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The Psychometric Efficiency of Acute Stress Disorder (ASD) in the Age of COVID-19 Pandemic: A Comparative Study between the Saudi and the Egyptian Societies

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ABSTRACT

This research study aimed to verify the psychometric efficiency of Acute Stress Disorder (ASD) scale in the age of COVID -19. It is a comparative study between the Saudi society and the Egyptian one, conducted by the researcher to a sample of 802 participants (357 Saudis and 445 Egyptians from both countryside and urban areas). The sample is divided into 555 females and 247 males. The participants aged (18-29), (30-39), (40 -49), and (50 years and over). The participants are with different educational levels: non-university, Bachelor, Master, and Doctorate. This research study was conducted from April 2020 to June 2020. The study adopted the descriptive approach to attain its goals. The questionnaires were conducted electronically and the data were collected using appropriate statistical methods. The results of the study can be summed up in the following points. (1) There are five factors with a square root bigger than one. (2) There were statistically significant differences in ASD due to the gender variable in favor of females. (3) There were statistically significant differences in ASD attributed to the variable of educational level. (4) There were statistically significant differences in ASD due to the nationality variable in favor of Egyptian nationality. (5) There were statistically significant differences in ASD due to age. (6) There were no statistically significant differences in ASD due to the variable of compliance with home quarantine. (7) There were no statistically significant differences in ASD due to the place of residence. (8) There were statistically significant differences in ASD due to the daily use of the Internet.

Keywords
Acute Stress Disorder (ASD), COVID-19, Saudi society, Egyptian society

Introduction

COVID-19 is an infectious disease caused by a newly discovered coronavirus, SARS-CoV-2. Coronaviruses are a large family of viruses which may cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), and the most recent coronavirus disease COVID-19. WHO Director-General declared that the outbreak constitutes a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 and a Pandemic on 11 March 2020 (World Health Organization (WHO), 2020).

COVID-19 began as a viral pneumonia in China in late 2019. The first case of the COVID-19 pandemic appeared in Saudi Arabia on March 2, 2020 (COVID 19 Dashboard: Saudi Arabia, 2020). On March 6, 2020, Egypt has reported three cases of COVID-19(Tuite et al., 2020). By March 2020, it has reached pandemic proportions as it is being transmitted rapidly throughout most of the world. The ease of transmission, lack of population immunity, delayed responses in testing, lack of equipment, and the challenges in implementing community-based measures to limit contact, are all taking an unprecedented toll on public health care, political, economic, and social-welfare systems (Garfin, Silver & Holman, 2020). COVID-19 pandemic has caused serious threats to people's physical health and lives (Qiu et al., 2020).

The global health crisis caused by the coronavirus pandemic (COVID-19) has brought about rapid and dramatic changes to all health care including the field of psychology as the implementation of

unprecedented strict quarantine measures in Egyptian and Saudi societies has kept a large number of people in isolation and affected many aspects of life. It has also triggered ASD problems.

ASD is a diagnosis added to the Diagnostic and Statistical Manual (DSM) in 2013 In response to the need to define clinically significant psychological trauma within a specific time frame (McGarvey et al., 1998; Cardeña & Carlson, 2011). ASD is thought to represent an early manifestation of the trauma response and is characterized by symptoms similar to those of PTSD. It has been shown that ASD characteristics of dissociation, startle reaction, fear or avoidance of the trauma, and social withdrawal are powerful predictors of subsequent PTSD symptoms (Shaw, Bernard, DeBlois, Ikuta, Ginzburg & Koopman,2009).

The importance of this studies lies in its attempt to examine the psychometric efficiency of ASD in the age of COVID-19. In addition, it sheds much light on ASD and COVID-19 epidemic among the Saudi and the Egyptian societies. This study is considered the first both national and international as it conducted a large-scale examination of ASD on the general population of Egyptian and Saudi societies during the COVID-19 pandemic. Also, there is not much research into ASD in the Age of COVID-19 as far as the researcher knows. Thus, the present study addresses some of the least well-researched areas and adds to the literature of ASD in the Age of COVID-19. The researcher attempted to answer the following these questions:

1-What are the factorial components of ASD scale in the age of QVED-19 using exploratory factor analysis with the main components method while conducting the Kaiser test?

2- Are there statistically significant differences in ASD in the age of COVID-19 attributed to the gender variable?

3- Are there statistically significant differences in ASD in the age of COVID-19 because of the variable of the educational level?

4- Are there statistically significant differences in ASD in the age of COVID-19 related to the nationality variable?

5- Are there statistically significant differences in ASD in the age of COVID-19 due to the age variable?

6- Are there statistically significant differences in ASD in the age of COVID-19 attributed to the variable of compliance with home quarantine?

7- Are there statistically significant differences in ASD in the age of COVID-19 due to the variable of the place of residence?

8- Are there statistically significant differences in ASD in the age of COVID-19 attributed to the variable of the daily use of the Internet?

