Impact of unrealistic optimism on the risk of contamination during the home confinement of COVID-19 in Algeria

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Abstract

Objective: The study was conducted to investigate the impact of unrealistic optimism on the risk of contamination at home confinement and its association with certain social variables.

Methods: This survey study was conducted to describe the level of unrealistic optimism and its association with some social variables. The participants (n = 558, 60.6% females and 39.4 males) subjectively evaluated the risk of their coronavirus infection in the period 1-15 May 2020, for this purpose a questionnaire was adopted and administered to a sample of 558 citizens.

Results: the results showed that 69.2% of the participants confirmed their respect always, and 38.7% confirmed that they rarely wear the mask, while 24% of the sample confirmed that they only sometimes wear the mask when they leave the house, including 50.5% of the sample confirmed that people infected with the coronavirus suffer from social stigmatization. It is found that 54.8% of the respondents had an average level of unrealistic optimism, where the mean of participants was (36, 17 ± 5, 97). The study also revealed that there is an association between the levels of unrealistic optimism and respect the home confinement (P = 0.001); whereas, the results showed that there is no association between the levels of unrealistic optimism and wearing the mask (P = 0.183).

The study discovered there is significantly a negative association (B = -, 119, P = 0.005) between unrealistic optimism and the age of Algerian citizens during the home confinement of coronavirus. Otherwise, while the results did not show any statistically significant differences in unrealistic optimism between groups of gender among Algerian citizens during the home confinement of coronavirus (P = 0, 0835).

Conclusions: In effect, unrealistic optimism is linked to avoiding risky behaviors that threaten human life as it is the case with the coronavirus. Therefore, it is important to reduce the levels of unrealistic optimism of individuals with beliefs and objective information to avoid dangerous behavior during and after the confinement period.

Introduction

COVID-19 is a severe infectious disease caused by the novel coronavirus SARS-COV-2, and it has no treatment or specific vaccine at the moment; however, it is highly transmittable and spreads rapidly in various countries, especially in Europe (Italy, Spain, and France), and also the United States have recorded many cases and deaths. So, this is a pandemic with high contamination that has affected other countries such as Algeria. The number of cases has rapidly increased in all continents of the world, and it has caused a pandemic. There is no treatment and the vaccine will not be available at the moment, and the most affected by the virus are Spain, Italy, and the United States. In Algeria, the virus has spread, but the situation is not as alarming.

The first case of Covid-19 was identified in Algiers, and he was an Italian national from Lombardy and it is one of the most affected areas in Italy, who arrived in Algiers on February 17. This first case was then placed in isolation.[1] Confirmed cases jump in Algeria and the Ministry of Health and Population and Hospital Reform notified on Monday, May 11, 2020 about 168 new confirmed cases of COVID-19 coronavirus, to reach a total of 5891 out of 48 cities, while 04 cities have not reported any cases in the past 24 hours. The Algerian regions: Oran, Adrar, Ain dafla, Tlemcen recorded more than 56% of active persons aged 25 to 60 years, and 05 new deaths, to reach a total of 507 deaths and 66.3% of the deceased persons are aged 65 years, over 163 are cured, 18 patients are hospitalized in intensive care, 9557 are under the new treatment protocol based on chloroquine, and 2841 patients recovered. The Ministry of Health calls for the need to remain vigilant and to respect preventive measures during confinement. Strict compliance with the rules of hygiene and social distancing remains the main measure of protection against the spread of the coronavirus.[2]

The Algerian authorities have prepared a notice relating to the establishment of the Covid-19 infection surveillance and alert system. On March 24, 2020, schools are closed, recreational areas, travel restrictions, social distance are compulsory. From March 15 to 21 authorities published the Decree N20-69 relating to the strengthening of preventive measures (closure of mosques), and on March 14, 2020, decree No. 20-70 establishing additional preventive measures against the spread of the coronavirus (home confinement, sanctions,).[3]

