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Assessing the influence of personality and health beliefs on variability of COVID-19 fear among Egyptians: a cross-sectional study

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Abstract

Background Patients and their families get stigmatized and socially excluded due to their fear of COVID-19, which exposes them to psychological discomfort, rage, depression, and anxiety. The purpose of this study was to assess the fear the Egyptian population had of COVID-19 and its risk factors during the pandemic.

Methods In this study, 1002 Egyptian adults joined part via a cross-sectional online survey.

The survey included questions related to sociodemographic and clinical data, the Health Belief Model (HBM), The Arabic Big Five Personality Inventory (ABFPI), and the Fear of COVID-19 Scale (FCV-19S).

Results Marriage status, rural residence, non-medical work, lack of satisfaction with personal information about COVID-19, high perceived severity, perceived benefits of social distance, and high scores of neuroticism significantly increased the risk of fear from COVID-19, while low perceived susceptibility and high conscientiousness were protective factors against the fear of covid-19.

Conclusions Personality traits and health beliefs play an important role in COVID-19-related fear during the pandemic. These findings might help in the planning of prevention programs in the future.

Keywords COVID-19, Personality, Health belief, Fear, Anxiety

Introduction

In the last 2 years, the world has been overwhelmed with the management of the pandemic caused by the novel coronavirus 2019 (COVID-19). Although most cases presented with mild symptoms [1] however, it is extremely infectious and associated with relatively high mortality which raises individuals' fears about COVID-19. Fear is defined as a natural, powerful, unpleasant, emotional response to a perceived threat (either real or unreal threat), which is associated with autonomic arousal, thoughts of impending danger, and avoidance

behaviors [2, 3]. Usually, anxiety develops out of fear after failing to cope with the perceived threat [4]. Fear of COVID-19 generates stigma and social exclusion of patients and their families, which exposes them to psychological distress and psychiatric morbidity (e.g., anger, depression, and anxiety) [5–7]. Although a moderate level of fear makes us alert, and more conscious and it might be required to lower the risk of COVID-19 infection, nevertheless, extreme forms of fear and anxiety impair the life satisfaction and functionality of individuals [8]. It is supposed that for better understanding the individual differences in behavior, probing the personality variable is helpful. Personality is defined as the characteristic way of thinking, feeling, and behaving [9]. The Five-Factor Model (FFM) of personality is a set of five broad trait dimensions or domains. FFM consists of neuroticism (the tendency to be emotionally

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unstable and experience negative effects such as anger, anxiety, and fear), conscientiousness (how people control, regulate and direct their impulses, and extroversion, which is general tendency to experience positive emotions, characterized by being energetic, sociable and warmth), openness (it involves being creative, curious and interested in new experiences tendency), and agreeableness (it describes person's ability to put others needs before their own, with a tendency to be kind and cooperative) [10]. It is well-known that neuroticism varies among healthy subjects however, high neuroticism is documented as a common risk factor for several psychopathologies, psychosomatic problems [8], and conditioned fear responses [11]. This hypothesis is supported by imaging studies showing higher amygdala reactivity to negative stimuli in neurotic individuals during exposure to stress [12]. Moreover, Omura et al., [13] reported a positive association between the density of gray matter in the amygdala and neuroticism.

Many social cognitive models place a strong emphasis on the significance of health-related beliefs in shaping a person's behaviors and emotions [14]. One of the most popular models for examining the adoption of health-protective behaviors is the Health Belief Model (HBM) [15]. The five perceptions listed below make up the model's key constructs: perceived seriousness, susceptibility, advantages, barriers, and self-efficacy. The explanation of health behavior can be found in each of these categories [16]. In addition to personality and health-related beliefs, sociodemographic variables are of interest. It is well reported that females tend to be more anxious than males [17] but is this true for the fear of COVID-19? and what are the other individual differences that may affect the level of experiences of COVID-19-related fear? During a pandemic, our study attempted to understand how personality traits, health-related beliefs, sociodemographic factors, and the degree of COVID-19-related fear among the Egyptian population would play a role. Although the same continent-wide procedures have been taken in those wealthy nations, numerous countries in Europe and the US have been adversely affected by COVID-19. Surprisingly, countries with low and moderate levels of income, like Egypt, reported fewer documented instances [18]. We have a research gap in this area among low and middle-income nations, despite the fact that numerous studies have researched and addressed fears and worries related to the COVID-19 pandemic [19, 20], particularly in Western and high-income countries. Therefore, using Egypt as an example of one of these nations, it would be interesting to investigate fear levels and associated factors. Furthermore, the role of personality in COVID-19-related fear was not addressed adequately.