Methods

Methodology

This study attempted to achieve its objectives through a descriptive approach; the questionnaire was conducted electronically for all members of the study sample. Data were collected and analyzed using SPSS 18.0 program to determine the psychometric efficiency of ASD in the age of COVID-19. It is a comparative study between the Saudi and the Egyptian societies.

Population

The population of the study consisted of a random sample belonging to the Egyptian and Saudi societies.

Participants

The study sample consisted of 802 subjects (males and females from Saudi Arabia and Egypt). They were randomly chosen through the electronic distribution of the scale, from April to June 2020. The sample was distributed as table (1) below shows:

Table 1. Arithmetic means and standard deviations of the ages of the subjects.

Gender	Nationality	N	Mean	Standard Deviation
Male	**Saudi**	72	37.35	8.648
	Egyptian	175	32.63	9.985
Female	**Saudi**	285	29.1	9.889
	Egyptian	285	29.88	8.237

Table (1) shows the values of the arithmetic means and the standard deviations for the ages of the study sample, where the arithmetic mean for Saudi males reached 37.35 years with a standard deviation of 8.648; and for the Egyptian males the mean for their ages reached 32.63 years with a standard deviation of 9.985. As for the average age of females, the arithmetic mean for the Saudi females was 29.1 years, with a standard deviation of 9.889. As for the arithmetic mean of the Egyptian females, it was 29.88, with a standard deviation of 8,237.

Measures

Acute Stress Disorder (ASD) is a questionnaire constructed by the researcher.

The ASD is a 23-item questionnaire. The questionnaire was designed to survey acute stress disorder during the spread of COVID-19. The questionnaire incorporated relevant diagnostic guidelines for acute stress disorder specified in the International Classification of Diseases, depending on McCabe (2019) and Gelkopf, Solomon, and Bleich (2013).

In addition, some demographic data were added, including compliance with the home quarantine, nationality, gender, age, rural/urban areas, education, and the daily use of the Internet.

The psychometric properties of ASD scale in the age of COVID-19:

Scale's Validity

Indications of validity are determined in several ways:

A – Content validity

This scale was built depending on specific procedural steps derived from the analysis of previous literature, the theoretical framework and the content of the available measures indicating ASD. These procedures were considered preliminary evidence for the validity of the content.

B- Validity of the arbitrators

The scale was presented to (11) juries (i.e. psychologists) to judge the suitability of its items to the study sample, the language clarity, the effectiveness of the alternatives to its items, the appropriateness of its total number, and the extent to which they represent ASD. The observations of the arbitrators were taken and adjustments were made.

C- Construct validity

Table 2. construct validity was measured by calculating criterion-related validity in case of deleting some items and the following results were obtained

N	Item	Scale mean in case of item deletion	Corrected correlation coefficient
1	1R	62.75	.329

2	2R	62.66	.567
3	3R	63.08	.516
4	4R	63.03	.412
5	R5	62.65	.528
6	6R	64.13	.476
7	7R	62.82	.575
8	8R	62.16	.286
9	9R	62.44	.418
10	10R	63.60	.484
11	11R	63.12	.386
12	12R	64.15	.453
13	13R	63.21	.478
14	14R	63.13	.466
15	15R	64.56	.478
16	16R	63.99	.578
17	17R	63.18	.467
18	18R	61.99	.526
19	19R	62.41	.579
20	20R	62.99	.572
21	21R	63.65	.667
22	22R	63.07	.395
23	23R	63.31	.392

Table (2) shows the values of the correlation coefficient in the event of item deletion. The values show the extent of the contribution of each item to the total degree.

D. Factor analysis

Construct validity was calculated by measuring an exploratory factor analysis to reveal the factorial structure of the scale and to disclose the main factors and items derived from it. When conducting the factor analysis, five factors with an underlying root greater than one were noticed (i.e. accounted for 52.989 of the measured feature) as table (5) and figure (1) illustrate below

Scale reliability

The reliability of ASD scale in the age of COVID – 19 was verified by an internal consistency method according to the Cronbach alpha equation, as its value reached (0.889), and (0.869) by Spearman Brown and Gutman methods. This value indicates that the scale has high reliability indications.

Table 3. Correlation coefficient

Scale	**N**	**correlation coefficient**		
		internal consistency	split halfway	
ASD in the age of COVID-19	23	Cronbach alpha 0.889	Spearman Brown 0.869	Gutman 0.869

Results and Discussion

Question 1: What are the factorial components of ASD scale in the age of COVID-19 via using exploratory factor analysis and Kaiser test?

To answer this question, the researcher took some steps. Exploratory factor analysis was used in analyzing the responses of 802 participants on the

scale of ASD in order to identify the factorial components of the scale. The analysis went in two steps: first, verifying the conditions for exploratory factor analysis and second, following the procedural steps to extract the factors as illustrated below:

First: Verifying the conditions of exploratory factor analysis in the matrix of correlation coefficients as follows:

The value of the correlation matrix determinant must not be zero.

