Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

International Journal of Africa Nursing Sciences 17 (2022) 100502

Contents lists available at ScienceDirect

International Journal of Africa Nursing Sciences

journal homepage: www.elsevier.com/locate/ijans

Personality traits, perceived stress and perception of COVID-19 among Arab Population: A cross-sectional survey

Samah Mohamed Taha Eid [a,b,*], Evangeline Del Mundo [b], Ahmed Hashem El-Monshed [a,c]

[a] Department of Psychiatric and Mental Health Nursing, Faculty of Nursing, Mansoura University, Egypt
[b] Department of Nursing, Applied Medical Science, Buraydah Private Colleges, Saudi Arabia
[c] Department of Nursing, College of Health and Sport Sciences, University of Bahrain, Manama, Bahrain

ARTICLE INFO

Keywords:
Arab
Perceived stress
Perception
Personality

ABSTRACT

Background: Coronavirus disease-2019 is a worldwide pandemic. Political authorities are working hard to fight the disease transmission through corresponding interventions that may be influenced by individual perception, perceived stress, and personality traits that act as predictors of healthy behaviors and comply with protective measures especially with different cultures.
Aim: This study aimed to assess personality traits, perceived stress, and perception among the Arab population.
Methods: A cross-sectional online survey was fulfilled by 948 adults from different Arabic nationalities from 24th June to 15th July 2020. The Ten-Item Personality Inventory (TIPI), the Perceived Stress Scale (PSS), and Perception toward COVID-19 Questionnaire were used in this study.
Results: More than three quarters (76.1%) believed that COVID 19 is a dangerous disease and the vast majority (93.1%) disagreed that infection with the virus is associated with stigma. Agreeableness was high among the Egyptians, extroversion and openness to experience were high among Saudi Arabians, while emotional stability was high among Sudanese participants.
Conclusion: Individuals with high conscientiousness, extraversion, and emotional stability demonstrated lower levels of perceived stress during the pandemic. This highlights that for the development of stress management interventions during epidemics; it is crucial to take personality traits into consideration.

1. Introduction

The newly emerged pandemic of the novel conrnavirus disease 2019 (COVID-19) is the biggest public health emergency since the 2nd world war. It is a severe acute respiratory syndrome which has spread at lightning speed due to close social connectedness and travelling from place to place within few hours (He, Deng, & Li, 2020). Besides, COVID-19 is a disaster chain which enables us to study the ability of individuals, populations, governmental institutions to respond to the severe psychological shock resulted from infection, lockdown, social distancing, and economic collapse. (El-Monshed et al., 2022; Jeronimus, 2020).

It is known that Covid-19 is the second Coronavirus outbreak that affects the Middle East region, following the Middle East Respiratory Syndrome Coronaviurs (MERS-CoV) which was reported in Saudi Arabia during 2012. The first country in the Middle East Arab country to record a positive case of COVID-19 following the Wuhan city COVID-19 outbreak in China was United Arab Emirates (Reyad, 2020). As per World Health Organization's (WHO) Situation Report of 15 August 2020, all Arab region countries have reported COVID-19 cases, the total confirmed cases in Saudi Arabia, Egypt, Sudan, and Jordan were 295902, 96220, 12211, and 1329 respectively (WHO, 2020).

Numerous stressors have been reported following the pandemic, including health, financial, and relationship issues due to isolation and changes in responsibilities at home and work. Stress has been sweeping all people worldwide due to quarantine struggles and dip moods which eventually, can lead to chronic stress and depressive symptoms (Dryhurst et al., 2020; El-Monshed, El-Adl, Ali, & Loutfy, 2021). Stress is defined as the response of an individual to internal or external threats (Lečić-Toševski, Vuković, & Stepanović, 2011). Pearson's appraisal of a stressor as threatening or non-threatening and abilities to cope determine the perceived stress of an individual. Therefore, personality is a factor which can affect stress appraisal and responses (Liu, Lithopoulos, Zhang, Garcia-Barrera, & Rhodes, 2021).

Personality determines the individual's lasting patterns of emotion,

* Corresponding author.
E-mail addresses: dr.samah_hany@yahoo.com (S. Mohamed Taha Eid), aelmonshed@uob.edu.bh, ahmed_elmonshed@mans.edu.eg (A. Hashem El-Monshed).

https://doi.org/10.1016/j.ijans.2022.100502
Received 26 January 2021; Received in revised form 21 June 2022; Accepted 22 October 2022
Available online 25 October 2022
2214-1391/© 2022 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

behavior, and cognition that discriminate one person from another. The Five-Factor Model is a highly influential model which describes personality, it includes neuroticism(e.g., tendency to be emotionally unstable, and experience feelings such as fear, worry, and anxiety), conscientiousness (e.g., tendency to be organized, responsible, goal-directed, and hard-working,), extroversion (e.g., tendency to be positive, sociable, with a high activity level, and assertive), openness (e.g., tendency to be creative, perceptive, appreciate fantasy, reflective and aesthetics), and agreeableness (e.g., tendency to be cooperative, kind, trust worthy, altruistic, and generous; (Buecker, Maes, Denissen, & Luhmann, 2020).