Methods

Participants

A cross-sectional survey was done in Egypt between the first of June 2020 and the last day of September 2020, involving 1002 Egyptians in total. Through the social media site "Facebook," we disseminated an online questionnaire to Egyptian groups. The study included all consecutive Egyptian individuals (>18 years old) of both genders who were willing to take part. Current known mental, cognitive, and substance use disorders were among the exclusion criteria. Prior to completing the survey, each participant's informed consent was obtained, and their anonymity was guaranteed. The Institutional Review Board (IRB) of the Faculty of Medicine at Zagazig University in Egypt gave its approval to this study (N0:6244/12-7-2020).

Measures

Sociodemographic and clinical questionnaire

The questionnaire included sociodemographic data (i.e., age, sex, marital state, educational level, residence, occupation) and clinical data which included: a history of physical or psychiatric diseases, nicotine smoking, and substance use. Having a relative infected with COVID-19, satisfaction with information about COVID-19, and satisfaction with governmental precautions against COVID-19.

Health beliefs

HBM is used to explore the beliefs and expectations related to the COVID-19 pandemic among participants. It included four domains: perceived risk (perceived susceptibility and perceived severity), perceived benefits, and barriers in addition to self-efficacy. In the current study, we used 18 items to assess HBM domains [21], and five-point Likert's scales are used to assess each one using the following measurement: strongly agree=5, agree=4, neutral=3, disagree=2, strongly disagree=1 as following:

1) Perceived risk of COVID-19 infection which included; (a) *Risk of susceptibility*: refers to the participant's belief about the probability of having COVID-19 infection, and assessed by two items (e.g., COVID-19 infection is likely to develop) (mean=6.66, scores ≥ 6.66 are considered high) and (b) *Risk of severity* which pointed to participant's belief about the possible consequences of getting COVID-19 infection. It is assessed by three items (e.g., "If I get COVID-19 infection, I may lose my life") (mean 11.9, scores ≥ 11.9 considered high). 2) Self-efficacy: It was assessed by five items and the sum variable "self-efficacy to prevent COVID-19" was constructed from the five items. The mean was 22.44 ± 2.21 SD with scores ≥ 22.44 considered (1) yes

and scores < 22.44 considered (0) no efficacy. 3) Perceived benefits from practicing protective behaviors; it described the participant's thoughts about the value and effectiveness of these behaviors in risk reduction of COVID-19 infection. Four items are used (e.g., "I am feeling safe from getting an infection, while I am using masks, gloves, disinfectants, and hand washing" and "Adherence to social distancing and avoidance of unnecessary leaving home protects me from being infected with COVID-19") for hand hygiene benefits, mean = 8.18, (scores ≥ 8.18 considered high) while for social distance benefits, mean = 9.07 (scores ≥ 9.07 considered high). 4) Perceived barriers to practicing protective behaviors that assess participants' beliefs regarding difficulties, they may face while practicing the protective behaviors. This domain was assessed by four items (e.g., "Hand hygiene may damage my hands" and "I always forget to apply social distancing"), mean for hand hygiene barriers = 7.20 (scores ≥ 7.20 considered high), and social distance barriers = 7.22 (scores ≥ 7.22 considered high).

The Arabic Big Five Personality Inventory (ABFPI)

ABFPI determines how one person differs from the others in terms of personality traits including conscientiousness, neuroticism, openness, extraversion, and agreeableness. ABFPI consists of 25 short statements which are derived from a large item pool (455 items) through different steps [22]. Each personality trait or factor was assessed by five items with a total score ranging from 6 – 24 points, and higher scores on the factor are a sign that the trait is more prevalent. With acceptable to good internal consistency and test–retest repeatability, it is a validated tool [23, 24].