The value of the correlation matrix determinant was calculated in this study (Determinant = 0.001), a value greater than (0.00001). It means that the correlation matrix is not of a single type, and there are no problems in conducting exploratory analysis. Further, the level of correlation between the variables did not reach a high level of correlations up to (0.9), at which it requires removing any of them.

Sample homogeneity

(A) Measuring the sample homogeneity and testing the hypothesis of symmetry of the original correlation matrix.

Homogeneity is measured by the value of chi-square of the Bartelett test, where the value of the chi-square of the Bartlett test is (5256.176) which is significant at the level of (0.000). It indicates that the correlation matrix is different from the unit (i.e., the minimum correlations are available). Moreover, The Bartlett test for homogeneity measurement also contributes to testing the hypothesis of asymmetry or symmetry of the original correlation matrix. If it happened and the matrix was identical, the correlation coefficients between the variables would equal zero. However, the test value and the statistical significance indicate that the matrix is not the same, so the data were appropriate to continue the factor analysis.

(B) Measuring the sample size adequacy.

The adequacy of the sample size was reached through Kaiser, Meyer, and Olkin test (KMO), where its value was (0.915) and since it is greater than (0.5), it indicates that the sample size is suitable for conducting exploratory analysis.

(C) Measuring the compatibility of each of the sample variables.

This indicator was obtained from the MSA values presented in the diametrical data of the correlation matrix, most of which were greater than (0.5), and this would confirm the result of KMO test.

Table 4. Bartlett test and Kaiser, Mayer, and Olken test.

Kaiser, Mayer, and Olken scale for measuring sample size	0.915
Bartlett test to measure the homogeneity of the sample with respect to the sample size (Chi-square)	5256.176
Freedom degrees	253
P-value	0.000

Second: Procedural steps to extract the factors.

After verifying the conditions for exploratory factor analysis in the matrix of correlation coefficients, exploratory factor analysis was performed using the basic components method, then the researcher carried out the orthogonal rotation of the axes in a Varimax rotation method in order to assume the independence of the factors, and the following criteria were adopted to determine the factors:

- Kaiser touchstone: It depends on the underlying root and whose value must be greater than one
- Kettle touchstone: It is a graphical method that uses graphs to determine the number of factors through a curve.

The following has been taken into account when selecting and classifying items according to factors:

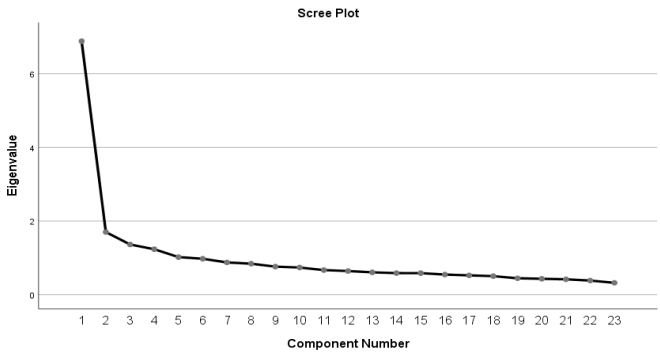
1. The saturation of the item on the factor to which it belongs must be ≥ 0.30
2. In the event that the item is saturated by more than one factor, it will be attached to the factor to whom it is saturated by a difference of at least 0.01 of any other factor.
3. If an item is saturated on two factors of the same amount, then it is deleted and the analysis is repeated again
4. Any factor saturated with less than 3 items was deleted.

When performing the factor analysis, it was discovered that there were five factors, the underlying root of which was greater than one, and that 52.989 % of the measured feature was explained. The following table shows the distribution of the items based on their saturation over the five factors:

Table 5. The Matrix of Factors Composing ASD Scale.

Matrix of factors after rotation					
Item	**Factor**				
	1	2	3	4	5
q18	0.693				
q19	0.691				
q7	0.626				
q2	0.624				
q5	0.560				
q3	0.456				
q17	0.415				
q15		0.752			
q16		0.706			
q6		0.661			
q21		0.518			
q12		0.514			
q14			0.833		
q11			0.799		
q20			0.607		
q4				0.695	
q1				0.615	
q10				0.613	
q13				0.495	
q23				0.364	
q8					0.751
q22					0.569
q9					0.430

Figure 1. Graphical representation of the underlying roots of ASD scale



The previous figure shows the graphical representation of the underlying roots of the factors and the underlying roots are represented on axis (X) and the resulting factors are represented on axis (Y). The figure shows that there are 5 factors with underlying roots greater than one.

- The first factor (anxiety and discomfort) includes (7) items (2, 3, 5, 7, 17, 18, and 19)
- The second factor (shocking dreams) comprises (5) items, which are (6, 12, 15, 16, and 21).
- The third factor (avoiding news and information) consists of (3) items, which are (11, 14, and 20).
- The fourth factor (sleep disorder) consists of (5) items (1, 4, 10, 13, and 23)
- The fifth factor (vigilance and caution) consists of (3) items (8, 9, and 22).

Question 2: Are there statistically significant differences in ASD in the age of COVID-19 due to the gender variable?