To our knowledge, no studies have examined the association of personality traits and perceived stress towards the COVID-19 pandemic. In general, the previous studies have proved an association between personality traits and various kinds of behaviors. They demonstrated that personality has a substantial impact on cooperative behavior, such as helping group members and following group rules. Personality traits are also associated with health behavior; individuals with high neuroticism score are often worried about their health (Abdelrahman, 2020; Ebstrup, Eplov, Pisinger, & Jørgensen, 2011; Joyner, Rhodes, & Loprinzi, 2018; van Dijk et al., 2016). In accordance, another study reported that persons with low score on openness to experience, extraversion, and agreeableness tend more to avoid infectious diseases (Mortensen, Becker, Ackerman, Neuberg, & Kenrick, 2010).

Overall, the COVID-19 pandemic is a powerful natural experiment to study individual and societal differences in the experience, responses, changes, and outcomes of this disaster chain. Besides, COVID-19 is a transformative collective experience that influences every aspect of life, via stress and personal threat, ambiguity, prolonged social isolation, and the most severe economic recession in a century, which shall have a lasting impact on our lives (Jeronimus, 2020). Thus, to develop personal stress management as nursing interventions during the pandemic, it is critical for the mental health nurse to understand the mediators between personality, risk perception, and perceived stress. Therefore, it is deemed to conduct this study to assess personality traits, perceived stress, and perception toward COVID-19 among Arab population.

2. Aim of the study

The study was conducted to assess personality traits, perceived stress, and perception toward COVID-19 among Arab population.

3. Methods

3.1. Study design

An Internet-based self-administered questionnaire of closed-ended questions was used. It followed the guidelines for reporting Observational Studies: Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement.

3.2. Participants

A sample of 948 adults form different Arabic nationalities was included in the study by a non-random convenience sample followed by a snowball technique.

3.3. Eligibility criteria

Both genders of adult Arab populations aged 18 years or more, people who are familiar in using social media, capable of reading and understanding their native language (Arabic), and who have a free medical history regarding COVID-19 but are living in infected geographical areas with a varying severity were included. The authors excluded people who are known to have psychiatric disorders.

3.4. Measures

Data were collected anonymously through an online semi-structured Arabic questionnaire created using Google Forms™, valid link for three weeks, and consisted of the following four sections including a consent form for all respondents.

I- Socio-demographic and Personal Characteristics: including gender, age, marital status, having children, residence, nationality, level of education, employment status, family income, presence of any chronic diseases, presence of any psychiatric disorders, if any family member was infected with COVID-19 or one of respondents' friends, relatives or neighbors, and what are the sources of the respondents' knowledge regarding COVID-19.

II- The Ten-Item Personality Inventory (TIPI): This is a quick and brief assessment of the Big Five personality dimensions: (1) Extraversion, (2) Agreeableness, (3) Conscientiousness, (4) Emotional Stability, and (5) Openness to Experience. The inventory begins with the stem "I see myself as:'' followed by ten pairs of two trait descriptors, which participants rate on a 7-point Likert-type scale ranging from "1, strongly agree'' to "7, strongly disagree'' (Gosling, Rentfrow, & Swann, 2003).

III- The Perceived Stress Scale (PSS): This is a validated 14-item Likert type which assessed the extent that individuals believe their lives are overloaded, unpredictable, and uncontrollable over the past month. Respondents rated the items on a 5- point Likert scale (0 ¼ never, 4 ¼ very often), with higher scores indicating higher perceived stress (Cohen, Kamarck, & Mermelstein, 1983). The PSS has strong psychometric properties in diverse populations and has been shown to have good predictive validity in studies relating to conspiracy beliefs (Swami et al., 2016). This tool was translated into Arabic and validated in a sample of US Arab immigrants (Jaber, Brown, Hammad, Zhu, & Herman, 2003).

IV- Perception toward COVID-19 Questionnaire: This is a 5-item Likert scale was developed by the authors based on current scientific literature through selecting a set of main ideas and primary items directly relevant to COVID-19 (Abdelhafiz et al., 2020; El-Monshed, Amr, Ali, Elmasry, & Zoromba, 2021; Ferdous, 2020; Huynh, 2020; Karasneh et al., 2020; Niepel, Kranz, Borgonovi, Emslander, & Greiff, 2020; Olapegba et al., 2020). Responses of each item were rated on 3-point Likert scale as follows disagree, neutral, and agree.

3.5. Questionnaire's translation, its validity, and reliability

Firstly, the questionnaire was translated into Arabic language following the forward and back translation procedure, being customized to be suitable for the Arabic culture. Secondly, the study questionnaire was sent to the seven experts in the field of nursing and medical psychiatry and public health to give their feedback regarding its importance, relativity, simplicity. Thirdly, researchers carried out a pilot study on a small sample of nurses (n = 30) and after getting into discussions with them, they recommended that the questionnaire should be shorter, simpler, clearer, and more comprehendible. The pilot study enabled the researchers to improve the reliability, as well as to achieve a degree of the content and construct validity, by clarifying measurement fit and specifying content in different constructs (Neuman, 2014). The pilot study data were not used in the final analysis. The reliability coefficient was calculated by SPSS v.23 and the value of Cronbach's alpha was found to be 0.81, 0.83, and 0.73 for TIPI, PSS, and Perception toward COVID-19 Questionnaire, respectively.

3.6. Procedure

An internet-based survey was used in the study due to the inability to

use the face to face communication as per the international response strategy to mitigate the COVID-19 spread. The obscure online survey link was sent through emails and shared on the most common used social networking sites (Facebook and WhatsApp) within three weeks (24th June to 15th July 2020). The authors get respondents to send the survey to their companies (snowball technique). The average completion time of the survey was 8–10 min.

