

## Motivated Cognition and Risk Communication: Changes in Health Workers' Attitudes Towards Risk Information

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### Abstract

this study seeks to investigate how individuals' resources, such as emotions, psychological states, and physical conditions, influence their decision-making and attitudes. Specifically, we focused on Algerian workers in the health sector who receive messages about health risks and analyzed how they cognitively process these messages from a motivated cognition perspective. This analysis aimed to identify the cognitive characteristics of Algerian health sector workers, with the goal of developing effective risk communication strategies for message design and target audience selection. Our study also aimed to understand the motivations of Algerian health sector workers in relation to their attitudes towards risk information. To achieve this, we used a non-probabilistic sampling method, selecting a mixed sample of Algerian health sector workers from various Facebook groups. We employed an electronic survey form tailored to the objectives of the study. findings suggest that Algerian health sector workers employ a combination of cognitively limited rationality and cognitively motivated agent approaches when processing information, depending on the circumstances and level of cognitive elaboration.

**Keywords:** Risk communication, Motivated cognition, Limited resources, cognitive elaboration

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## 1. INTRODUCTION

Our behavior depends on how we perceive and pay attention to the things, people, and social systems that surround us. We deal with stimuli in the environment as we understand and perceive them, and not as they are in reality. Thus, the way we perceive the things around us determines our behavior towards these things and towards these people. In addition, our senses are a means of paying attention to the stimuli around us, then comes a set of mental processes that represent the mental representation of those stimuli, where we choose some of them, then we organize them, then understand them, which will ultimately lead us to act in a certain way.

Among the stimuli that the individual receives are the messages conveyed by risk, which are characterized by uncertainty and threat, and which often determine the benefits of prevention. The content of these messages may, in a given context, require different types of objectives. Thus, uncertainty is associated with weak directional cognitive motivation (the accuracy motivation, cognitive motivation), while the threat seeks to raise the protection objectives (defensive motivation) and adherence to social norms (motivation of impression) (Meyer, 2009, p. 286).

Risk perception and risk reduction behaviors are molded by a complicated interaction between cognitive, motivational, and communicative factors. An expanding field of research has investigated how motivated cognition shapes risk evaluations and reactions to risk information. In decision-making, the effect of motivated cognition on people's perspectives, judgments, and processing of data has been extensively studied. Through this research, we will focus on the risk communication in Algerian health institutions as a focal point by asking the following questions:

- How is risk information received? What traces does it leave in memory?
- Is it possible for a health worker to change the value of an object that carries a risk s/he did not know?
- Does the worker in the health sector change his/her attitudes according to the cognitively limited rational agent point of view, or according to the cognitively motivated agent's approach?

Therefore, our study seeks to achieve the following objectives:

- Knowing about the cases in which the Algerian worker in the health sector deals in depth with information related to health risks;

- Knowing the degree to which the Algerian worker in the health sector combines the two approaches of rational agent and cognitively motivated agent when dealing with the notifying information.

## **2. Literature Review: Conceptual Framework for Risk Communication and Motivated Cognition**

This literature review examines pivotal studies illuminating the complex interconnection between motivated cognition and decision-making while receiving risk information. This provides a basis for grasping how healthcare workers' mindsets toward risk information in Algerian health institutions may be influenced

### **2.1 Motivated Cognition**

Haugen (1989) investigates the distinction between motivation and cognition, arguing that motivation is a broader concept. The analysis recognizes the interconnectedness of motivational and cognitive aspects in goal-directed activity, emphasizing the impact on personal standards and self-systems. The concept of motivated cognition, as explored by Balcetis (2008), refers to the use of cognitive processes to arrive at desired conclusions, often unconsciously. Hassin (2008) reinforces the inseparable nature of motivation and cognition. The special issue explored by Hassin delves into the interaction between motivation and cognition, challenging the traditional dichotomy between these fields of study.

According to Meyer (2009), Motivated cognition implies a return to the motivation of the rational agent. Desiring to achieve certain goals can distort our assessments and decisions, but if we put motivation first, this perspective also focuses on motivation in terms of the cognitive strategies used in the face of uncertainty and decision-making. The originality of motivated cognition lies in its methodological pattern. Motivation can be drawn in a context that highlights specific goals that become more accessible to memory. Here (motivated cognition) takes advantage of modern cognitive methods that allow verification of the effect of a goal from the point of view of personal experience, behavior or physiology. On the other hand, it indicates differences between individuals: some have more passion than others for pursuing certain goals. In this, we rely on measures of personality and psychological attitudes (self-esteem, need for control, etc.). Therefore, verifications will be experimental (control in a context that

specifies goals, cognitive resources, or organizational directives - control). Hence, cognitive resources are important in shaping the motivation of individuals to process information with a varying degree of depth.