Despite confinement measures and restrictions by the government, citizens begin to disregard home containment prevention instructions, and continue to go out, because they usually assess risks through optimistic naive or unrealistic optimism and as Weinstein claimed, people tend to think they are invulnerable. They expect others to be the victims of misfortune, not themselves. " life optimism implies an error in judgment " which Weinstein called unrealistic optimism or optimistic bias.[4] Taylor and Brown defined unrealistic optimism as part of a pattern of the so-called positive illusions that help us cope with potentially threatening experiences. Although, people are usually unrealistically optimistic, and this is not always the case. The unrealistic optimism is defined as the tendency for people to believe that they are "less likely to experience negative events and more likely to experience positive events than are other people". [5,6] The optimistic bias has been defined as the result of the joint efforts of two mechanisms. The first of these is related to cognitive factors such as lack of information and the poor critical insight into one's cognitive skills. The second mechanism has a motivational nature which is closely tied to defending one's self-esteem and to defensive negation.[7] For Weinstein and Klein unrealistic optimism would be a protective strategy, allowing us to believe that all is well. It is accompanied by attrition, external causal gains ("I was born under a lucky star"), and the lack of effort to lead a healthy life. It leads to underestimating the risk of many health problems.[8]

The study of Benjamin J Kuper-Smith and Lisa Doppelhofer in which they tested individuals' beliefs about infection probabilities and abilities to practice social distancing in UK, USA and Germany, in this rapidly evolving situation, they report here initial analyses. They found that individuals show an optimism

bias as they estimated the probability of getting infected with the virus, and infecting others is lower for themselves than for someone similar to them.[9] While optimism bias may be useful for avoiding negative emotions, it can lead people to underestimate their likelihood of contracting a disease and ignoring public health warnings.[10]

A study conducted in Hubei revealed that nearly all the participants 98.0% wore masks when going out. In recent days, most of them, women in particular, with knowledge about COVID-19 hold optimistic attitudes and maintain appropriate practices.[11] The objectives of this study were to explore the level of unrealistic optimism among Algerian citizens during the home confinement of the coronavirus. Accordingly, this study is about determining the association of social variables with unrealistic optimism among Algerian citizens outside the home confinement of the coronavirus, and at the same time discovering the differences in the level of unrealistic optimism between male and female citizens. To this end, the present study seeks to answer the question of association between the unrealistic level of optimism and social variables among Algerian citizens outside the home confinement of the coronavirus.

Materials And Methods

2.1. Study Design

Regarding the design of this research, we have decided to assess the factors causing risky behavior related to home confinement in Algeria such as optimism, especially with the spread of the coronavirus in all regions of the country, taking into consideration the short duration of this study and the speed of data collection using an online questionnaire. So, the first phase of our study took place from April 24 to 30, 2020. After the lift of confinement, when the increase in infected cases and the disrespect of prevention conditions are noticed, the Algerian authorities announced the return to confinement. This situation led us to decide to immediately carry out the second phase of the study. During the following fortnight (from May 1 to 15, 2020), and several new cases were reported in different places in Algeria.

2.2. Procedure

In this study, we investigated the impact of unrealistic optimism on the risk of contamination of Algerian people between 1-15 may 2020; the sample size was determined in the time-sensibility of the pandemic COVID-19 in Algeria, and for this purpose, we adopted snowball sampling. This procedure, on the one hand, ensured the anonymity of the participants and their free flotation to participate in the study and, on the other hand, it allowed us to obtain immediate answers according to the objectives of the study. So, with 558 responders accepted to respond to the questionnaire, it was distributed to students online. So, the questionnaire comprised 20 questions including demographic data. The sample consisted of 338 females and 220 males.

Unrealistic optimism was measured using a 14-items questionnaire designed on the standards of the Likert scale and includes five response options.

Number of Items	The min score	The max score	
14 items	14	70	
Levels of unrealistic optimism	Low level	Average level	High level
	(mean 14 – 35)	(mean 35 – 49)	(mean 49 – 70)

To ensure that the unrealistic optimism questionnaire would likely produce the same results for all recurring measures, whether within the same or a similar population, reliability tests are essential. Therefore, we calculated the Cronbach's alpha correlation coefficient (0.705). The internal validity of the questionnaire is confirmed, and all the correlation coefficients between the items and the total score of the questionnaire are positive and statistically significant (0.05 and 0.01).

