



Common Phobias among Egyptian Primary Schoolchildren: An Emergency Trigger for Panic Disorder due to Corona Pandemic

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Abstract

BACKGROUND: In the wake of the adverse situation we are currently facing globally due to the coronavirus pandemic outbreak, it is normal to feel stressed, confused, and scared but what is abnormal is to turn this to panic. Phobias are more pronounced than fears. They develop when a person has an exaggerated or unrealistic sense of danger that may be evolved to experience panic attacks.

AIM: Our objective was to identify the prevalence of most common phobias as well as panic disorder (PD) due to the coronavirus pandemic among Egyptian primary schoolchildren and their determinants.

METHODS: A cross-sectional study was conducted among 2015 schoolchildren from 3 to 6 grades in three governorates of Egypt. Seven types of phobias were investigated: Agoraphobia, phobias from darkness, animal, untreatable illness (mainly coronavirus), insects, height, and social phobia. The child's self-reported PD symptoms were assessed using DSM-IV with psychiatric diagnoses.

RESULTS: Almost two-thirds of the surveyed primary schoolchildren have phobias of the low score (<9) versus one-third who had high phobias score (61.1% vs. 35.5%, respectively) with highly significant difference ($p < 0.001$). The most prevalent phobias were from heights (66.5%) followed by darkness (60.0%). The important predictors of phobias were: Being a male child, living in an urban area, and studying at governmental school at fifth or sixth-grade residence. The prevalence of PD due to the corona epidemic is very high, it is reported by almost half of the surveyed primary schoolchildren. Fear of losing any of their family members, especially grandparents, was reported to be the highest PD symptom (97%).

CONCLUSION: Phobia from heights and darkness was the most common. The prevalence of PD due to the coronavirus epidemic is reported to be very high. Calming down children who might be experienced with a phobia that is triggering their PD is recommended.

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Introduction

A phobia is defined by being a debilitating, massive, and persistent fear. It is triggered by the presence of a situation, animal, heights, illness, etc. If a phobia becomes very severe, it causes restricting of the day-to-day life and a lot of distress. As well as, the person will avoid the thing that causing phobia [1], [2].

To consider phobia in children, the identified fear must last at least 6 months. Types of common phobias seen in children include specific phobia (e.g., fear from darkness, animal, insect, or heights), agoraphobia (e.g., fear of crowded places or narrow places), social phobia (as phobia when entering a place where people are gathered and talking for fear of embarrassing yourself and being humiliated in public), and medical phobia (afraid of illness) [1], [2], [3], [4].

Phobia is common in all ages, with 25% of children and adolescents suffering from phobia during their lifetime, making it one of the most prevalent and chronic psychological disorders [2].

Specific phobia is considered one of the most common phobias. Recent studies show that the lifetime prevalence of specific phobias around the world ranges from 3% to 15% and the most common types are heights and animals. These studies confirm the high prevalence of specific phobias in the general population, especially in children. 7-8. The National Institute of Mental Health estimates approximately 7-9% of children have been estimated to have a specific phobia [5], [6], [7], [8]. Moreover, younger individuals showed the highest rates of social phobia. It usually first appears at age 8 years [9], [10].

The prevalence rates and types of phobia in children differ in nature due to different cultural and

ethnic groups. Traditions, values, and beliefs may play a role [5], [11].

Phobia might act as a triggering factor for Panic. Recent researches indicated that panic disorder (PD) has been documented not only among adolescents but also many primary school-aged children experienced this disorder nowadays [12], [13], [14].

Coronavirus (COVID-19) is a lower respiratory tract infection and it is considered by the World Health Organization as a pandemic disease because it causes more than 430,000 cases and almost 20,000 deaths worldwide [15], [16].

In the wake of the adverse situation we are currently facing globally due to the COVID-19 outbreak; the whole nations are confronted with a pandemic for which all government agencies are doing their best to control. Meanwhile, to fight this pandemic efficiently, the majority of nations have reinstated a work-from-home policy to help in flattening the COVID transmission curve. All parents are working under extreme pressure at this time that is also reflected in their children. To enable parents to work optimally from home, it is necessary to create an enabling environment that is free from any phobia or panic. This is also necessitated to calm down children who might be experienced with a phobia that is triggering their PD.

To assist in these potential crisis moments and achieve our target with resilience and compassion, we assessed the prevalence of phobia among primary school-aged children as a trigger for PD due to Corona Pandemic. We assessed the prevalence of phobia among primary school-aged children as a trigger for PD due to the corona pandemic. When it comes to PD due to the coronavirus epidemic, it is essential to measure PD among children. The experienced panic illness usually accompanied by decreased resistance and more susceptibility to diseases [17], [18], [19].

The aim of this study was to identify the prevalence of most common phobias among the studied Egyptian primary school-aged children and determine the prevalence of different types of phobia and their determinants according to certain demographic characteristics. The study also will focus on the prevalence of PD due to the coronavirus pandemic and detect the dominance of its symptoms.

Methods

Study design and study setting

The study was a cross-sectional that was conducted in three governorates, one representing Lower Egypt (Behara governorate), one representing the Coastal region (Damietta governorate), and one representing Upper Egypt (Al Fayoum governorate).