3.7. Ethics approval and consent to participate

Ethical approval was obtained from the Research Ethics Committee of Buraydah Colleges in Kingdom of Saudi Arabia (Session No. 4/402). Then, the population who were included in the eligibility criteria and were directed to fill the informed consent could open the link and participate in the study. No monetary rewards were given for completing the questionnaire.

3.8. Statistical analysis

The SPSS v.23 was used for data analysis. All the categorical data are summarized as percentages and frequencies. The data normality was tested with a one-sample Kolmogorov-Smirnov test. Continuous variables are presented as Mean ± Standard Deviation (*SD*) for parametric data. The two groups were compared with Student *t* test and means of more than two groups were compared with analysis of variance (ANOVA) test and Post-Hoc Multiple Comparison. Pearson correlation test was used to correlate between continuous parametric data. Linear regression analysis was used to "predict" the value of the dependent variable (perceived stress) based upon the values of independent variables (Big Five personality dimensions). Results were considered significant when the probability of error was less than 5 % ($p < 0.05$), and highly significant when the probability of error was less than 0.1 % ($p < 0.001$).

4. Results

Among the 948 participants, approximately-two-fifth (40.1 %) of the respondents aged between 20 and 30 years and more than two thirds (71 %) were females. Also, approximately-three-quarters (74.8 %) of the surveyed respondents lived in urban areas, 52 % were single, 29.2 % were Egyptians, and 26.2 % were Saudi Arabian. Two thirds of the participants obtained higher than secondary education. Less than one-third (29.9 %) of the respondents were working in the medical field and 45.6 % of them had relatives or acquaintances infected with COVID-19.

The Big Five personality dimensions and perceived stress had statistically significant relation with age, marital status, and occupation ($P \leq 0.05$). Extraversion, conscientiousness, and emotional stability were significantly higher in respondents aged>30 years. Agreeableness was significantly lower in respondents aged less than 20 years. Openness to experience and perceived stress were significantly lower in respondents aged>40 years. In contrary, perceived stress was significantly higher in single and students' respondents.

Agreeableness, conscientiousness, and openness to experience were significantly higher in female respondents. Besides, agreeableness, conscientiousness, emotional stability was significantly higher in respondents from urban areas, while perceived stress was significantly higher in respondents from rural areas. With respect to the nationality, agreeableness was significantly higher in Egyptians, whereas conscientiousness and openness to experience were significantly higher in Saudi Arabians. Emotional stability was significantly higher in Sudanese, and perceived stress was significantly lower in Sudanese and significantly higher in respondents from other nationalities.

Concerning the income, respondents with unsatisfactory income had significant low scores of emotional stability and significant high scores of perceived stress. Extraversion, emotional stability, and openness to experience were significantly higher in respondents who were working in medical field, while perceived stress was significantly lower among them. Respondents who had relatives or acquaintances infected with COVID-19 showed significant low scores of emotional stability and significant high scores of perceived stress (Table 1).

More than three-quarters (76.1 %) thought that COVID-19 is a dangerous disease and 63.1 % were concerned about the possibility of getting infected. The vast majority (93.1 %) of the participants disagreed that infection with the virus is associated with stigma, while, around one-third (32.6 %) agreed that "Nothing I do can stop the risk of catching me" and more than two fifth (43.8 %) reported that the pandemic will pass quickly (Table 2).

The results of Pearson correlation test show a statistically significant negative correlation between all Big Five personality dimensions and perceived stress ($P \leq 0.05$; Table 3). The last table depicts the unstandardized and standardized coefficients for the regression analyses. The regression was significant [$F = 73.009$, $P \leq 0.001$], accounting for 27 % of the variance in perceived stress ($R^2 = 0.27$). Greater levels of extraversion, conscientiousness, and emotional stability were significantly related to less perceived stress (Table 4).

5. Discussion

The study aimed to assess personality traits, perceived stress, and perception toward COVID-19 among Arab populations. To achieve this; data were collected from 984 participants in different Arab countries (Egypt, KSA, Sudanese Jordan, and others). When we asked our respondents about their perceptions regarding COVID-19, more than three-quarters believed that COVID-19 is a hazardous disease and 63.1 % were concerned about the possibility of getting infected with COVID-19. Other positive findings were that the vast majority of respondents disagreed that infection with the virus is associated with stigma. These results may be due to the effectiveness of the message provided by the different media platforms, which launched an extensive media campaign to raise awareness of the all issues of COVID-19. In addition, 45.6 % of the studied respondents had relatives or acquaintances infected with COVID-19. This result played an important role in exaggerating the danger and spread of the disease. These findings coincide with another study on 384 Egyptians who believed that COVID 19 is a life-threatening danger and who expressed concern for the possible risk of infection of any member of their family. In addition, about 23 % of participants thought that infection of the virus is associated with stigma (Abdelhafiz et al., 2020). Moreover, high perceived susceptibility and severities (89 % and 97 %, respectively) were reported in Hong Kong (Kwok et al., 2020). In previous pandemics, increased severity and threat of coronavirus infection was highly perceived in respondents with respiratory, health-related issues, or in relation with coronavirus (Leung et al., 2004). In contrary, another study demonstrated low perceived susceptibility (45 %) and severity (40 %) in the Sudanese population (Nasir & Almahdi, 2020).

Our results reported that greater levels of extraversion, conscientiousness, and emotional stability were significantly related to less perceived stress. It is known that extraverts look for opportunities to engage with others and seek out social stimulation. Moreover, the well-established relationship between perceived well-being and extraversion are mediated through the social connectedness (Lee, Dean, & Jung, 2008; Raad, 2000). Consequently, the ability of extroverts to fulfill this social stimulation may have been delayed by the quarantine during the pandemic, and thus led to higher levels of perceived stress than persons with lower extroversion (Kobylińska, Zajenkowski, Lewczuk, Jankowski, & Marchlewska, 2020).