2.3. Statistical analysis

The data were evaluated using the Statistical Package for the Social Sciences for Windows SPSS22.0, (SPSS Inc, Chicago, Il, USA), and descriptive statistical methods (number, percentage, mean and standard deviation). Chi- square test was used to calculate the association between the respect of home confinement and the levels of unrealistic optimism among Algerian citizens during the home confinement of coronavirus, and t-test was used to assess the difference between two groups of gender in the unrealistic optimism among Algerian citizens during home confinement of coronavirus. Also, we used multiple linear regression analysis to measure the effect of age in unrealistic optimism, so the data obtained were evaluated within 95% confidence interval and 5% significance level.

Results

3.1. Descriptive statistics of study variables

Table 1. Descriptive statistics of socio-demographic variables among Algerian citizens during the home confinement of coronavirus (n = 558).

Variables	n	%
Gender		
Male	220	39,4
Female	338	60,6
Age		
(15 – 30)	282	50,5
(30 – 45)	198	35,5
(45 – 60)	76	13,6
(60- 75)	02	2,4
Respect home confinement		
Always	386	69,2
Sometimes	136	24,4
Rarely	36	6,5
Wear the mask when you leave the house		
Always	204	36,6
Sometimes	138	24,7
Rarely	216	38,7
social stigmatization		
Yes	282	50,5
No	276	49,5

According to the results presented in Table 1, the study sample consisted of 60.6% females and 39.4% males. In addition, 50.5% of the respondents are aged between 15 to 30 years, and 35.5% are aged 30 to 45 years, while 13.6% are between 45 and 60 years, and 2, 4% of participants are between 60 and 75 years old. Concerning the respect of confinement at home, it is found that 69.2% of the participants confirmed their respect always, whereas 24.4% confirmed perfect, while only 6.5% of the respondents insisted that confinement at home was rarely respected.

Regarding the wearing of a mask when leaving the house, the results in Table 1 indicate that 38.7% confirmed that they rarely wear the mask, and in the same direction, 36% of the sample said they still wear the mask, while 24% of the sample confirmed that they sometimes wear the mask when they leave the house. From the results in Table 1, it is concluded that 50.5% of the sample confirmed that people infected with the coronavirus suffer from social stigmatization, while 49.5% said that social stigmatization does not exist in the social life of people infected with coronavirus.

3.2. Unrealistic optimism among Algerian citizens during the home confinement

Table 2. Levels of unrealistic optimism among Algerian citizens during the home confinement of coronavirus (n = 558).

Items unrealistic optimism	N= 558	n	%	Mean	Relative weight	Rating
I think that I could be infected with the coronavirus.	Strongly Agree	74	13,3	2,49	49,80	09
	Agreed	244	43,7			
	Neutral	164	29,4			
	Disagree	44	7,9			
	Strongly Disagree	32	5,7			
My immunity protects me from infection with the coronavirus.	Strongly Disagree	40	7,2	3,11	62,20	03
	Disagree	102	18,3			
	Neutral	210	37,6			
	Agreed	168	30,1			
	Strongly Agree	38	6,8			
I will not have health complications due to coronavirus.	Strongly Disagree	46	8,2	2,84	56,80	05
	Disagree	142	25,4			
	Neutral	246	44,1			
	Agreed	106	19,0			
	Strongly Agree	18	3,2			
People of my age will not be infected with the coronavirus.	Strongly Disagree	144	25,8	2,16	43,20	10
	Disagree	244	43,7			
	Neutral	122	21,9			
	Agreed	32	5,7			
	Strongly Agree	16	2,9			
I think that the coronavirus is not a threat to my life.	Strongly Agree	12	2,2	3,98	79,60	01
	Agreed	40	7,2			
	Neutral	86	15,4			
	Disagree	230	41,2			
	Strongly Disagree	190	34,1			
Preventive measures reduce infection of the coronavirus.	Strongly Agree	246	44,1	1,67	33,40	13
	Agreed	264	47,3			
	Neutral	36	6,5			
	Disagree	12	2,2			
	Strongly Disagree	//	//			
Social distancing protects me from possible infection with the coronavirus.	Strongly Agree	244	43,7	1,66	33,20	14
	Agreed	270	48,4			
	Neutral	38	6,8			