Key motives include coherence, social affiliation, and accuracy (Chen et al., 1996; Kunda, 1990). Appetitive and defensive motivational states also guide cognition by allocating attention and actions towards motivationally-relevant stimuli (Lang & Bradley, 2013; Ferry & Nelson, 2020). Braver et al. (2014) delve into the complexities of motivation–cognition interactions, emphasizing the need for a unified and cross-disciplinary approach (Braver et al., 2014). Barrett (2020) presents a compelling argument for the crucial role of motivation in understanding cognitive activity. By proposing a theory that frames cognition as a form of "dissipative adaptation," Barrett underscores the need for a motivational framework within dynamical theories of cognition. This perspective aligns with the idea that cognitive activity is self-organized and "soft assembled," necessitating a deep understanding of motivation.

Madan (2017) broadens the scope by highlighting how motivation influences cognitive processing across various domains. The study outlines the extensive effects of motivation, spanning emotional memory, value-based attention, decision-making, and even self-referential and motoric processing. Madan's work establishes a foundation for understanding the pervasive impact of motivation on cognitive functions.

Based on the aforementioned concepts, Balcetis (2008) and Braver et al (2014) reveal that motivated cognition infiltrates various stages of decision-making, including information gathering, attention deployment, information processing, and memory. It involves biases in information sampling, attention, processing, and memory to support preferred judgments. Most researchers confirmed that both motivation and cognition are intimately related to cognitive resources, and executed by the brain.

## **2.2 Cognitive Processing and Attitude Change through goal-system**

Meyer (2009) underscored that Risk communication is a fertile field for the motivated cognition. In this field, the observed responses are often marked by the desire to achieve goals that are not always the search for validity of information but rather a tactical and strategic organization of incidental information. Such information inform the individual that a given behavior poses a risk of building an expanded information record whereby he can freely interpret this information in service of this or that goal.

Lundgren and Prislin (1998) provide evidence on accuracy and impression motivations in cognitive processing and attitude change. Their experiments show the importance of combining accuracy and directional motivations, revealing the complexities of motivated cognitive processing. Kruglanski et al. (2012) propose a force-field theory of motivated cognition, considering the driving and restraining forces that influence cognitive activity. This analysis includes goal importance and mental resources, providing a framework for understanding motivated cognition.

As for the concept of Self-Regulation of Motivation, Bandura's (1988) social cognitive theory differentiates between biological and cognitive motivation. It emphasizes the role of anticipating outcomes and setting goals in guiding individuals towards desired futures through anticipatory forethought. As for interpersonal dynamics, Velden, Beersma, and Dreu (2010) show that dyads with at least one negotiator with high epistemic motivation achieve better outcomes in negotiation through information search rather than heuristic trial and error in achieving favorable outcomes. Furthermore, high epistemic motivation reduces discomfort and increases the likelihood of implementing decisions when faced with complex information (Amit & Sagiv, 2013). Nienhuis, Manstead, and Spears (2001) study multiple motives in persuasive communication. They demonstrate that high impression motivation stimulates creative processing, while accuracy motivation leads to attitude change and cognitive responses. Chen, Shechter, and Chaiken (1996) contribute insights into impression-motivated individuals' tendencies to express attitudes consistent with their partner's views. Accuracy-motivated individuals exhibit evenhanded systematic processing, resulting in unbiased attitudes.

### **2.3 Cognition and biased processing of information**

Biased information sampling shapes perceptions and contributes to judgment biases. This implies that there is an impact of biased sampling on individuals' perception of the environment, emphasizing the interplay between mind and environment in human behavior (Dandan, Yonghua, & Chengyao 2017). Payne and Bettman (2008) explored the mid-twentieth century's information-processing paradigm and its impact on decision-making. They integrated cognitive and emotional aspects, emphasizing the role of cognitive and motivational factors in decision research. They also found that bounded rationality leads to simplifying heuristics and selective processing due to limited cognitive capacity. Goals, emotions, and intuition shape strategy selection under constraints.

Kunda (1990) studied motivated reasoning and how individuals engage in reasoning influenced by their motives. Motivation affects reasoning through biased cognitive processes, which aligns with the broader theme of how individuals arrive at conclusions influenced by their desired outcomes.