Several studies confirmed that personality traits are associated with healthy measures engagement of the COVID-19 pandemic. Health-promoting and risk-avoiding behavior outside the context of pandemics can be predicted by conscientiousness, while compliance with social norms for specific health behaviors are predicted by

Table 1A
Big Five Personality Dimensions and Perceived Stress among Study Respondents and their Variation with the Socio-demographic Factors ($N = 948$).

Socio-demographic Factors		*N* (%)	Extraversion		Agreeableness		Conscientiousness		Emotional Stability		Openness to Experience		Perceived Stress	
			M (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.
Age	> 20	152 (16)	4.4 (1.4)^{ab}	*F* = 15.09	4.8 (1.3)^{abc}	*F* = 6.187	5.1 (1.3)^{ab}	*F* = 7.194	4.4 (1.3)^{ab}	*F* = 19.13	5.2 (1.2)^{a}	*F* = 13.30	25.7 (6.4)^{ab}	*F* = 32.86
	20 – (>30)	380 (40.1)	4.2 (1.3)^{cd}	***	5.1 (1.2)^{a}	***	5.1 (1.4)^{cd}	***	4.1 (1.4)^{acd}	***	5.1 (1.2)^{bc}	***	26.7 (8.3)^{cd}	***
	30 - (>40)	185 (19.5)	4.9 (1.4)^{ac}		5.3 (1.2)^{b}		5.4 (1.3)^{ac}		4.6 (1.3)^{ce}		4.9 (1.3)^{bd}		22.4 (7)^{ac}	
	≥ 40	231 (24.4)	4.9 (1.3)^{bd}		5.3 (1.3)^{c}		5.6 (1.2)^{bd}		5 (1.1)^{bde}		4.5 (1.4)^{acd}		21.1 (6.9)^{bd}	
Gender	Male	275 (29)	4.6 (1.3)	*t* = 1.07	4.8 (1.4)	*t* = -4.75	5(1.4)	*t* = -4.66	4.4(1.3)	*t* = -1.22	4.7(1.4)	*t* = -2.85	24.1 (7.8)	*t* = -0.64
	Female	673 (71)	4.5 (1.4)		5.3 (1.2)	***	5.4 (1.3)	***	4.5(1.3)		5(1.3)	**	24.4 (7.8)	
Residence	Urban	709 (74.8)	4.6 (1.4)	*t* = 1.46	5.2(1.2)	*t* = 4.31	5.4 (1.4)	*t* = 5.17	4.6(1.3)	*t* = 5.63	5(1.3)	*t* = 1.8	23.7 (7.7)	*t* = -3.96
	Rural	239 (25.2)	4.4 (1.3)		4.8(1.3)	***	4.9 (1.4)	***	4(1.4)	***	4.8(1.3)		26.1 (7.9)	***
Marital Status	Single	493 (52)	4.3 (1.4)^{ab}	*F* = 20.66	5(1.3)^{ab}	*F* = 10.06	5.2 (1.4)^{a}	*F* = 6.002	4.2 (1.4)^{a}	*F* = 17.48	5.2 (1.2)^{a}	*F* = 16.11	26.2 (7.9)^{ab}	*F* = 32.95
	Married	426 (44.9)	4.8 (1.4)^{a}	***	5.3(1.2) *ac*	***	5.5 (1.2)^{a}	**	4.8 (1.2)^{a}	***	4.7 (1.3)^{a}	***	22.3 (6.9)^{a}	***
	Widow/ Divorced	29 (3.1)	5.1 (1.3)^{b}		4.4(2)^{bc}		5.3 (1.2)		4.5(0.8)		5.2(1.5)		21 (10.1)^{b}	

*p <.05; **p <.01; ***p <.001.
M = Mean; *SD* = Standard Deviation; Test of Sig. = Test of Significance; *t* = Student *t* test; *F* = ANOVA test
a,b,c,d,e = Significant difference between groups by Post-Hoc Multiple Comparison

Table 1B
Big Five Personality Dimensions and Perceived Stress among Study Respondents and their Variation with the Socio-demographic Factors ($N = 948$).