Fear of COVID-19 Scale (FCV-19S)

In this study, people's fears about the COVID-19 pandemic were evaluated and allayed using the Fear of COVID-19 Scale (FCV-19S). It has been demonstrated to have strong psychometric qualities, with comparability across all age groups and for both genders [25, 26]. The reliability and validity of the Arabic version had been examined by [27]. With a median of 18, the overall score ranged from 7 to 35. Participants who submitted scores of 18 showed strong levels of fear. This scale consists of 7 questions, with responses ranging from "strongly agree" to "agree," "neither agree nor disagree," "disagree," and "strongly disagree" with scores from 5 to 1. The scale had total scores ranging from 7 to 35. A higher rating denotes a greater level of COVID-19-related fear.

Statistical analysis

Statistical software for the Social Sciences was used for data analysis (SPSS, version 22.0, Chicago, IL). The

Chi-square test (X^2) was used for categorical data. Qualitative variables were described by frequencies and percentages while quantitative variables were represented by the means and standard deviations. Independent sample t-tests and one-way ANOVA tests were used for comparison between quantitative data. The Pearson correlation coefficient was used to assess how closely related two variables having a linear relationship are to one another. When the significant probability was less than 5% ($p < 0.05$) and the probability of error was less than 1% ($p < 0.01$), all results were deemed statistically significant.

Results

Sociodemographic and clinical characteristics of participants

The mean age of participants was 33.07 ± 8.03 years, and most of them were females (No = 713, 71.1%) and lived in urban (No = 781, 77.9%). One quarter (No = 250) of the studied participants worked in the medical field and around half (No = 563) had a university degree. One-fifth had (No = 230) physical diseases. Most of the participants (No = 896, 89.4%) are non-smokers. Eighteen percent had infected relatives with COVID-19. Two-thirds (No = 650) were satisfied with their information about COVID-19, but more than three-fourths (No = 770) were not satisfied with governmental precautions against COVID-19.

Prevalence and Correlates of Fear of COVID-19

The overall mean score for the Fear of COVID-19 Scale was (18.29 ± 5.96) . Fifty-three percent of participants had high fear levels (≥ 18). Significant higher COVID-19 fear levels were shown in females (P -value = 0.001), widows (P -value = 0.048), rural residents (P -value = 0.001), people with low educational levels (P -value = 0.001), not working people, (P -value = 0.001), non-smokers participants, people with medical and psychiatric comorbidity, and participants who were not satisfied with their personal information about COVID-19, as illustrated in Table 1.

Association between health beliefs and fear of COVID-19

Participants who reported high perceived severity, high perceived benefits of both hand hygiene and social distance, and high perceived barriers to social distances showed significantly higher scores of COVID-19 fear as in Table 2.

Association between personality traits and fear of COVID-19

Among the participants, there was a significant association between higher total scores of COVID-19 fear and lower scores of conscientiousness (P -value = 0.001), openness (P -value = 0.001), agreeableness (P -value = 0.011),

Table 1 Association between sociodemographic data and COVID-19 fear scores

Variable			Total score of COVID fear scale (M ± SD)	t test	P
Age category	18–30	N = 347	18.12 ± 5.86	0.282 ^b	0.754
	31–50	N = 632	18.37 ± 6.06		
	> 50	N = 23	18.83 ± 4.77		
Sex	Female	N = 713	18.76 ± 5.88	3.869 ^a	< 0.001**
	Male	N = 289	17.15 ± 6.03		
Marital	Divorced	N = 35	17.11 ± 7.88	2.645 ^b	0.048*
	Married	N = 726	18.59 ± 5.87		
	Single	N = 235	17.51 ± 5.91		
	Widow	N = 6	20.33 ± 2.5		
Residence	Rural	N = 281	19.81 ± 6.19	4.318 ^a	0.001**
	Urban	N = 781	17.87 ± 5.83		
Occupation	Not working, medical	N = 132	18.3 ± 5.75	10.7 ^b	< 0.001**
	Not working, non- medical	N = 313	19.79 ± 6.17		
	Working medical	N = 250	17.3 ± 5.87		
	Working non-medical	N = 307	17.57 ± 5.62		
Education	Middle education	N = 92	21.64 ± 6.22	16.444 ^b	< 0.001**
	Read & write	N = 20	23.05 ± 7.62		
	Postgraduate	N = 327	17.7 ± 5.71		
	University	N = 563	17.93 ± 5.76		
Medical comorbidity	No	N = 772	18.06 ± 5.93	-2.213 ^a	0.027*
	Yes	N = 230	19.06 ± 6.02		
Psych. comorbidity	No	N = 677	17.83 ± 5.97	-3.555 ^a	< 0.001**
	Yes	N = 325	19.26 ± 5.84		
Substance abuse	No	N = 969	18.33 ± 5.95	1.031 ^a	0.331
	Yes	N = 33	17.24 ± 6.21		
Nicotine smoking	No	N = 896	18.42 ± 5.94	1.97 ^a	0.049*
	Yes	N = 106	17.22 ± 6.09		
Relative infection with COVID-19	No	821	18.27 ± 5.91	0.29	0.78 NS
	Yes	181	18.41 ± 6.20		
Satisfaction with personal information	No	352	19.45 ± 5.94	4.57	< 0.001 **
	Yes	650	17.67 ± 5.89		
Satisfaction with governmental precautions	No	441	18.48 ± 5.97	1.75	0.08 NS
	Yes	561	17.69 ± 5.91		