## **2.4 Motivated Cognition and Risk Communicaiton**

According to Covello, Leiss, the Canadian Standards Association, and U.S. National Research Council, Robert and Sabourin point out that risk communication is seen as a bilateral or interactive exchange of information, perceptions, opinions and préoccupations between the concerned parties during the implementation of a natural risk management process, anthropogenic and / or socio-technological that on one hand threatens the environment, health and properties, on the other hand takes into account the acceptability of these risks in a social, political, economic and technological context (Robert & Sabourin , 2005, p. 20). Additionally, Doré (2005) emphasizes risk communication as a pivotal catalyst within the broader scope of risk management, introducing a cognitive resources dimension to enhance risk perception in the health sector. Understanding and addressing diverse expectations from citizens and health sector employees are seen as key factors in enhancing the effectiveness of planned risk management measures (Doré, 2005; Robert & Sabourin, 2005).

To further deepen the understanding, the alignment of perceived and quantified risks is pivotal for effective risk communication. According to (Hassid, 2008; 2016, [غامهيواغي، هاريس، كهوت و بير]), effective risk communication requires transparency, timeliness, and engaging affected groups. Matching channel to audience size and simplifying information for non-experts is crucial. Maisonneuve and Saouter (2001) provide six rules for effective emergency management, including the importance of having an emergency measures plan, maintaining organizational structure, setting short-term goals, diversifying strategies, communicating facts quickly, identifying available help, and staying in contact with affected individuals.

In terms of risk, factors such as personal control, familiarity, and reversibility greatly sway risk perceptions (Nantel, 2005). Additionally, individual differences in information processing and epistemic motivation play a role in moderating reactions to complexity and uncertainty (Amit & Sagiv, 2013; Velden et al., 2010). In a similar vein, Young et al. (2022) found that political preferences and worldviews shape epistemic motivations and lead to misunderstandings about

risks. They examined the relationship between political constructs and epistemic motivations in the context of belief in misinformation. The study shows that Republicans, conservatives, and Trump supporters are more prone to misperceptions, relying on intuition, and dismissing evidence related to COVID-19 and the 2020 election, influenced by their epistemic motivations. Therefore, it is crucial to employ values-based, unifying messaging.

As complex beings, humans play a pivotal role in risk management. The Maslow hierarchy underscores the diverse needs influencing human behavior, complicating the rational analysis of risks. Loup Francart's definition of risk as a combination of weakness and awareness reveals the cognitive limitations inherent in human risk analysis. Myers and McCaulley further emphasize that perception involves the gathering of information, triggering a complex interplay of cognitive resources (De Sablet d 'Estières, 2006). In the same breath, Lieder and Griffiths (2019) introduced a conceptual framework "Resource-rational analysis" to cultivate understanding of human cognition by effectively making use of limited computational resources. they combine insights from psychology, neuroscience, artificial intelligence, and linguistics to propose resource-rational analysis as a promising paradigm that can assist in reverse-engineering cognitive mechanisms and explaining irrational behavior in terms of cognitive abilities.

Regarding motivated cognition and risk communication, Comfort (2007) emphasize the importance of cognition, communication, coordination, and control in effectively recognizing and responding to emerging risks. Manno et al. (2018) in their part, highlights the role of gender and need for cognition in message comprehension,exploring the impact of images on health risk communication, finding that negative/fear-arousing images improve message receptivity and learning.. While Dubois (2006) identifies various factors affecting risk perception, including abstraction, engagement, prejudice, individuality, uncertainty, limitations, time, and eclecticism.

For a more comprehensive insight, Nantel (2005) proposes hypotheses on subjective aspects of risk perception, including voluntariness, temporal proximity, familiarity, perceived control, reversibility of damage, and impact on children and future generations. As for Weyrich et al. (2020), a flood-risk-oriented, dynamic protection motivation framework has been introduced to show that homeowners with protective measures are more motivated to reduce flood risk. Perception of vulnerability and response efficacy play a significant role. Inorderto motivate Individuals to undertake flood risk Protection, Bockarjova et al. (2008) apply the protection motivation theory and transtheoretical stage change model to identify

effective communication strategies to motivate individuals to undertake protective action. They discuss the shift in responsibility for flood protection from the public domain to a shared responsibility. Moreover, Liu and Jiao (2018) study how risk info affects homeowners' fire risk reduction behaviors. They find that subjective knowledge and coping appraisals mediate these behaviors, with content and observed info playing crucial roles. In a related context, Lang and Bradley (2013) examine appetitive and defensive motivation systems that support survival, influencing attention, information intake, sympathetic arousal, and tactical actions. Ferry and Nelson (2020) explore how threat type has nuanced effects on unpredictable defensive motivation and attentional engagement.