Socio-demographic Factors		*N* (%)	Extraversion		Agreeableness		Conscientiousness		Emotional Stability		Openness to Experience		Perceived Stress	
			M (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.	*M* (*SD*)	Test of Sig.
Having Children	Yes	404 (42.6)	4.8 (1.4)	*t* = 5.89	5.2 (1.2)	*t* = 2.34	5.4(1.3)	*t* = 1.48	47(1.2)	*t* = 5.29	4.6 (1.3)	*t* = -6.16	21.9 (6.8)	*t* = -8.34
	No	544 (57.4)	4.3 (1.4)	***	5(1.3)	*	5.2(1.4)		4.3 (1.4)	***	5.2 (1.3)	***	26.1(8)	***
Nationality	Egyptian	277 (29.2)	4.5 (1.3)	*F* = 1.837	4.9 (1.2)^{abc}	*F* = 7.323	5 (1.3)^{abcd}	*F* = 9.186	4.4 (1.3)^{a}	*F* = 4.380	4.7 (1.3)^{ab}	*F* = 4.657	24.3 (7.7)^{ab}	*F* = 8.013
	Saudi Arabian	248 (26.2)	4.5 (1.3)		5.4 (1.2)^{ad}	***	5.7 (1.2)^{aefg}	***	4.5 (1.3)^{b}	**	5.2 (1.2)^{acd}	**	24.1 (7.6)^{cde}	***
	Sudanese	163 (17.2)	4.7 (1.4)		5.2 (1.1)^{be}		5.3 (1.3)^{be}		4.8 (1.3)^{acd}		4.9 (1.3)^{c}		22 (7.9)^{acfg}	
	Jordanian	179 (18.9)	4.6 (1.4)		5.2 (1.4)^{cf}		5.3 (1.4)^{cf}		4.4 (1.3)^{c}		4.9 (1.3)^{d}		25.6 (8)^{df}	
	Others	81 (8.5)	4.2 (1.7)		4.7 (1.3)^{def}		5.3(1)^{dg}		4.1 (1.3)^{bd}		5.1 (1.6)^{b}		27.3 (6.8)^{beg}	
Education	> Secondary	60 (6.4)	4.8 (1.4)^{a}	*F* = 4.29	5.1 (1.8)	*F* = 2.123	5.6(1.4)	*F* = 2.296	4.9 (1.3)^{a}	*F* = 10.97	4(1.5)^{ab}	*F* = 17.85	21.55 (6.2)^{ab}	*F* = 17.04
	Secondary	264 (27.8)	4.3 (1.3)^{ab}	**	5(1.2)		5.2(1.3)		4.2 (1.3)^{ab}	***	5.1 (1.3)^{a}	***	26.58 (7.8)^{ac}	***
	< Secondary	624 (65.8)	4.6 (1.4)^{b}		5.2 (1.2)		5.3(1.3)		4.6 (1.3)^{b}		5(1.2)^{b}		23.71 (7.8)^{bc}	
Occupation	Student	368 (38.8)	4.2 (1.5)^{abc}	*F* = 11.68	5(1.3)^{ab}	*F* = 6.45	5.1 (1.4)^{abc}	*F* = 4.42	4.2 (1.4)^{ab}	*F* = 11.50	5.2 (1.3)^{ab}	*F* = 14.16	26.6 (7.5)^{abc}	*F* = 23.13
	Private Work	218 (23)	4.9 (1.3)^{ade}	***	5.1 (1.3)^{c}	***	5.4 (1.2)^{a}	**	4.7 (1.2)^{ac}	***	5.1 (1.2)^{cd}	***	22 (7.3)^{ad}	***
	Governmental Employee	208 (21.9)	4.6 (1.3)^{bd}		5.2 (1.2)^{ad}		5.4 (1.3)^{b}		4.8 (1.2)^{bd}		4.5 (1.3)^{ac}		22.3 (6.7)^{be}	
	Housewife/ Others	154 (16.2)	4.6 (1.4)^{ce}		5.5 (1)^{bcd}		5.5 (1.2)^{c}		4.4 (1.4)^{cd}		4.7 (1.3)^{bd}		24.9 (8.9)^{cde}	

*p <.05; **p <.01; ***p <.001.
M = Mean; *SD* = Standard Deviation; Test of Sig. = Test of Significance; *t* = Student *t* test; *F* = ANOVA test
a,b,c,d,e,f,g = Significant difference between groups by Post-Hoc Multiple Comparison

Table 1C
Big Five Personality Dimensions and Perceived Stress among Study Respondents and their Variation with the Socio-demographic Factors ($N = 948$).

Socio-demographic Factors		*N* (%)	Extraversion		Agreeableness		Conscientiousness		Emotional Stability		Openness to Experience		Perceived Stress	
			M (*SD*)	*t*	*M* (*SD*)	*t*	*M* (*SD*)	*t*	*M* (*SD*)	*t*	*M* (*SD*)	*t*	*M* (*SD*)	*t*
Income	Satisfactory	758 (80)	4.6 (1.4)	1.42	5.1 (1.3)	−0.182 **	5.3(1.3)	1.76	4.6 (1.3)	3.56 ***	5(1.3)	1.33	24(7.6)	−2.68 **
	Unsatisfactory	190 (20)	4.4 (1.3)		5.2 (1.3)		5.2(1.3)		4.2 (1.4)		4.8 (1.4)		25.7 (8.3)	
Work in Medical Field	Yes	283 (29.9)	4.7 (1.2)	2.17 *	5.2 (1.2)	1.18	5.4(1.3)	1.82	4.6 (1.2)	2.42 *	5.2 (1.3)	3.27 **	23.4 (6.9)	−2.33 *
	No	665 (70.1)	4.5 (1.5)		5.1 (1.3)		5.3(1.3)		4.4 (1.4)		4.8 (1.3)		24.7 (8.1)	
Having Chronic Diseases	Yes	131 (13.8)	4.8 (1.3)	1.97 *	5.4 (1.2)	2.51 *	5.6(1.3)	2.57 *	4.5 (1.5)	−0.23	4.9 (1.5)	0.07	24.9 (10.2)	0.847
	No	817 (86.2)	4.5 (1.4)		5.1 (1.3)		5.3(1.3)		4.5 (1.3)		4.8 (1.3)		24.2 (7.4)	
Family Member Infected	Yes	53 (5.6)	4.5 (1.2)	0.02	5(1.2)	−1.005	5.5(1)	0.787	4.2(1)	− 1.62	4.8 (1.1)	−1.03	24.5 (5.8)	0.127
	No	895 (94.4)	4.5 (1.4)		5.1 (1.3)		5.3(1.3)		4.5 (1.4)		4.9 (1.3)		24.3 (7.9)	
Relative or acquaintance Infected	Yes	432 (45.6)	4.5 (1.5)	−1.39	5.2 (1.3)	1.612	5.3(1.3)	0.571	4.3 (1.4)	−2.70 **	4.9 (1.3)	−1.39	26(7.9)	6.168 ***
	No	516 (54.4)	4.6 (1.3)		4.1 (1.3)		5.3(1.3)		4.6 (1.3)		5(1.3)		22.9 (7.4)	

*p <.05; **p <.01; ***p <.001.
M = Mean; SD = Standard Deviation; t = Student t test

Table 2
Descriptive Statistics on COVID-19-related Risk Perception ($N = 948$).