	Disagree	4	,7			
	Strongly Disagree	2	,4			
I think that I am completely immune to infection with the coronavirus.	Strongly Disagree	76	13,6	2,80	56,00	06
	Disagree	158	28,3			
	Neutral	148	26,5			
	Agreed	152	27,2			
	Strongly Agree	24	4,3			
Coronavirus only affects people with chronic diseases.	Strongly Disagree	170	30,5	1,95	39,00	11
	Disagree	294	52,7			
	Neutral	52	9,3			
	Agreed	38	6,8			
	Strongly Agree	4	,7			
I think the coronavirus will disappear soon.	Strongly Disagree	44	7,9	2,81	56,20	07
	Disagree	176	31,5			
	Neutral	206	36,9			
	Agreed	104	18,6			
	Strongly Agree	28	5,0			
Coronavirus can affect everyone without exception.	Strongly Agree	236	42,3	1,74	34,80	12
	Agreed	258	46,2			
	Neutral	38	6,8			
	Disagree	24	4,3			
	Strongly Disagree	2	,4			
More than others, I can avoid infection with the coronavirus.	Strongly Disagree	24	4,3	3,25	65,00	02
	Disagree	102	18,3			
	Neutral	180	32,3			
	Agreed	212	38,0			
	Strongly Agree	40	7,2			
I have enough skills to avoid being infected with the coronavirus on the street.	Strongly Disagree	38	6,8	2,94	58,80	04
	Disagree	166	29,7			
	Neutral	170	30,5			
	Agreed	162	29,0			
	Strongly Agree	22	3,9			
I will not get hurt	Strongly Disagree	52	9,3	2,78	55,60	08
	Disagree	170	30,5			
	Neutral	210	37,6			

	Agreed	102	18,3	
	Strongly Agree	24	4,3	
Levels of unrealistic optimism	High level (mean 49 – 70)	08	(1,4)	36,17±5,97
	Average level (mean 35 – 49)	306	(54,8)	
	low level (mean 14 – 35)	244	(43,7)	

Tables 1 indicates that levels of unrealistic optimism among Algerian citizens during the home confinement of coronavirus are divided into three parts. First, 54.8% of the respondents had an average level of unrealistic optimism, where the mean of participants was (36,17 ± 5,97). Second, 43.7% of them had a low level. Third, only 1.4% of the sample had a high level of unrealistic optimism.

Among the indicators of the spread of unrealistic optimism for the study sample, it is found that their conviction with the coronavirus does not pose a threat to their lives, and that they have more capacity than others to avoid infection, especially, since their immunity is strong according to their thinking, in addition to their enormous confidence in their capacity to avoid infection by the coronavirus during social interaction. Accordingly, they do not believe that they are exposed to health complications due to the coronavirus, and this poor estimation of the objective risk is reflected in their conviction that they are completely away from infection with the coronavirus; they are convinced that this virus will disappear very soon because the idea of infection does not exist in their imagination. So, the reduction of objective risk to human health and life can be a breaking factor to home confinement, and may further increase the spread of the coronavirus epidemic.

3.3. Association between respect home confinement and wear the mask with the levels of unrealistic optimism

Table 3. Association between respecting home confinement and wearing the mask with the levels of unrealistic optimism among Algerian citizens during the home confinement of coronavirus (n = 558).

Variables		Respect home confinement				Wear the mask when you leave the house			
level of unrealistic optimism	All (n=558)	Always (n = 386)	Sometimes (n = 136)	Rarely (n = 36)	*P*-Value	Always (n = 204)	Sometimes (n = 138)	Rarely (n = 216)	*P*-Value
High level	08 (1,4)	06 (1,1)	00	2 (0,4)		02 (0,4)	04 (0,4)	02 (0,4)	
Average level	306 (54,8)	226 (40,5)	58 (10,4)	22 (3,9)	0,001	122 (21,9)	74 (13,3)	110 (19,7)	0,183
Low level	244 (43,7)	154 (27,6)	78 (14,0)	12 (2,2)		80 (14,3)	60 (10,8)	104 (18,6)	

Table 3 also shows that the unrealistic optimism level was the average level 54.8%, followed by low level 43.7%, and a high level 1.4%. This means that the respondents had confirmed the existence of the subjective perception and underestimated the risk linked to the coronavirus. This is why we find individuals leaving their homes during the times of confinement without any fear of losing their lives on one side, and infecting their families on the other side.