### **3- The health institution**

In the opinion of Nantel, one of the main challenges facing professionals is public health risk communication. Indeed, their responsibility in terms of protecting the health of populations obliges them to be as vigilant and transparent as possible without however provoking unnecessary fears on the part of citizens and exaggerated reactions on the part of decision-makers. Furthermore, their credibility will be commensurate with the quality of their public intervention

The challenges of risk communication in public health vary according to:

- the nature of the danger : In public health, the main technological dangers envisaged concern mainly fires, explosions, spills of dangerous products, contamination of water, air or soil, as well as terrorist actions.
- the potential level of exposure of the population.
- the duration of the exposure.
- the probability that people are exposed

before establishing their communication plan, public health officials must take into account the many factors which will determine the degree of complexity of this communication: the nature of the risk, the perception of the risk, the population involved, the moment in which this communication will take place, the messenger and the partners (Nantel, 2005, pp. 12, 13).

This literature review summarized the influence of motivated cognition on attitudes toward risk information. Highlights the complex relationship between motivation and cognition in decision-making, exploring the diverse influences on human judgments and choices, from self-deception processes to epistemic motivation in complex decisions. The review shows how various intrapsychic and social motivations interact with cognitive processes, various motivations, and risk

information to shape risk perception, emergency response, and protective behavior.

#### **4.The Field Study: Applying the Motivated Cognition Perspective to Receiving Information on Health Risks**

##### **4.1 The cognitive approach to communication**

The cognitive approach is concerned with what is happening inside the head of the person making the communication and the way s/he thinks about himself and others. That is, the focus is on the way individuals interpret the information they receive as the primary guide for behavior. A person's intention and how it is interpreted by another person determines the course of interaction between individuals (هيز, 2016, p.32).

##### **4.2 Study methodology:**

In our study, we relied on a field survey methodology for a sample of followers of health pages on Facebook.

##### **4.3 Study population:**

We conducted our study on a group of individuals belonging to groups interested in human health issues via Facebook.

The study sample combined both the convenience sample and the typical sample (دليو, 2015, pp. 86, 89) or as Maurice Angers called it the stereotyped (أنجرس, 2006, p. 312). This is due to their convergence in the condition of excluding individuals who do not serve the aims of the research and targeting individuals who represent typical cases of the chosen topic (individuals who are interested in the topic of health). The number of individuals who responded to the electronic questionnaire reached 42 within more than two weeks of publishing the questionnaire. This is a modest number in view of the conditions that the country is going through due to the outbreak of the COVID19, as most of the group's members represent the health sector workers, including doctors, nurses and administrators.

##### **4.4 Data collection tools:**

We relied on an electronic form due to its compatibility along with the justifications for using the convenience sample. The Likert-scale research

questionnaire is designed based on the ideas presented by Meyer (2009) in his research paper.

#### **4.5 The validity and consistency of the measuring tool:**

##### **4.5.1 The validity of the motivated cognition tool:**

The validity of the internal consistency between the statements expressing the attitudes of adopting the motivated cognition perspective of the sample members and the total score of the statements was calculated; where the degree of validity was approximately 64.28 percent at a significance level of 0.05.

##### **4.5.2 The consistency of the motivated cognition tool:**

We calculated the consistency using the Cronbach alpha coefficient that was estimated with: 0.82, which is a high value that makes us say that there is no inconsistency in the answers of the sample members.

#### **4.6 Data entry and analysis**

##### **4.6.1 Data on the sample members' tendency towards adopting motivated cognition**

###### **A. The general average for adopting the motivated cognition perspective:**

Through the data, we note that the general average of the respondents' tendency towards the approach to motivated cognition through all indicative indicators was estimated with 2.88. This means that the degree of approval increases significantly. This result may also be explained by an increase in the sample members' degree of health awareness as a result of interaction through social networking sites for all types of health sector workers, including members involved in health groups of various types.