Statements	Responses		
	Agree *N* (%)	Neutral *N* (%)	Disagree *N* (%)
I think that COVID-19 is dangerous	721 (76.1)	134 (14.1)	93 (9.8)
I am concerned about the possibility that I or another family member can get infected with this virus	598 (63.1)	125 (13.2)	225 (23.7)
Infection with the virus is associated with stigma	22 (2.3)	43 (4.5)	883 (93.1)
Nothing I do can stop the risk of catching me	309 (32.6)	193 (20.4)	446 (47)
The COVID-19 pandemic will pass quickly	415 (43.8)	321 (33.9)	212 (22.4)

COVID-19 = Coronavirus disease 2019

Table 3
Pearson Correlation between Big Five Personality Dimensions and Perceived Stress.

Big Five Personality Dimensions	Perceived Stress	
	M (*SD*)	*r*
Extraversion	4.58 (1.43)	-0.246***
Agreeableness	5.18 (1.3)	-0.096*
Conscientiousness	5.35 (1.36)	-0.29***
Emotional Stability	4.52 (1.38)	-0.484***
Openness to Experience	4.98 (1.35)	-0.121***
Perceived Stress	24.37 (7.86)	—

*p <.05; ***p <.001.
M = Mean; SD = Standard Deviation; r = Pearson correlation.

agreeableness. Health and risk behavioral liability (neuroticism) might result in susceptibility of people to "fear appeals" (dire warnings) for behavioral change (Blagov, 2020; Jeronimus, 2020; Lahey, 2009; Malouff, Thorsteinsson, & Schutte, 2006). Also, another study demonstrated that individuals with high levels in extraversion tend to have greater global self-efficacy, experience low stress, and evaluate their health and lives more positive (Aschwanden et al., 2020). Another

Table 4
Regression Coefficients: Big Five Personality Dimensions as Predictors of Perceived Stress.

Big Five Personality Dimensions	Perceived Stress			
	Unstandardized Coefficients		Standardized Coefficients	*t*
	B	*Std. Error*	*β*	
Extraversion	−0.748	0.167	−0.136	−4.474***
Agreeableness	0.296	0.178	0.049	1.661
Conscientiousness	−1.004	0.188	0.174	−5.336***
Emotional Stability	−2.395	0.166	0.422	−14.447***
Openness to Experience	0.191	0.185	0.033	1.031

*p <.05; ***p <.001.
β = standardized coefficient beta; t = Student t test for linear regression

German study on 1609 participants showed high degree of neuroticism in people with more negative effect in their daily lives during the pandemic, these effects were stronger in participants experienced health threats and with socio-demographic variables (Kroencke, Geukes, Utesch, Kuper, & Back, 2020).

In contrary, (Liu et al., 2021) studied whether perceived threat of COVID-19 and the efficacy to prevent the disease mediates the relationships between perceived stress and personality traits. The authors reported an association of higher neuroticism and extroversion (activity and sociability) with higher levels of stress during COVID-19 pandemic and the stress levels increased grammatically compared to the levels before the pandemic. Besides, another study reported that the pandemic severity had no effect on the well-being of the participants who were open to new experiences and conscientious (Zhang, Wang, Lyu, Zhang, Liu, & Luo, 2020).

5.1. Limitations of the study

First, the snowball sampling strategy was used due to time-sensitivity of the COVID-19 pandemic and the limited available resources. Therefore, the participants did not reflect the actual pattern of the general population because this strategy was not based on a random selection.

Second, during our study, data were collected from 984 participants in different Arab countries (Egypt, KSA, Sudanese Jordan, and others). Therefore, our findings may not accurately reflect each nation's perception toward COVID-19. Third, the study was only restricted to people with internet access, thus limiting generalizability due to the inability to explore population with no network devices.

6. Conclusion

The present study concluded that individuals with high conscientiousness, extraversion, and emotional stability demonstrated lower levels of perceived stress during the pandemic. This highlights that for the development of stress management interventions during epidemics; it is crucial to take personality traits into consideration. Psychological nursing interventions are needed for the suspected or confirmed COVID-19 cases, families, and friends of patients, health care professionals, and the public.

7. Implications for practice

- Nurses play an important role in prevention and management of COVID-19. Through rigorous and precise patient education, case identification, and contact tracing, the disease can be largely contained. Nurses are also taking part in clinical trials to examine a variety of therapeutic options.
- Individual stress management and adaptability can be aided by effective communication skills, positive feedback, and easy access to nurses.
- Governmental policy and funding solutions will be crucial in managing the effects of the pandemic's pressures, disruptions, and losses.
- Psychoeducation about stress management techniques has become more essential in recent years.
- Peer group programs that combine face-to-face and online sessions; home visiting prioritized for individuals and families without reliable digital access; face-to-face interaction prioritized where virtual contact interferes with micro-communication; and expansion of the available workforce by including those who are unable to work full-time, site-based, or home visiting due to other commitments or restrictions.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

We would like to acknowledge and thank all participants in the current study for their valuable time.