To answer this question, mathematical means and standard deviations for the ASD scale were extracted according to the gender variable, which contained two categories (male and female), as the following table indicates:

Table 6. Means and standard deviations for ASD scale according to the categories of the gender variable

Categories	N	Mean	Standard Deviation
Male	247	64.02	15.257
Female	555	66.64	17.273
Total	802		

Table (6) shows the presence of apparent differences in ASD according to the categories of the gender variable, and to know the significance of these differences, a t- test was applied to the independent samples as the following table indicates:

Table 7. Results of the T-test for independent samples to examine gender differences in ASD

Gender	N	Mean	Standard Deviation	t	df	Sig.
Male	247	64.02	15.257	2.050	800	0.041
Female	555	66.64	17.273			

Table (7) shows the presence of statistically significant differences at the level of significance ($\alpha = 0.05$) in ASD due to the gender variable (male and female) where the value of t (2.050) was statistically significant as noted from the statistical significance (0.041) in favor of females. That is, females suffer more from ASD than males.

Question 3: Are there statistically significant differences in ASD in the era of COVID-19 due to the variable of the educational level?

To answer this question, mathematical means and standard deviations for ASD scale were extracted according to the variable of the educational level, which contained four categories (non-university, BA, MA, and PhD) as the following table shows:

Table 8. Arithmetic means and standard deviations for the ASD scale according to the categories of the educational level variable

Categories	N	Means	Standard Deviation
Non-university	84	63.48	16.759
BA	512	66.74	16.640
MA	120	66.82	15.922
PhD	86	61.37	17.503

Total	802	65.83	16.712

Table (8) shows the presence of apparent differences in ASD according to the categories of the educational level. To know the significance of these differences, one-way ANOVA was used:

Table 9. Results of unidirectional variance analysis for examining the differences attributed to the educational level in ASD

	Total of squares	**df**	**Mean of squares sum**	**F**	**Sig.**
Among groups	2715.481	3	905.160	3.268	0.021
Inside groups	221001.463	798	276.944		
Total	223716.944	801			

Table (9) shows the presence of statistically significant differences at the level of significance ($\alpha = 0.05$) in ASD due to the variable of the educational level where the p - value (3.268) is a statistically significant as noted from the statistical value (0.021), which indicates the presence of differences in ASD attributed to the educational level (non-university, BA, MA, and PhD). To find out in favor of any group these differences were, dimensional comparisons were made in a way that shows the least significant difference as illustrated in table (10):

Table 10. Results of dimensional comparisons according to the least significant difference to determine the differences attributable to the variable of the educational level in ASD

Comparison		**Non-university**	**BA**	**MA**	**PhD**
Non-university	**Mean differences**	-----			
	Sig.				
BA	**Mean differences**	3.264	-----		
	Sig.	0.096			
MA	**Mean differences**	3.340	0.076	-----	
	Sig.	0.159	0.964		
PhD	**Mean differences**	2.104	5.368*	5.445-*	-----
	Sig.	0.410	0.006	0.021	

Table (10) shows that there are statistically significant differences when comparing the

doctoral level with that of the master, where the difference value (5.445) between the means is significant as the p-value (0.021) indicates in favor of the master. It means that the subjects with a master degree are more vulnerable to ASD compared to those with a PhD.

Likewise, there are statistically significant differences when comparing the doctoral level with the bachelor's level, where the value of the differences between the means reached (5.368), which is a significant value as indicated by the level of significance (0.006) in favor of the bachelor. It means that the subjects with bachelor level are more vulnerable to ASD than those with the doctoral level.

The remaining differences between the levels were not statistically significant.

Question 4: Are there statistically significant differences in ASD in the age of COVID-19 due to the nationality variable?

To answer this question, mathematical means and standard deviations for the ASD scale were extracted according to the nationality variable, which contained two categories (Saudi Arabia and Egypt), as the following table indicates:

Table 11. Arithmetic means and standard deviations for ASD scale by categories of nationality variable

Categories	N	Mean	Standard Deviation
Saudi	357	62.14	16.817
Egyptian	445	68.80	16.042
Total	802		

Table (11) shows the presence of apparent differences in ASD according to the categories of the nationality variable. For the significance of these differences, a t-test for independent samples was applied as the following table indicates:

Table 12.T-Test results for independent samples to examine differences attributed to nationality in ASD

Nationality	N	Mean	Standard Deviation	T	df	Sig.
Saudi	357	62.14	16.817	5.712	800	0.000
Egyptian	445	68.80	16.042			

Table (12) shows the presence of statistically significant differences at the level of significance ($\alpha = 0.05$) in ASD due to the nationality variable (Saudi & Egyptian), where the value of T (5,712) was a statistically significant as noted from the statistical significance (0,000) in favor of the Egyptian nationality. It means the Egyptian subjects suffer from ASD more than the Saudi participants.

Question 5: Are there statistically significant differences in ASD in the age of COVID - 19 due to the age variable?