###### **B. The degree of willingness to adopt the motivated cognition perspective**

In proof of the above-confirmed data, we concluded that there is a strong willingness of the respondents to adopt the motivated cognition perspective when they receive any information related to the general health of humans as the average of their tendency towards the approach to motivated cognition was estimated at 3.21. This value is very close to "strongly agree". This result translates the respondents' attitudes towards information related to health risks in that they tend to address them in an in-depth manner only when they are aware of and motivated to do so. However, they will show more interest in it even if they have never known it. Nantel, in turn, affirms that When people know the existence of a

hazardous waste storage site in their immediate surroundings, the reaction is usually quite quick and negative. The level of risk acceptability will then be close to zero in most cases. Likewise, a population living for a long time near large reservoirs of which they did not know the contents will have sometimes an unpredictable reaction if they learn through new regulations that they represent a significant risk of technological accident (Nantel, 2005, p. 15). Nantel noted as well that the message will be modulated in such a way that it will be perceived properly. Whether we like it or not, the socioeconomic level of a population also has an influence on the degree of acceptability of a risk (Nantel, 2005, pp. 13, 14). According to Meyer, this processing affects the processes by which individuals evaluate and determine information through underlining a set of objectives (Meyer, 2009, pp. 275, 276). Moreover, respondents' evaluations and decisions about information change if it is received from a person of scientific standing.

Numerous studies have shown that the population will react differently to the communication of a risk if the messenger enjoys a high status in the community giving more credibility to his message. When several people are likely to participate in risk communication, the order in which they intervene will also affect public reaction (Nantel, 2005, p. 16). However, analyzing the risk information by the respondents in depth in order to ensure their validity, will affect the processes by which they are evaluated and decide accordingly when they are subsequently exposed to any information related to health risks.

In the eyes of the respondents, the value of the thing that was, for them, dangerous to their health changes unknowingly, as they showed a strong willingness to give it up directly, whether it was in the form of behaviors that are harmful to their health, wrong consumption habits, or something they were used to consuming or using. According to the motivated cognition perspective, the respondents are more interested in the information on health risks when they feel that they are concerned, because they are directly related to the topic they are being warned against. Similarly, in the case of the opposite, they also feel that they have a relationship with the subject in the event that it relates to people from their acquaintance (relatives, friends, and children).

### **C. Data on the nature of the goals**

#### **- Data for non-directional goals**

##### **Data on the motivation for accuracy**

The attitude of the respondents regarding the motives related to the accuracy of the information recognized a significant value that is close to

approval, reaching 3.19. This means that the category of respondents aims, through processing information related to health risks, to search for the degree of validity and reliability. The category also prefers to rely on proven facts (scientifically and experimentally) as a guarantee of reliability, in addition to being in favor of relying on information from other sources that confirm the statements of the source of the information received. Meyer believes that rational agent is motivated in advance and at least implicitly, as he allocates cognitive resources to a specific goal of checking the authenticity of the message (Meyer, 2009, p. 282). According to Nantel, risk communication in an industrialized society most often involves a large number of partners who should ideally harmonize their messages to the population in order to avoid generating confusion and then mistrust (Nantel, 2005, p. 16).

### **Data on epistemic motivation**

The respondents agreed on statements indicating epistemic stimulation as another aspect of non-directional goals and this was translated in the average of their attitude with 2.7. According to the results, the respondents prefer to obtain any quick answer and not to take any decision that would keep them in a state of ambiguity when they receive information that warns them of grave risks on human health or while they are actually facing the situation. In the same context, when there are many arguments on the basis of which the position will be taken, the category of respondents is more convinced of the number of arguments that allows to reach a conclusion quickly instead of taking more time to examine and verify them in order to take the most valuable ones. It is the category that, according to Meyer, is characterized by a high degree of cognitive closure, and we should know that “epistemic motivation” regulates the degree of depth in information processing according to thresholds that meet the required level of knowledge (Meyer, 2009, p. 282). The respondents also work to simplify matters and find what is familiar to them in order to build their conclusions that support the position they will take on the information they received in the event of the influence of time factor or their work in the midst of noise. They are also not affected by the prestigious aura in which the source of the message appears when they process the information issued by it to judge its value. Rather, they care to check the quality of its arguments. Their examination is also characterized by a degree of in-depth that deviates from relying on their personal experience, especially the emotional one.