Authors' contributions

SMT, EDM, and AHEl conceived and designed the study. SMT and EDM conducted literature review. AHEL designed the questionnaire. SMT, EDM, and AHEl collected the data through online survey. AHEL analyzed and interpreted data. SMT, EDM, and AHEl drafted the manuscript. SMT and AHEl, critically revised the manuscript. All authors approved the final manuscript before submission.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

Abdelhafiz, A. S., Mohammed, Z., Ibrahim, M. E., Ziady, H. H., Alorabi, M., Ayyad, M., & Sultan, E. A. (2020). Knowledge, Perceptions, and Attitude of Egyptians towards the Novel Coronavirus Disease (COVID-19). *Journal of Community Health, 1*. https://doi.org/10.1007/s10900-020-00827-7

Abdelrahman, M. (2020). Personality Traits, Risk Perception, and Protective Behaviors of Arab Residents of Qatar During the COVID-19 Pandemic. *International Journal of Mental Health and Addiction, 1*. https://doi.org/10.1007/s11469-020-00352-7

Aschwanden, D., Strickhouser, J. E., Sesker, A. A., Lee, J. H., Luchetti, M., Stephan, Y., … Terracciano, A. (2020). Psychological and Behavioural Responses to Coronavirus Disease 2019: The Role of Personality. *European Journal of Personality*. https://doi.org/10.1002/per.2281

Blagov, P. S. (2020). Adaptive and Dark Personality in the COVID-19 Pandemic: Predicting Health-Behavior Endorsement and the Appeal of Public-Health Messages. *Social Psychological and Personality Science, 194855062093643*. https://doi.org/10.1177/1948550620936439

Buecker, S., Maes, M., Denissen, J. J. A., & Luhmann, M. (2020). Loneliness and the Big Five Personality Traits: A Meta-analysis. *European Journal of Personality, 34*(1), 8–28. https://doi.org/10.1002/per.2229

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385–396. https://doi.org/10.2307/2136404

Dryhurst, S., Schneider, C. R., Kerr, J., Freeman, A. L. J., Recchia, G., van der Bles, A. M., … van der Linden, S. (2020). Risk perceptions of COVID-19 around the world. *Journal of Risk Research*. https://doi.org/10.1080/13669877.2020.1758193

Ebstrup, J. F., Eplov, L. F., Pisinger, C., & Jørgensen, T. (2011). Association between the five factor personality traits and perceived stress: Is the effect mediated by general self-efficacy? *Anxiety, Stress and Coping, 24*(4), 407–419. https://doi.org/10.1080/10615806.2010.540012

El-Monshed, A. H., Amr, M., Ali, A. S., Elmasry, Y. M., & Zoromba, M. (2021). Nurses' knowledge, concerns, perceived impact and preparedness toward COVID-19 pandemic: A cross-sectional survey. *International Journal of Nursing Practice, 27*(6), e13017.

El-Monshed, A. H., El-Adl, A. A., Ali, A. S., & Loutfy, A. (2021). University students under lockdown, the psychosocial effects and coping strategies during COVID-19 pandemic: A cross sectional study in Egypt. *70*(3), 679–690. doi:10.1080/07448481.2021.1891086.

El-Monshed, A. H., Loutfy, A., Saad, M. T., Ali, A. S., El-Gilany, A. H., Mohamed, A. S., … Zoromba, M. (2022). Satisfaction with life and psychological distress during the COVID-19 pandemic: An Egyptian online cross-sectional study. *African Journal of Primary Health Care & Family Medicine, 14*(1), 1–6. https://doi.org/10.4102/PHCFM.V14I1.2896

Ferdous, Most. Z., Islam, Md. S., Sikder, Md. T., Mosaddek, A. S. Md., Zegarra-Valdivia, J. A., & Gozal, D. (2020). Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladeshi people: An online-based cross-sectional study. *MedRxiv*, 2020.05.26.20105700. doi:10.1101/2020.05.26.20105700.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*(6), 504–528. https://doi.org/10.1016/S0092-6566(03)00046-1

He, F., Deng, Y., & Li, W. (2020). Coronavirus disease 2019: What we know?. Issue 7. In *Journal of Medical Virology* (pp. 719–725). John Wiley and Sons Inc. https://doi.org/10.1002/jmv.25766.

Huynh, T. L. D. (2020). Data for understanding the risk perception of COVID-19 from Vietnamese sample. *Data in Brief, 30*, Article 105530. https://doi.org/10.1016/j.dib.2020.105530

Jaber, L. A., Brown, M. B., Hammad, A., Zhu, Q., & Herman, W. H. (2003). Lack of acculturation is a risk factor for diabetes in Arab immigrants in the U.S. *Diabetes Care, 26*(7), 2010–2014. https://doi.org/10.2337/diacare.26.7.2010

Jeronimus, B. F. (2020). Personality and Coronavirus 2019 Pandemic. In *Personality and Coronavirus 2019 Pandemic*. University of Groningen Press. https://doi.org/10.21827/5ed9ebc01d65f.