To answer this question, the means and standard deviations for ASD scale were calculated for the age variable, which contained four categories (18 - 29), (30 - 39), (40 - 49), and (50 years to over) as the following table shows:

Table 13. Arithmetic means and standard deviations for ASD to the age variable

Categories	N	Mean	Standard Deviation
(18-29)	398	68.83	16.885
(30-39)	255	65.02	15.318
(40-49)	113	59.67	16.400
(over 50 years)	36	57.81	17.286
Total	802	65.83	16.712

Table (13) shows the presence of apparent differences in ASD according to age groups. To find out the significance of these differences, one-way ANOVA test was used as illustrated in table (14):

Table 14. Results of unidirectional variance analysis to check differences attributable to age variable in ASD

	Sum of squares	**df**	**Mean of sum of squares**	**F**	**Sig.**
Between the groups	10348.179	3	3449.393	12.901	0.000
Within the groups	213368.765	798	267.379		
Total	223716.944	801			

Table (14) shows the presence of statistically significant differences at the level of significance ($\alpha = 0.05$) in ASD due to the age variable, where F value (12.901) is statistically significant as noted from the statistical significance (0,000), which indicates the presence of differences in ASD due to the age variable. To find out in favor of any group these differences were, dimensional comparisons were made with the least significant difference as shown in the following table:

Table 15. The results of the dimensional comparisons according to the least significant difference method to determine the differences due to the age variable in ASD

Comparison		**(18-29)**	**(30-39)**	**(40-49)**	**(over 50 years)**
(18-29)	-----				-----
(30-39)	3.806* 0.004	-----			3.806* 0.004
(40-49)	9.157* 0.000	5.351* 0.004	-----		9.157* 0.000
(50 years or more)	11.024* 0.000	7.218* 0.013	1.867 0.551	-----	11.024* 0.000

1- Table (15) indicates that there are statistically significant differences when comparing the age group (18-29) with the age group (30-39), where the value of the differences between the means reached (3.806), which is a significant value as indicated by the level of significance, which reached (0.004) in favor of the age group (18-29). It means that the age group (18-29) is more susceptible to ASD compared to the age group (30-39).

2- Table (15) also indicates that there are statistically significant differences when comparing the age group (18-29) with the age group (40 -49) where the value of the differences between the means reached (9.157), which is a significant value as indicated by the level of significance, which reached (0.000) in favor of the age group (18-29). It means that the age group (18-29) is more likely to have ASD compared to the age group 40-49.

3- Table (15) also indicates that there are statistically significant differences when comparing the age group (18-29) with the age group (50 years or more) where the value of the differences between the means reached (11.024), which is a significant value as indicated by the level of significance, which reached (0.000) in favor of the age group (18-29). It means that the age group (18-29) is more likely to have ASD compared to the age group (50 years and over).

4 - Table (15) also shows that there are statistically significant differences when comparing the age group (30-39) with the age group (40-49) where the value of the differences between the means reached (5.351) which is a significant value as indicated by the level of

significance which reached (0.004) in favor of the age group (30-39). It means that the age group (30-39) is more susceptible to ASD compared to the age group of (40-49).

5 - Table (15) also shows that there are statistically significant differences when comparing the age (30-39) with the age group of (50 years and over), where the value of the differences between the means reached (7.218), which is a significant value as indicated by the level of significance, which reached (0.013) in favor of the age group (30-39). It means that the age group (30-39) is more susceptible to ASD compared to the age group of (50 years and over).

6 - Table (15) also shows that there are statistically significant differences when comparing the age group (40-49) with the age group of (50 years and over) where the value of the differences between the means reached (1.867), which is not a significant value as indicated by the level of significance (i.e. 0.551). That is, there are no differences in ASD between these two the two age groups.

It is noted from the previous differences that the greater the age, the less ASD except for the age group that exceeds 40; there are no differences in ASD due to the age variable.

Question 6: Are there statistically significant differences in ASD in the age of COVID-19 due to the variable of compliance with home quarantine?

To answer this question, mathematical means and standard deviations for the ASD scale were calculated for the variable of compliance with home quarantine, which contained three categories: committed, medium commitment, and non-commitment as the following table shows:

Table 16. Arithmetic means and Standard Deviations for the ASD Scale to categories of the home quarantine commitment Variable

Categories	N	Mean	Standard Deviation
Committed	542	65.35	17.353
Medium commitment	211	67.41	14.699
Non-commitment	49	64.43	17.493
Total	802	65.83	16.712

Table (16) shows the existence of apparent differences in ASD according to the categories of the compliance with the home quarantine variable. To know the significance of these differences, one- way ANOVA analysis was used.

Table 17. Results of a one-way analysis of variance for checking differences attributable to the compliance with home quarantine variable

	Total of squares	df	Mean of squares sum	F	Sig.
Between groups	746.902	2	373.451	1.338	0.263
Within groups	222970.042	799	279.061		
Total	223716.944	801			

Table (17) indicates that there are no statistically significant differences at the level of significance ($\alpha = 0.05$) in ASD due to the compliance with home quarantine variable, where the p-value (1.338) is statistically insignificant as noted from the statistical significance (0.263). It indicates that there were no differences in ASD due to the degree of compliance with home quarantine.