## **- Data for directional goals**

### **Defensive motivation**

The result expressed through the value of 2.64, indicates that the sample members agreed to adopt defensive motivation when processing information that warns of threats on human health. Accordingly, and according to the results confirmed that the respondents select from them what is suitable for them personally and search also for counter arguments if necessary. The respondents focus their attention on the parts of the message that raises a low risk of what is being warned about, so that they underestimate the value of the parts of the message that raises high risks in order to justify their position on the content that the message aims at. In addition, the respondents do not rule out the possibility that they will be exposed to the risk contained in the information, nor do they see that it affects only a specific group with a set of characteristics. Moreover, they do not exaggerate the severity of the message. However, they accept it better if they feel an appreciation for their knowledge about the reported dangerous thing and allow them to assert themselves, especially if they are in a positive mood and do not feel touched by their identity (such as classifying them within a certain category). The notifying information raises more resistance among the respondents to adopt its demand if it carries a high degree of intimidation (death, for example). For them, it is also more important to emphasize the absence of harms instead of highlighting the benefits such as “obesity does not lead to death” in order to increase their acceptance of its content. This is in addition to their interest in emphasizing the benefits expected from their commitment to the content of the message (reducing weight makes your life better because ....) as a condition for accepting its content. According to Meyer, an individual seeks through defensive stimulation to maintain his/her self-esteem or his/her belief system (beliefs are centered around health) more than s/he seeks to verify information (Meyer, 2009, p. 284).

### **Data on impression motivation**

The result 2.75 shows that the respondents agree that their processing of the received information is based on an impression they make in their minds. Their attitude towards the content of the information is related to the perception of their community and their friends or relatives of the meaning of the risk contained in the message in addition to their personal criteria for risk. We believe that respondents have a high degree of auto-monitoring when processing information related to health risks.

#### **4.6.2 Data on the limited rational agent perspective**

##### **A. The average scale for the limited rational agent perspective**

The respondents' position tended to agree to treat risk-related information from the perspective of the limited rational agent, which is expressed by a value of 2.77. This means that there is an influence of cognitive resources in the processing process and in taking a position on the information, which means that there is a biased treatment affected by the limited resources themselves.

##### **B. The information processing process of the cognitively limited rational agent**

Through the data shown in the above table, we see that there is a differentiation between the respondents in the importance assigned to each stage of the notifying information processing stages. The order of the stages was in terms of importance as follows:

**A-** Understanding the message by evoking memory about the topic (prior or similar information ... etc); **B-** drawing out the consequences and determining the attitude towards the change; **C-** Attempting to pay attention to the message. **D-** Working to store information in the memory; **E-** Calculating the interest or value of information they are being exposed to. This process is influenced by the special perceptual system that the cognitively limited rational agent possesses (Meyer, 2009, p. 276).

##### **C. Data on biased processing of information according to the cognitively limited rational agent approach**

Respondents prefer to rely on information that can be easily retrieved in memory to adopt their position on it. In addition, the information that attracts their attention the most is that which addresses the risks and negative effects of something, for example: soft drinks cause cancer, and obesity leads to diabetes. Moreover, in order to agree to the request of the message, they do not prefer to receive information that addresses the positive aspects that are beneficial to humans. For instance; giving up soft drinks increases your fitness, reduces your risk of cancer, and strengthens your immunity. According to Meyer, biases can be related to the search for and evaluation of information, as well as the responses raised by this information (Meyer, 2009, p. 277). Robert and Sabourin in their research study, entitled: *infrastructures essentielles: La communication des risques et les réseaux de support à la vie*, asserted that information should be

understandable in terms of meaning, scope and acceptance. This implies a standardization of the principles of vulnerability assessment, studies of consequences and prevention approaches, without reference to specific scenarios (Robert & Sabourin , 2005, p. 29).

#### **D. Data on the impact of cognitive resources**

We see that the sample members agree on the impact of their cognitive resources on the position they will adopt regarding the information that warns them of threats to human health, and this is expressed by the average of their attitudes statements indicating this dimension, which were estimated at 2.76. The above result can be interpreted into the fact that the degree of depth of information processing is related to the respondents' willingness to analyze what they are interested in, trying to understand it even if they are preoccupied with something else (doing or thinking about something) or feeling tired or in a bad mood. Furthermore, the degree of their acceptance to it is also affected by the information they possess in their memories on the subject and the credibility of the source of the information and the means by which it was published. The sample members recall in their mind the value of the warned object when evaluating the information in order to decide the position they will adopt through the correlations between the object being warned of and its value that the memory refers to (Meyer, 2009, p. 277). They also work to criticize it using counterarguments. After understanding the content of the notifying information, respondents evaluate its source in terms of its reliability, and reputation, as well as verify the validity of the arguments presented and assess the implications of risks. The respondents do not ignore the messages that carry a high degree of intimidation, so that they want to hear a lot in order to become more convinced of the message's demands even if it necessitated a change in their habits. Moreover, they do not think about the personal benefits of the thing they were warned about to the extent that they are willing to engage in the demand of the warning message (health is a first priority).

