoiding information, a (Beta) coefficient was extracted, and table 12 illustrates this.

Table (12) beta coefficient of the relative contribution and its statistical significance

independent variable	Correlation	Determination coefficient	beta value	Calculated T	Sig
confirmation bias	0.50	0.25	0.50	10.90	Sig 0.05

Through the above table, it is clear that confirmatory bias has a direct, statistically significant contribution to avoiding information, as its (beta) value reached (0.50), which is a statistical function according to the calculated T-value index of (1.96) at the (0.05) level, this means that (0.25) of the change in avoiding information is due to confirmation bias after squaring its standard

beta value, while the remaining percentage (0.75) is due to other factors that were not included in the study. This result is due to the first and second objectives, the rise of both information avoidance and confirmation bias indicates a correlational relationship, especially since their theoretical backgrounds share some properties, both of which are cognitive concepts that affect the perception of

the other, whether an individual or a group. Also, their availability in a high percentage among university students appears to be a dangerous indicator, because whoever associates his behavior with the behavior of his group, avoids any information about the external group and is biased towards his group, may descend into all kinds of intolerance, including religious and tribal, he may be able to exercise prejudice and intolerance towards those outside his group. This bias must be based on the emotional basis of excluding the other morally from his system, which he believes represents truth, justice, and idealism, unlike those outside his group.

The proportion of the direct contribution of the confirmation bias to avoiding information confirms the result that emerged from the existence of a positive direct relationship between these two variables, which means that the more the individual increases in the confirmation bias of his group, the more he avoids information for those outside his group, and vice versa, and this final result is of great importance as it entails social and psychological measures in the field of student education with the seriousness of cognitive biases and their effects.

Recommendations

1. Students are directed by guidance professionals within groups to impartiality in obtaining information and following objective methods in their opinions and decisions. This is the responsibility of the Ministry of Higher Education.
2. Specialized researchers should be commissioned by the Ministry of Higher Education to prepare workshops and seminars within universities to minimize the impact of assertive bias in avoiding information and motivating them to think critically, analyze, accept new information and leave the knowledge economy.
3. Attention to the educational process, how lessons are received, and the need to familiarize students with the brain's working mechanism, cognitive methods, and cognitive biases and their tangible impact on the lived realities of the individual and society. This lies with the Ministry of Education.

4. The necessity of teaching psychology in a simple and basic way during adolescence in schools because of its importance in growing up properly and correctly, being able to understand himself and others, and this falls on the responsibility of the Ministry of Education.
5. Emphasizing the importance of the patient obtaining the medical information necessary for his healthy life, especially for those with infectious diseases, to take the necessary action and remind him of the danger of avoiding health information behavior, and this falls on the shoulders of the Ministry of Health.
6. It is necessary for the religious discourse to take into account the need for peaceful coexistence among all sects within the same society and to avoid focusing on the differences that exist between groups. All of this is linked to the state's message and its general cultural and religious discourse in line with its general symbolic function in cooperation with the Ministry of Endowments.
7. The necessity of informing law students and judges who are state employees of the impact of prejudices and avoiding information on decision-making through holding workshops, and falls on the shoulders of both the Ministry of Higher Education and the Ministry of Justice.
8. The need for labor officials in the ministries of the State to urge employees to take decisions deriving from full knowledge and maturity of cognitive processes, to abandon biased decisions and judgments, and to be flexible in dealing with life conditions, to reach sound, accurate and positive decisions, to avoid wrong decisions and prejudice.

Suggestions

1. Conducting a correlative study to reveal the relationship between information avoidance and other variables such as coping methods, self-efficacy, self-image, optimistic beliefs, and other variables.
2. Conducting a study to reveal the avoidance of information among a sample

of people with cancer, and among a sample of state judges.

3. Conducting a study to reveal the correlation between confirmation bias and other variables such as stereotypes, narcissistic personality, and decision-making.
4. Conducting a study to reveal confirmation bias among a sample of law students, a sample of a state politician, and a sample of social media users.

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