The results in the table show that there is an association between the levels of unrealistic optimism nd respecting the home confinement (P = 0.001). It is also noticed that 40.5% of respondents with an average level of unrealistic optimism confirm their total respect for confinement, and even 27% of them had a low level of unrealistic optimism. They focus on the importance of staying at home during the pandemic (COVID-19), which means that the low level of unrealistic optimism pushes people to objectively assess the risks of coronavirus and the need to take preventive instructions into account, which will include the belief in the effectiveness of staying at home and avoiding the social interactions that cause the spread of the infection.

By contrast, the results of table 3 show that there is no association between the levels of unrealistic optimism and wearing the mask (P = 0.183). According to the results, we observed a dispersion in the responses of the respondents who have low and average levels of unrealistic optimism concerning the wearing of masks outside the house. Hence, 38.3% of respondents said that they rarely wear a mask when they leave the house, 36.2% among them said sometimes, and 24.1% of respondents said all the time, but this is due to the rarity of masks in pharmacies, and even the negligence of the effectiveness of masks to fight against the corona virus. In effect, this behavior is predominant in our social life, which requires measures to impose the wearing of masks to all who go outside to public places.

3.4. Association between the level of unrealistic optimism and age

Table 4. Association between the level of unrealistic optimism and age among Algerian citizens during the home confinement of coronavirus (n = 558).

Variable	R2	AR2	Beta	t	*P*-Value
age	,006	,004	-,119	-2,820	0,005

According to the results shown in Table 4, there is significantly a negative association (B = -, 119, P = 0.005) with unrealistic optimism and the age among Algerian citizens during the home confinement of coronavirus. This means that the elderly have low unrealistic optimism scores because of their objective perception of the risk according to life experiences, so they prefer to avoid the danger of death due to coronavirus. Contrary to young people who often love adventure and risk-taking, and this is what we see in reality as many young people neither adhere to home confinement nor feel anxiety or fear for their lives, and this is due to the high level of unrealistic optimism they have.

3.5. The differences in the unrealistic optimism between the groups of gender

Table 5. The differences in the unrealistic optimism between the groups of gender among Algerian citizens during the home confinement of coronavirus (n = 558).

Variables	Male (220)		Female (338)		T	*P*-Value
	Mean	Standard deviation	Mean	Standard deviation		
Unrealistic optimism	36,2364	5,74961	36,1302	6,11809	,208	,835

Table 5 indicates that there is no significant difference about the unrealistic optimism between the groups of gender among Algerian citizens during the home confinement of coronavirus (P = 0,0835). This means that the gender variable is not linked to optimism, since it represents a psychological characteristic linked to behavior in general, including behaviors linked to the home confinement.

Discussion

This study is an immediate investigation of unrealistic optimism among Algerian citizens during the home confinement of coronavirus. The results show that 69.2% of participants confirmed their strict respect for home confinement. This is linked to the level of awareness of the respondents who are informed that containment is important to fight the virus. In the United States, a study indicates that home confinement ensures a 30.2% reduction in cases per week, a 48.6% reduction in cases after three weeks, and a 59.8% reduction in weekly deaths after three weeks.[12] In addition, the closure and containment in Wuhan slowed the spread of the epidemic to other cities by about 2.9 days.[13] Knowing that the epidemiological impact of displacement restrictions has not yet been explicitly evaluated [14] if people respect social distancing and a safety distance. However, containment should remain the priority for the moment and especially that it is not surprising that one day broader containment measures are necessary to prevent the pandemic. [15,16] The respondents who fail to respect confinement must certainly have enormous difficulties in accepting confinement as it was the case during the SARS epidemic in Toronto (Canada) where a significant proportion of people in their forties were in psychological distress.[17] Or, since the severity of the epidemic was not widely disseminated or recognized at the outset, which delayed the containment measures and the support of the population[18] for protecting themselves from COVID- 19.