Question 7: Are there statistically significant differences in ASD in the age of COVID - 19 due to the variable of the place of residence?

To answer this question, mathematical means and standard deviations for the ASD scale were extracted according to the variable of the place of residence, which contained two categories: rural and urban, as the following table illustrates:

Table 18. Means and standard deviations for the ASD scale according to the categories of the place of residence variable

Categories	N	Mean	Standard deviation
Rural areas	174	67.76	15.661
Urban Areas	628	65.30	16.965
Total	802		

Table (18) shows the presence of apparent differences in ASD according to the categories of the place of residence variable (rural and urban). To know the significance of these differences, t-test was applied for the independent samples as the following table indicates:

Table 19. T- Test results for independent samples to examine differences attributable to place of residence in ASD

Residence	N	Mean	Standard Deviation	t	df	Sig.
Rural	174	67.76	15.661	1.719	800	0.086
Urban	628	65.30	16.965			

Table (19) shows that there are no statistically significant differences at the level of significance ($\alpha = 0.05$) in ASD due to the variable of the place of residence (rural and urban) where the value of t (1.719) was statistically insignificant as noted from the statistical significance (0.086).

Question 8: Are there statistically significant differences in ASD in the age of COVID-19 due to the duration of the daily usage of the Internet?

To answer this question, mathematical means and standard deviations for the ASD scale were extracted according to the duration of the daily use of the Internet per day, which contained three categories (1-6) (7-12) (13-24) as illustrated in the following table.

Table 20. Arithmetic means and standard deviations for the ASD scale according to the categories of the duration of the daily use of the Internet

Categories	N	Mean	Standard Deviation
(1-6)	298	63.38	15.868
(7-12)	283	67.04	15.969
(13-24)	221	67.59	13.857
total	802	65.83	16.712

Table (20) shows the presence of apparent differences in ASD according to the categories of the duration of the daily usage of the Internet. To know the significance of these differences, one-way ANOVA was used.

Table 21. Results of unidirectional variance analysis to check the differences attributable to the duration of the daily usage of the Internet

	Total of squares	df	Mean of squares sum	F	Sig.
Between groups	2887.715	2	1443.858	5.224	.006
Within groups	220829.229	799	276.382		
Total	223716.944	801			

Table (21) indicates that there are statistically significant differences at the level of significance ($\alpha = 0.05$) in ASD due to the duration of the daily use of the internet, where the p-value (5.224) is statistically significant as noted from the statistical significance (0.006), which indicates the presence of differences in ASD due to the duration of the daily usage of the Internet, and to find out in favor of any group, these differences were subjected to dimensional comparisons with the least significant difference method as the table below indicates.

Table 22. Results of dimensional comparisons according to the least significant difference method to determine the differences due to the duration of daily usage of the internet.

Comparison		**(1-6)**	**(7-12)**	**(13-24)**
(1-6)	**Mean differences**			
	Sig	-----		
(7-12)	**Mean differences**	3.660*		
	Sig	0.008	-----	
(13-24)	**Mean differences**	4.210*	0.550	
	Sig	0.004	0.712	-----

1. Table (22) indicates that there are statistically significant differences when comparing category (1-6) with the category (7-12) where the value of

the differences between the means reached (3.66) which is a significant value as indicated by the significance level which reached (0.008) in favor of (7-12). This means that the category (7-12) is more susceptible to ASD compared to the category (1-6).

2. Table (22) shows that there are statistically significant differences when comparing category (1-6) with the category of (13-24), where the value of the differences between the means Exploratory factor analysis was employed to analyze the responses of the study sample (802 subjects) on ASD scale in order to identify the categorical components of the scale. The value of reached (4.210), which is a significant value as indicated by the significance level, which reached (0.004) in favor of (13-24). This means that the category (13-24) is more susceptible to ASD compared to the category (1-6).

3.There are no statistically significant differences with respect to the comparison of category (7-12) with the category of (13-24) as the value of the differences between the means reached (0.550), which is a non-significant value as indicated by the level of significance, which reached (0.712), that is, there is no difference between the two categories, both are susceptible to ASD with the same amount.

the correlative matrix determinant in this study was calculated (Determinant = 0.001) which is a greater value from the previously agreed one (0.00001). It means that the correlation matrix is

not of a single type, and there are no problems in conducting the exploratory analysis. The homogeneity of the sample was measured and the hypothesis of the similarity of the original correlation matrix was reached by indicating the value of the Chi-square (Bartelett test). It is statistically significant at the level (0.000), which indicates that the correlation matrix is different from the unit, i.e. that there is a minimum of correlations and that the value of the test and the statistical significance show that the matrix is not the same, so the data are appropriate to be used in the factor analysis.