*: Significant ($P < 0.05$), **: highly significant ($p \leq 0.001$)^a independent sample t-test; ^b One way ANOVA

and high neuroticism (P -value = 0.001), as illustrated in Table 3.

Analysis through logistic regression of the variables linked to a high fear score

Using logistic regression analysis, it was found that marriage, widow status, rural residence, not working, lack of satisfaction with personal information about COVID-19, high perceived severity, perception of high social distance benefits, and high neuroticism trait significantly increased risk of COVID-19-related fear by 1.51, 1.64, 1.69, 1.65, 3.22, 2.14, 2.22 and 2.299 folds respectively.

While low perceived suitability and high Conscientiousness were protective factors against the fear of COVID-19 as shown in Table 4.

Discussion

During the COVID-19 epidemic, more than half of the Egyptian population reported having high levels of COVID-19-related fear. Numerous nations around the world reported outcomes that were comparable. Over two-thirds of participants in an online poll study in the USA expressed concern about COVID-19 [28]. Giordani et al. [29] found that 53% of the Brazilian population had

Table 2 Association between cognitive factors (HBM items) and scores of fear of COVID-19 scale

Variability		N	Total Fear of corona score		t	P
			Mean	SD		
Perceived susceptibility	low susceptibility	406	18.02	5.59	1.19	0.23
	high susceptibility	596	18.48	6.20		
Perceived severity	low severity	418	15.92	5.15	11.33	< 0.001**
	high severity	584	19.99	5.92		
Hand hygiene Benefits	No	441	17.45	5.82	4.01	< 0.001**
	Yes	561	18.96	6.00		
Social distance benefits	No	479	17.24	5.53	5.41	< 0.001**
	Yes	523	19.26	6.18		
Barriers to hand hygiene	No	604	18.14	6.02	1.02	0.31 NS
	Yes	398	18.53	5.87		
Barriers to social distance	No	462	17.88	5.75	2.06	0.04*
	Yes	540	18.65	6.12		
Self-efficacy	Inefficient	547	18.37	6.04	0.42	0.68
	Efficient	455	18.21	5.87		

t independent sample t-test ** $p \leq 0.001$ is statistically highly significant * $P < 0.05$ is statistically significant

Table 3 Association between personality traits and total scores of COVID-19 scale

Variability		N	Total Fear of corona score		t	P
			Mean	SD		
Extroversion	Low	255	18.18	5.88	-0.366	0.715 NS
	High	747	18.33	5.99		
Neuroticism	Low	468	16.84	5.79	-7.434	< 0.001**
	High	534	19.57	5.83		
Agreeableness	Low	23	18.19	5.87	2.779	0.011*
	High	979	22.83	7.95		
Openness	Low	139	18	5.75	3.475	< 0.001**
	High	863	20.14	6.88		
Conscientiousness	Low	120	17.92	5.71	4.519	< 0.001**
	High	882	20.95	7.03		

** $p \leq 0.001$ is statistically highly significant

* $P < 0.05$ is statistically significant

high fear, while Doshi et al. [30] revealed that 45.2% of the population in India, had high COVID-19-related fear. However, in Cuba, Broche-Pérez et al. [31] reported that only 22.7% of the population showed a high level of fear. This difference might be attributed to using different measures at different times during the pandemic.