This study indicates that 38.7% of responds confirmed that they rarely wear the mask, while 24% of them confirmed that they only sometimes wear masks when they leave the house. This shows that the information disseminated on the usefulness of wearing the mask was not clear at the beginning of the epidemic, although modeling studies estimate the number of reproductions of the disease at 6.47, which represents a very high value to that estimated by the World Health Organization (WHO) from 1.4 to 2.5 .[19] The shortage of the masks in Algeria caused a problem at the start of the pandemic, even though the masks proved to be useful in preventing diseases in healthy people and preventing asymptomatic transmission. Thus, the use of face masks by the entire population is of great value in reducing the spread of the disease, even if masks are made at home and of a relatively low quality, which can help countries plan their strategy of lift the confinement.[20,21]

The study reveals that 50.5% of the sample confirmed that people infected with the coronavirus suffer from social stigmatization. This is linked to the fear of people who do not have enough information about the virus. In addition, stigma is associated with many health problems, which requires adequate awareness capable of minimizing and facilitating acceptance in the general population.[22, 23]

As a result of the study, it is found that 54.8% of the respondents had an average level of unrealistic optimism, where the mean of participants was (36,17 ± 5,97). Since they have the necessary information on social networking, but it seems that the course of the disease has also influenced this category. The rest of the respondents needed more awareness.

The results show that there is an association between the levels of unrealistic optimism and respecting the home confinement (P = 0.001). By contrast, the results show also that there is no association between the levels of unrealistic optimism and wearing the mask (P = 0.183). This is due to the information that has circulated on the containment strategy undertaken by many countries which was efficient and which enabled Wuhan to return to a normal life. Knowing that the Chinese government has worked to improve public awareness of prevention and intervention strategies by providing daily updates of information, and psychologists and psychiatrists have used the internet and social media to help people.[24] However, the absence of association between the levels of unrealistic optimism and the wearing of masks is mainly linked to the contradictions on the usefulness of wearing masks, launched at the beginning of the epidemic by the media, before coming back in to say that it is important to wear the mask, despite being unavailable in pharmacies.

It is found in this study that there is significantly a negative association (B = -0, 119, P = 0.005) with unrealistic optimism and age among Algerian citizens during the home confinement of coronavirus. So, the results of our study demonstrate that the age variable is negatively associated with unrealistic optimism, in effect, the elderly have more social experiences, awareness and objective perceptions of the risk, in particular, linked to the coronavirus, which means they are able to estimate risks objectively and prudently, unlike young people who are generally distinguished by the love of adventure, impulsiveness risk, and this appears in their treatment of the instructions for confinement at home because of coronavirus.

This study indicates that there is no significant difference concerning the unrealistic optimism between the groups of gender among Algerian citizens during the home confinement of coronavirus (P = 0. 0835). In comparison, [5] confirm that unrealistic optimism was mainly observed in men in the three measures, but also women in two measures; therefore, the phenomenon of unrealistic optimism was observed especially among men. This study has several limits related to the time-sensibility of the pandemic (COVID-19). For this purpose, a snowball sampling is adopted, knowing that it is not based on random selection, and the study population did not reflect the reality of the general population.

The future perspectives of this study can also be integrated into research questions on health behavior, quality of life, the perception of pandemic risk, without forgetting the associations with demographic

variables.

Conclusions

In conclusion, the average level of unrealistic optimism can affect risky behaviors associated with home lift confinement, because of naively minimizing the risk of being infected with the coronavirus. This is why it is important to work on psycho-cognitive factors, including unrealistic optimism which affects the behavior of citizens, especially in terms of their commitment to home confinement, which is currently the only way to prevent the consequences of the coronavirus.

Declarations

Ethics approval and consent to participate: Not applicable

Availability of data and material: All data generated or analyzed during this study are included in this published article.

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