### **4.7 Study results**

#### **4.7.1 Results related to the degree of readiness towards adopting the motivated cognition perspective**

- The scientific standing of the source of information affects the evaluations and decisions of individuals, which will be modified once it gets exposed to any

notifying information later, where the value of the thing being warned about also changes in their view.

- Information is processed in an in-depth way only when there is motivation and prior knowledge, but they will attach importance to it in all cases and have a strong willingness to engage in its demand immediately (abandoning something harmful to health)

#### **4.7.2 Results for non-directional goals:**

##### **A. Results for motivation for accuracy**

-The aim of processing the notifying information is to get the degree of validity and reliability, and it is preferable to rely on proven facts.

- It is preferable to rely on information from other sources that confirm the statements of the source of the information

##### **B. Results for cognitive motivation**

- Individuals work to simplify matters and find familiar information in order to build conclusions that support their position in the event that these information are received under uncomfortable conditions. They also conduct an in-depth examination of it instead of relying on their personal experience, especially the emotional one.

-Individuals are more convinced of the number of arguments that allows to reach a conclusion quickly rather than taking more time to examine the information. This is when the situation is ambiguous and they prefer to get an answer, whatever it is, more quickly instead of not taking any decision.

The prestigious aura in which the source of the message appears does not entice individuals when processing information and prefer instead to check the quality of its arguments.

#### **4.7.3 Results for directional goals:**

##### **A. Defensive motivation**

- Individuals' acceptance of the warning message's content increases by emphasizing the desired benefits in the event that they engage in its demand (Losing weight makes your life better because ...). This is especially if they felt an appreciation for their knowledge about the reported thing and its seriousness, got enough space for them to assert themselves, and were in a positive mood without compromising their identity. It is also preferable to emphasize the absence of harms rather than highlighting the benefits.

- Attention is focused on the parts of the message that raise a low risk of the thing being warned about, while the parts of the message that raise high risks are undervalued to justify the final situation. A message that carries a high degree of intimidation (death, for example) provokes greater resistance among individuals to adopt its demand, and the respondents, in turn, do not exaggerate that degree of risk.

-The respondents do not rule out the fact that they are also vulnerable.

## **B. Impression motivation results**

The attitude adopted towards the content of the notifying message is related to the personal criteria for the reported risk and to the perception of the community and friends or relatives concerned with the risk addressed in the message.

### **4.7.4 Results on the cognitively limited rational agent**

#### **A. The results of the information processing process of the cognitively limited rational agent**

The order of phases in terms of importance was as follows:

**A-** Understanding the message by evoking memory about the topic (prior or similar information ... etc); **B** - drawing out the consequences and determining the attitude towards the change; **C-** Paying attention to the message.

#### **B. The results of biased information processing according to the cognitively limited rational agent**

- What attracts the attention of individuals the most is the information that addresses the risks and negative effects resulting from them. They also prefer to rely on information that can be easily retrieved in memory in order to facilitate the adoption of a specific position.

- It is not preferable to receive information that sheds light on the positive aspects that will benefit the individual in the event that s/he adheres to the request of the message.

### **4.7.5 Results on the impact of cognitive resources**

- Individuals evaluate the source of the information in terms of its credibility, reliability, reputation, validity of his/her arguments, and the means by which the information was published.

- Individuals bring up the value of the risk involved in making their decision.

- Individuals show interest in in-depth analysis of warning information, trying to understand it even under unfavorable conditions.

- The in-depth analysis of risk information is affected by the degree of interest, and the acceptance of its content is affected by the information previously stored in memory as the basis for the analysis.
- In contrast to the degree of acceptance, the in-depth analysis of the notifying information is not affected by the ill-mood.
- The reliability of the source, the importance of the topic, and the means through which it was published are a basic basis for adopting the position on the information raised, as it suffices to quickly examine the arguments and the implications of risks.
- Health risk information is subject to criticism with counterarguments but only after it is well understood.
- The degree of engagement in the message's request is not linked mentally to the personal benefits of the thing being warned of.
- Messages that carry a high degree of intimidation are not ignored even if it is at the expense of changing behavioral habits.