The perceived ambiguity of the virus, the lack of a clear prevention strategy and the sparse use of medical protective equipment, health anxiety, regular media use, and excessive exposure to life-changing events like the loss of family members due to COVID-19 can all be attributed to the participants' high levels of COVID-19-related fear [32, 33]. Additionally, disturbing ideas about the pandemic's effects, including lost jobs, reduced income, and

harmed interpersonal relationships with feelings of hopelessness, loneliness, and anger which accentuate the fear perception [34–36].

Logistic regression analysis revealed that being married, rural residence, not working or not satisfied with personal information are significant factors that increase the risk of high COVID-19 related fear.

Many studies support our findings [34, 37–41]. In non-pandemic situations, being married is associated with more psychological flexibility and less anxiety compared to a nonmarried counterpart, however, in light of the pandemic, the contrary is true [37]. This can be explained, married subjects became more pre-occupied with worrying thoughts related to getting an

Table 4 Logistic regression of factors associated with high fear score (≥ 18) among the studied participants

	B	S.E	Wald	Sig	AOR	95% C.I	
> 50 Age class	0.291	0.169	2.976	0.085 NS	1.338	0.961	1.862
Female Sex	0.326	0.191	2.902	0.088 NS	1.385	0.952	2.016
Married	0.403	0.201	4.714	0.030*	1.514	1.042	2.211
Rural residence	0.494	0.187	6.942	0.008*	1.638	1.135	2.365
Not working non-medical	0.527	0.165	10.233	0.001*	1.693	1.226	2.338
Before university education	1.187	0.686	2.993	0.084 NS	3.277	0.854	12.577
Had Comorbid	0.268	0.176	2.318	0.128 NS	1.307	0.926	1.846
Had Psych	0.139	0.166	0.709	0.400 NS	1.150	0.831	1.591
Drug Abuse	-0.564	0.448	1.585	0.208 NS	0.569	0.236	1.369
Smoking	0.095	0.261	0.132	0.716 NS	1.099	0.659	1.834
Had a relative with +Ve infection	0.124	0.188	0.437	0.509 NS	1.132	0.783	1.637
Not satisfied with personal information	0.498	0.154	10.511	0.001**	1.646	1.218	2.225
Not satisfied with governmental precautions	-0.125	0.177	0.499	0.480 NS	0.882	0.624	1.249
Low perceived Sus	-0.364	0.150	5.861	0.015*	0.695	0.518	0.933
High perceived severity	1.170	0.152	59.616	<0.001**	3.222	2.394	4.337
Hand hygiene benefit	-0.030	0.171	0.030	0.863	0.971	0.694	1.358
Social distance benefit	0.763	0.174	19.211	<0.001**	2.144	1.524	3.015
Had barriers of hand hygiene	-0.076	0.153	0.248	0.618 NS	0.927	0.687	1.250
Had barriers to social distance	0.203	0.153	1.747	0.186 NS	1.225	0.907	1.655
Inefficient self-efficacy	0.191	0.153	1.560	0.212 NS	1.210	0.897	1.632
High Extravasation	0.196	0.169	1.355	0.244 NS	1.217	0.874	1.693
High neuroticism	0.796	0.163	23.851	<0.001**	2.217	1.610	3.051
High Agreeableness	-0.550	0.550	1.001	0.317 NS	0.577	0.196	1.694
High Openness	-0.022	0.235	0.009	0.924 NS	0.978	0.617	1.549
High Conscientiousness	-0.547	0.256	4.585	0.032*	0.579	0.351	0.955

AOR adjusted odds ratio, CI confidence interval

** $p < 0.001$ is statistically highly significant, * $P < 0.05$ is statistically significant

infection and the risk of complications of the family members during the pandemic which accentuate their fears.

Rural residents were more likely to have COVID-19 fear than urban residents because they usually have low socioeconomic status, poor access to COVID-19-related data, and less access to hospital or medical facilities [42–44]. These factors may complicate the perceived stress and magnify their fears.

Subjects who are currently not working showed a significant experience of fear of COVID-19. Supporting these findings, Psychologists referred to those who lose their work as ‘precarious work’ and this type of work generates physical, relational, behavioral, psychological, economic, and emotional stresses that worsen outcomes created by crises like the COVID-19 pandemic [45]. Moreover, people who have never worked in the medical field may lack sufficient medical knowledge about COVID-19, so they experience more fear than those who did [41, 46]. This finding shed light on those who lost

their work secondary to the crisis, and their need for, psychological, financial, and educational interventions to lessen the pandemic’s detrimental effects.