The adequacy of the sample size was also achieved through the Kaiser, Meyer, and Olkin test (KMO). The results indicated that the sample size is suitable for conducting exploratory factor analysis. Also, the compatibility of each of the sample variables was measured and this indicator was obtained from the MSA values in the diagonal data of the Anti-image correlation matrix, most of which were greater than (0.5). This would confirm the result of the KMO test. After verifying the conditions for exploratory factor analysis in the matrix of correlation coefficients, exploratory factor analysis was carried out using the basic components method, and the orthogonal rotation of the axes was done in a Varimax rotation method to assume the independence of the factors.

The factor analysis revealed that there were 5 factors with underlying roots greater than one. The first factor (anxiety and discomfort) consists of (7) items (2, 3, 5, 7, 17, 18, and 19). The second factor (shocking dreams) consists of (5) items (6, 12, 15, 16, and 21). The third factor (avoiding news and information) includes (3) items (11, 14, and 20). The fourth factor (sleep disorder) consists of (5) items (1, 4, 10, 13, and 23). The fifth factor (vigilance and caution) comprises (3) items (8, 9, and 22). The results of the study also showed that there are statistically significant differences in ASD due to the gender variable (i.e. males and females) in favor of females, that is, females suffer more from ASD compared to males. The results are consistent with Elbedour et al. (1999) that showed that there were statistically significant differences attributed to gender in favor of females regarding the traumatic effect on mental health. This result is also consistent with Dusselier, Dunn, Wang, Shelley II, and Whalen 2005 that showed that 55% of students residing on campus had experienced very stressful events, and that female students were more exposed to ASD, and the most prominent of these pressures were anxiety, depression, social withdrawal, feelings of stress and general fatigue. It also agrees with Al-Khawaja (2010) that revealed that there are statistically significant differences between males and females in the level of post-traumatic stress, and that this level is higher for females. It also agrees with Mclaughlin, et al. (2013) that revealed that the exposure to traumatic events is higher among females (7.3%) compared to males (2.2%). Furthermore, the results were consistent with Qiu et al. (2020) that asserted that women are much more vulnerable to stress and more likely to develop post-traumatic stress disorder.

The results also showed that there were statistically significant differences in ASD attributable to the educational level (non-university, BA, MA, and PhD). There were statistically significant differences when comparing the doctoral level with the master level for the benefit of the latter and this means that the latter is more vulnerable to ASD compared to the former. There were also statistically significant differences when comparing the PhD level with the BA one for the benefit of the BA and this means that the latter is more vulnerable to ASD compared to the former. As for the rest of the differences between the levels, they were not statistically significant. The researcher believes that the subjects with PhD are less vulnerable due to their scientific knowledge and due to the skills of scientific thinking necessary to prepare the individual to face the life problems, environment and society. As for the other educational levels, Cao et al. (2020) pointed out that having relatives or acquaintances infected with COVID-19 was a risk factor for increasing the anxiety of college students. The results differed with Qiu et al. (2020) that asserted that people with higher education tended to have more distress, probably because of high self-awareness of their health.

The results also showed that there were statistically significant differences in ASD due to the nationality variable (i.e. Saudi and Egyptian)

in favor of the Egyptian nationality. It signifies that the Egyptians suffer more from ASD compared to the members of the Saudi sample. The researcher attributed this to the fact that the Egyptian sample of the current study was from the social media (i.e. Facebook). The Egyptian National Telecom Regulatory Authority (NTRA) indicated that during COVID-19 more time was spent on social networking sites such as Facebook which witnessed an amazing increase of 151%. Instagram usage rate increased by 59%, and WhatsApp increased by 34% (Staff, 2020). Since the social media audience bears a large part of the responsibility in what is being talked about from the negative aspects, the use of those methods resulted during the crisis, from publishing fabricated news, to spreading rumors and seeking to sow fear and panic in the people, whom the crisis put in a state of anxiety, pushing them to cling to any information that may be fundamentally incorrect. Since the crisis began with the spread of the virus in China late last year, and then transmission to other countries (WHO 2020), it became apparent, on many social media platforms, that there was a kind of panic that was being promoted by a large segment of the pioneers of those platforms. This is confirmed by Holman, Garfin, and Silver (2014) that proved that the type and amount of exposure to means of communication affect the psychological state of the individuals, especially in light of traumatic events, where the results of the study showed that there was a strong positive correlation between the amount of media coverage related to bombing and the symptoms of ASD.

The results also showed that there were statistically significant differences in ASD due to the age variable. That is, the greater the age, the less severe stress disorder except for the age group over 40, there were no differences in ASD due to the age variable. The researcher attributed this to the fact that the younger age groups used the Internet more than older ones. Valkenburg and Peter (2009) disclosed that adolescents used the Internet more than the adults. Al-Omri (2018) also asserted the intensity of teenagers' daily use of social media, the majority of whom spend more than 7 hours using social media, and the results of this study are consistent with Qiu et al. (2020) that proved that young people tend to obtain a large amount of information from social media that can easily trigger stress. And since the highest mortality rate occurred among the elderly during the epidemic, it is not surprising that elderly people are more likely to be psychologically impacted.