Joyner, C., Rhodes, R. E., & Loprinzi, P. D. (2018). The prospective association between the five factor personality model with health behaviors and health behavior clusters. *Europe's Journal of Psychology, 14*(4), 880–896. https://doi.org/10.5964/ejop.v14i4.1450

Karasneh, R., Al-Azzam, S., Muflih, S., Soudah, O., Hawamdeh, S., & Khader, Y. (2020). Media's effect on shaping knowledge, awareness risk perceptions and communication practices of pandemic COVID-19 among pharmacists. *Research in Social and Administrative Pharmacy*. https://doi.org/10.1016/j.sapharm.2020.04.027

Kobylińska, D., Zajenkowski, M., Lewczuk, K., Jankowski, K. S., & Marchlewska, M. (2020). The mediational role of emotion regulation in the relationship between personality and subjective well-being. *Current Psychology, 1–14*. https://doi.org/10.1007/s12144-020-00861-7

Kroencke, L., Geukes, K., Utesch, T., Kuper, N., & Back, M. (2020). *Neuroticism and Emotional Risk During the Covid-19 Pandemic*. doi:10.31234/osf.io/8c6nh.

Kwok, K. O., Kwok, K. O., Kwok, K. O., Li, K. K., Chan, H. H. H., Yi, Y. Y., … Wong, S. Y. S. (2020). Community Responses during Early Phase of COVID-19 Epidemic, Hong Kong. *Emerging Infectious Diseases, 26*(7), 1575–1579. https://doi.org/10.3201/eid2607.200500

Lahey, B. B. (2009). Public Health Significance of Neuroticism. *American Psychologist, 64*(4), 241–256. https://doi.org/10.1037/a0015309

Lečić-Toševski, D., Vuković, O., & Stepanović, J. (2011). Stress and personality. *Undefined*.

Lee, R. M., Dean, B. L., & Jung, K. R. (2008). Social connectedness, extraversion, and subjective well-being: Testing a mediation model. *Personality and Individual Differences, 45*(5), 414–419. https://doi.org/10.1016/j.paid.2008.05.017

Leung, G. M., Hedley, A. J., Ho, L.-M., Chau, P., Wong, I. O. L., Thach, T. Q., … Lam, T.-H. (2004). The Epidemiology of Severe Acute Respiratory Syndrome in the 2003

Hong Kong Epidemic: An Analysis of All 1755 Patients. *Annals of Internal Medicine, 141*(9), 662. https://doi.org/10.7326/0003-4819-141-9-200411020-00006

Liu, S., Lithopoulos, A., Zhang, C. Q., Garcia-Barrera, M. A., & Rhodes, R. E. (2021). Personality and perceived stress during COVID-19 pandemic: Testing the mediating role of perceived threat and efficacy. *Personality and Individual Differences, 168*, Article 110351. https://doi.org/10.1016/j.paid.2020.110351

Malouff, J. M., Thorsteinsson, E. B., & Schutte, N. S. (2006). The five-factor model of personality and smoking: A meta-analysis. *Journal of Drug Education, 36*(1), 47–58. https://doi.org/10.2190/9EP8-17P8-EKG7-66AD

Mortensen, C. R., Becker, D. V., Ackerman, J. M., Neuberg, S. L., & Kenrick, D. T. (2010). Infection breeds reticence: The effects of disease salience on self-perceptions of personality and behavioral avoidance tendencies. *Psychological Science, 21*(3), 440–447. https://doi.org/10.1177/0956797610361706

Nasir, E. F., Almahdi, H. A., & alhag, A. K. (2020). Study of the Sudanese perceptions of COVID-19: Applying the Health Belief Model. *MedRxiv*, 2020.05.28.20115477. doi: 10.1101/2020.05.28.20115477.

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (8th ed.). Harlow: Pearson Education Limited.

Niepel, C., Kranz, D., Borgonovi, F., Emslander, V., & Greiff, S. (2020). The coronavirus (COVID-19) fatality risk perception of US adult residents in March and April 2020. *British Journal of Health Psychology*. https://doi.org/10.1111/bjhp.12438

Olapegba, P. O., Iorfa, S. K., Kolawole, S. O., Oguntayo, R., Gandi, J. C., Ottu, I. F. A., & Ayandele, O. (2020). Survey data of COVID-19-related Knowledge, Risk Perceptions and Precautionary Behavior among Nigerians. *Data in Brief, 30*, Article 105685. https://doi.org/10.1016/j.dib.2020.105685

Organization, W. H. (2020). *Coronavirus disease (COVID-19) Situation Report – 208*. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200815-covid-19-sitrep-208.pdf?sfvrsn=9dc4e959_2.

Raad, B. (2000). *The big five personality factors: The psycholexical approach to personality*. Hogrefe & Huber.

Reyad, O. (2020). *Novel Coronavirus COVID-19 Strike on Arab Countries and Territories: A Situation Report I*.

Swami, V., Furnham, A., Smyth, N., Weis, L., Lay, A., & Clow, A. (2016). Putting the stress on conspiracy theories: Examining associations between psychological stress, anxiety, and belief in conspiracy theories. *Personality and Individual Differences, 99*, 72–76. https://doi.org/10.1016/j.paid.2016.04.084

van Dijk, S. D. M., Hanssen, D., Naarding, P., Lucassen, P., Comijs, H., & Oude Voshaar, R. (2016). Big Five personality traits and medically unexplained symptoms in later life. *European Psychiatry, 38*, 23–30. https://doi.org/10.1016/j.eurpsy.2016.05.002

Zhang, X., Wang, Y., Lyu, H., Zhang, Y., Liu, Y., & Luo, J. (2020). *The Influence of COVID-19 on Well-Being*. doi:10.31234/osf.io/znj7h.