## **5. Discussion and Conclusion**

This paper provides a comprehensive exploration of the relationship between motivated cognition (that applies to questions from the professional world (public health, management, consumption, education, engineering, the environment, etc.) and risk communication in healthcare decision-making, specifically in Algerian health institutions. The analysis offers valuable insights for academic discourse and practical strategies in risk management and crisis response in healthcare settings. It examines motivated cognition thoroughly, drawing from various studies such as Lundgren and Prislin's contribution on the interplay between accuracy and impression motivations in cognitive processing. By exploring how different motivations influence cognitive processes and attitudes, the paper contributes to a nuanced understanding of how individuals perceive and respond to risk information - a critical aspect for effective risk management. Based on diverse theories and studies (e.g. Bandura's social cognitive theory and the force-field theory of motivated cognition by Kruglanski et al.), this research paper underscores the importance of considering not only the content of risk messages but also the cognitive processes involved in their reception. It presents a thorough analysis of the degree of readiness towards adopting motivated cognition, and identifies factors influencing information processing in cognitively limited rational agents, such as memory recall, attitude determination, and message attention. In this context, Meyer argues that the

strength of a cognitive setting is related to the quantity and quality of successive responses to a message, as well as strategies for identifying information. The more the setting is in the direction of the message, the more reasonable the changes in attitudes and behavior will be. The processing of messages that embody risk as well as motivation depends on available cognitive resources (fatigue, distraction, etc.) that are also available and exhaustible where the emotional state is also an important source for these resources (Meyer, 2009, p. 287).

Finding provides actionable insights for crafting effective risk communication strategies. The research emphasized the influence of information sources and the modification of evaluations through exposure to notifying information. By shedding light on the differentiation between non-directional and directional goals in information processing, the research findings add granularity to the discussion, highlighting the varied ways in which individuals process risk-related information based on their motivations. It provides a demonstration about the multifaceted nature of motivated cognition, emphasizing the role of motivation in risk communication and highlighting best practices for healthcare institutions. The inclusion of empirical evidence contributes to a nuanced understanding of how individuals perceive and respond to risk information. It concludes by enhancing the understanding of the complex interplay between human cognition and risk perception in healthcare.

From the perspective of motivated cognition, the Algerian worker in the health sector believes that any change in attitudes or decisions depends on the scientific standing of the source of the information, which will be modified upon exposure to any warning information later, and the value of the thing being warned of will also change in his/her view. The sector to which s/he belongs influences the formation of the motivation to process the notifying information, making it easier to engage with the demand of the source of the message if s/he has the qualities of reliability and objectivity and his/her arguments are strong.

Based on the criterion of the intensity of the effort exerted to process the message that does not affect the feeling of evaluation or decision, we concluded through the results of the study that the Algerian worker adopts the perspective of motivated cognition as he is driven by the impulse of accuracy in his handling of information. In the event of lack of resources and uncertainty, the Algerian workers build their conclusions that support their position by relying on simplification and selection of information familiar to them. Likewise, the number of arguments or their strength has no effect on the position of the Algerian worker, as conviction depends on the arguments that allow a quick conclusion

instead of wasting time in examining the information. However, the quality of the arguments is important compared to the informative aspects of the source of the message. Individuals' decisions are directed defensively toward the message's demand if the latter emphasizes the desired benefits rather than the harmful ones, and in the event that attention is given to the appreciation of individuals' knowledge, self-assertion, and their mood when they receive the message without compromising their identity.

We note that the nature of the sector in which individuals work makes them more resistant to information that carries a high degree of intimidation. The use of an individual's cognitive resources is not only affected by the motivation but also by the quality and abundance of stored information. Therefore, individuals who process information from the perspective of motivated cognition do not rule out their being at risk as well as other individuals. The position or decision that the individual will adopt is subject to the criterion of social approval, that is, to act according to the requirements of the current situation instead of relying on self-standards. Nevertheless, a type of self-monitoring of varying intensity distinguished the Algerian worker in the health sector that combines the subjective norm for the concept of risk, given its field of work, and the impression that others give on the content of the warning message with the specific criteria for the reported risk, and with the perception of reference groups of the meaning of risk contained in the message. Finally, after knowing the specificity of the Algerian worker in the health sector's perception of information related to health risks, we recommend, according to Meyer, to conduct more extensive studies for this perspective because it provides useful results for officials in terms of designing messages about risks or creating systems that involve risks. (Meyer, 2009, pp. 275, 276).

By way of conclusion, we invite, through this paper, managers belonging to the health sector to take into account the importance that employees attach to the risks surrounding their work place on one hand, on the other hand to and their manner of treatment of this kind of information ; in order to boost their level of processing of information concerning health risks in order to anticipate the occurrence of major dangers that may lead to a fault a crisis or even more an unspeakable catastrophe.

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