The results also showed that there were no statistically significant differences in ASD due to the variable of the place of residence (i.e. rural and urban). The researcher finds that it is a natural result as COVID-19 is a global pandemic that began its tangible effects in all rural and urban societies. The researcher also sees that this result is due to the spread of social media at the rural and urban levels, and this is what Abdelwahaab (2016) pointed out. Abdelwahaab (2016) asserted that social media help the Internet users to exchange cultural experiences, increase knowledge and learn about the cultures of the world and know what is new, and that the social media is their first source of confidence. All members of society follow everything related to COVID-19 pandemic and follow-up daily cases of increase, deaths and recovery. Community awareness is not limited to only one of a particular social group, regarding the seriousness of this epidemic and the voluntary commitment to the preventive and health measures issued by the official authorities to prevent the spread of the virus, including commitment to home isolation and quarantine and not going out except for the most necessary, which are vital uncontroversial measures in the whole world.

The results also indicated that there were apparent differences in ASD according to the categories of the duration of the daily usage of the Internet. The results are consistent with Qiu et al. (2020), Al-Omri (2018), and Nagaur (2020) which asserted that the students pursuing professional courses were found vulnerable to the Internet addiction and mental health problems during the COVID-19 lockdown in Uttar Pradesh.

The researcher attributed this result to the fact that during a health crisis, the public depends on the media to convey accurate and up-to-date information in order to make informed decisions regarding health protective behaviors. During times of uncertainty and crisis, the public may increase their reliance on the media (Garfin, Silver

& Holman, 2020). Decision science has revealed that people tend to form accurate perceptions of risk when facts are known and communicated to the public effectively via the media (Fischhoff, Wong-Parodi, Garfin, Holman, & Silver, 2018).

Garfin, Silver and Holman (2020) pointed out that repeated media exposure to community crisis can lead to increased anxiety, heightened stress responses that can lead to downstream effects on health, and misplaced health-protective and help-seeking behaviors that can overburden health care facilities and tax available resources.

Conclusion

Caring for mental health in such difficult times is extremely important, as measures must be taken to maintain the mental health of communities affected by COVID-19. Concerns about the transmission of the disease from one person to another can affect social solidarity; it is not easy to obtain the required social support in such circumstances, a matter that has a negative impact on mental health. Unfortunately, the media was an additional factor that spread panic among the general public. However, many positive measures can be used to help take care of the mental health of society and individuals. One of the best coping strategies when it comes to shock is to minimize follow-up on Corona news. Another strategy is to choose reliable sources to follow the news as the Centers for Disease Control and Prevention or WHO for the most up-to-date information regarding transmission. Just watching news coverage of a traumatic event can lead to symptoms of acute stress. Listen to what your mind says and then look at the evidence for what is really there. We need to recognize that it is often a story our mind is telling us, not the reality. Try to do this by, for example, instead of saying 'I'm going to get ill' say 'I'm having the thought that I'm going to get ill' to emphasize this is your mind telling you that not reality.We have control over how much we think about it. We do have control over our thoughts, although it is hard work sometimes to control them. Worrying about it won't guarantee a better outcome. So try to allocate some brain space for other important things too.

The researcher agrees with Henry (2020) that provided a set of advice for psychologists and the American Psychological Association to help control feelings of anxiety and stress due to the spread of the new Coronavirus. These pieces of advice include:

• Reducing exposure to negative news that may lead to an increased sense of panic, and setting a ceiling to know the news about the development of the virus, for example, 30 minutes a day

• Maintaining the daily routine, such as waking up at the same time, along with trying to separate family and work obligations while working at home.

• Trying to learn new hobbies or create a new routine till the end of this period or do some delayed tasks.

• Choosing the bias for optimism; despite the current situation, a person can pay attention to the value of the present moment and the value of health. In addition, home isolation gave many people the opportunity to spend more time with their children, which was not sufficient enough before the crisis worsened.

• Trying to stay away from negative people and away from sources of stress.

• Trying to help others; it is evident in the solidarity of many persons in Egypt to help one another.

• Recording video clips with family members and talking about how the family is facing this crisis. Such methods give the person a degree of control and hope.

• Requesting help from others, or seeking psychological help through behavioral or cognitive therapy, and this can be done online, especially with the availability of means of video communication.

• Expressing and talking about feelings of anger or psychological pain because suppression may lead to depression or an increase in mental illnesses, the effects of which may appear later on.

• Doing meditation exercises through mobile applications or practicing any kind of exercise at home.

Limitation and Further Studies

A limitation of this research is its population, which was 802 participants (357 Saudis and 445 Egyptians from both countryside and urban areas). Further studies are recommended to validate the current research results in various communities. The study also does not identify the mediated variables such as the socioeconomic status of the participants. Therefore, further studies are recommended to examine the effectiveness of other variables on Acute Stress Disorder of COVID-19.

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