This study found that a higher level of fear of COVID-19 is inversely related to the level of satisfaction with personal information related to COVID-19, which is supported by Hossain et al. [47]. These findings highlight the importance of the availability of governmental official medical websites that release accurate pandemic related information and keep the subjects updated in such crises.

Participants with high perceived severity and perceived benefits of social distancing were three and two times more likely to have higher levels of COVID-19-related fear respectively than their counterparts. However, low perceived susceptibility was a protective factor against COVID-19 fear. These findings confirm the earlier reports, which found that high fear of coronavirus was associated with perceived higher susceptibility, severity, and threat of the infection during the COVID-19 pandemic [21]. Moreover, Leung et al. [48] reported

similar results during the SARS pandemic. According to this study's findings about Egyptians' health perceptions of protective measures, there is a strong correlation between high perceived social benefits and a high risk of COVID-19-related fear. Our results provide more evidence for early observations that fear plays a paradoxical function in emotions, having both good and harmful effects. Regarding the perceived benefits, past studies showed a correlation between higher levels of COVID-19-related fear and higher levels of health compliance and participation in protective measures (such as hand-washing and social seclusion) among the general public [49, 50].

This study showed that people with high levels of neuroticism experienced significantly higher levels of fear related to COVID-19 than people with high levels of conscientiousness, openness, and agreeableness. Similar results were discovered in Italy [51]. There is a significant link between health anxiety, neuroticism, and unfavorable temperament, according to other studies [52]. Other research [53, 54] that found that openness, agreeableness, and conscientiousness were protective variables and that neuroticism is a risk factor for anxiety associated to COVID-19 corroborated our findings. According to a recent study, people with high neuroticism may have become more anxious about COVID-19-related information and pandemic effects during the COVID-19 pandemic. This would have heightened their perception of the virus's threat and intensified their negative emotions [55, 56].

In the current study, it was interesting to know that persons with higher traits of Conscientiousness were protected against the fear of COVID-19. Supporting to our findings, Bayanfar and Watson & Clark, [57, 58] reported that higher levels of conscientiousness were associated with reduced COVID-19-related anxiety. This could be explained by the fact that individuals with higher levels of conscientiousness are less likely to perceive a stressor as threatening because they have higher perceived efficacy, self-regulation, and coping strategies to COVID-19 which minimize the perceived stress [59–61]. Fear of COVID-19 is a double-edged weapon, although it has a crucial role to enhance the knowledge about protective behavior, however, long-standing fear became a window for anxiety and depression.

Limitations

Because of its cross-sectional design and use of non-representative self-reported data, the current study had a number of limitations. Since it was impossible to gather the data in person while Egypt was under lockdown, participants

for the survey were recruited using an online platform. As a result, only people with access to and the ability to use the internet were included, which is regarded as a limitation. Furthermore, recall bias represents yet another study flaw. In order to get over these restrictions, more research is still necessary. Despite the aforementioned drawbacks, this study provided additional proof that certain risk and protective factors are crucial in predicting COVID-19-related fear during the pandemic and other similar crises.

Conclusions

During the COVID-19 epidemic, more than half of the Egyptian population reported having high fear of COVID-19. Being married or widowed, rural residence, not working, dissatisfaction with personal knowledge about COVID-19, high perceived severity, high adaptive behaviors benefits, and high neuroticism were the most important risk variables for COVID-19-related fear during a pandemic.

Abbreviations

ABFPI	Arabic Big Five Personality Inventory
COVID-19	Coronavirus-2019
FCV-19	Fear of COVID-19 Scale
FFM	Five-Factor Model
HBM	Health belief model
IRB	Institutional Review Board
O.D.	Odds ratio
SARS	Severe Acute Respiratory Syndrome
SPSS	Statistical Software Package for the Social Sciences
USA	United States of America

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Authors' contributions

M.B. put the idea and the design of the study. E.F., S.A., and M.E. have collected the data and tabulated them. D.E. analyzed the data. All authors were involved in writing and editing the manuscript before submission.

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Availability of data and materials

Data will be available from the corresponding author if needed.

Declarations

Ethics approval and consent to participate

The IRB of the faculty of medicine at Zagazig University in Egypt approved this study, and each person gave their written consent to take part in it.

Consent for publication

All authors agreed to publish the manuscript and reviewed it before submission.

Competing interests

None.

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