Sampling frame and sampling unit; three sampling frames were chosen: The first sampling frame used was based on stratification of the served rural governorates into three strata representing rural Lower Egypt, Coastal region, and Upper Egypt governorates. The second sampling frame was based on a comprehensive list of the governorates as per regions. The third sampling frame was the stratification of listing the units to be sampled (governmental primary schoolchildren). For the third sampling frame, a logical order was used for schools and then a cluster of schools was chosen with probability proportion to size from that listing. This ensured that the units were evenly distributed within the listing and avoided the possibility that, due to chance, one type of school ends up being under-represented.

Governorates that matched the inclusion criteria and randomly selected were Al Fayoum, Damietta, and Behara governorates representing Lower Egypt, Coastal region, and Upper Egypt governorates, respectively.

Sample size and sampling technique

Confidence intervals for one proportion – Numeric results for two-sided confidence intervals for one proportion.

Confidence interval formula: Exact (Clopper-Pearson).

Sample Confidence level	Size (n)	Target width	Actual width	Proportion (p)	Lower limit	Upper limit	Width if p=0.5
0.970	1921	0.050	0.050	0.500	0.475	0.525	0.050

Summary statements

A sample size of 1921 produces a two-sided 97% confidence interval with a width equal to 0.050 when the sample proportion is 0.500. This sample is the minimum sample to ensure the accuracy of the results with 0.05 margin of error and 97% confidence [20].

Study population

The choice of subjects was in the form of clusters (4 clusters/each school); each cluster was formed from 17 students from each grade with a total of 68 children/each primary schoolchildren. The actual total number of the randomly surveyed schools was 30 schools distributed along 16 districts within three governorates with average 1–3 schools/district and 10–12 schools/each of the selected governorates according to the number of schools per district. The total number of children was rounded to 2040. Of the expected 2040 children, 2015, children completed the questionnaire. These schoolchildren were in the age group 8–12 years, studying at primary levels in governmental and private schools in some rural and urban areas of three governorates of Egypt.

Inclusion criteria

Boys and girls in the primary schools from grade 3 to grade 6. The primary schoolchildren are aged 8–12 years so that they could express their feelings properly. The study included both private and governmental schools as well as schools in rural and urban areas.

Exclusion criteria

Students proved to have any mental disorder, visual or auditory impairment, or chronic disease were excluded from the study.

Data collection types and tools

The questionnaire was designed and distributed to the parents of the studied schoolchildren studying at primary levels and living in both urban and rural areas of Egypt. The designed questionnaire was completed by the primary schoolchildren.

Seven types of phobias were investigated: Agoraphobia, phobia from darkness, phobia from animal, phobia from untreatable illness (mainly coronavirus), phobia from insect, phobia from height, and social phobia. The questionnaire consisted of some sociodemographic data (age, gender, residence, school type, and school level) and 20 questions related to different types of phobia. Students' parents were asked to answer the questions by indicating "yes" or "no." Questions evaluate the levels of phobia were scored from zero to ≥ 10 where 0 means no phobia, 1–9 means a low level of phobia, however, the score of a high level of phobia ranges from 10 to more.

Children completed self-report rating scale [21].

Two child psychiatrists made psychiatric diagnoses through a systematic review of the symptoms.

DSM-IV panic symptoms were used for the child self-reported PD symptoms.

Data management analysis

The collected data were revised, coded, entered, and verified with proofreading data, where one researcher checked the data entered against the original document. Data analysis was done using Statistical Package for the Social Science 18 for windows. Descriptive statistics in the form of frequency and percentage were used for data summarization. Diagrams and figures were used to illustrate the other simple information. Qualitative data were presented in frequencies and percentages. Chi-square test was used for measuring differences; meanwhile, odds ratio and 95% confidence interval were computed to assess the degree of association. The analysis was also done using Z test between two proportions [22]. Multivariate logistic

analysis was done to predict risk factors significantly affecting phobia. $p < 0.05$ was considered significant and $p < 0.001$ was considered highly significant.

Results

Of 2015 studied schoolchildren in the age group 8–12 years, 52% were female. The majority of the sample was studying at primary levels in private schools and was from rural areas of Egypt (61.3% and 62.5%, respectively). About one-third of the participants were studying in primary five (30.3%), around one-quarter of them were studying in primary three and another was studying in primary six (24% both), and 21.5% were studying in primary four.

Table 1 reveals the distribution of the most common phobias among the studied schoolchildren. Feeling of falling down from high places (66.5%), phobia from dark places (60.0%), phobia from going bathroom when it is dark (57.1%), and phobia from untreatable illness (44.2%) were the most common phobias found among the studied schoolchildren. Other types of phobias such as phobia when entering a place where people are gathered and talking (19.4%) were found less commonly. The table also shows that low and high scores of phobia accounted for 60.9% and 35.2%, respectively, with a highly significant difference and there is a highly significant difference between certain types of phobia ($p < 0.001$). More than 5% of the studied schoolchildren had from 5 to 12 types of phobia (Figure 1).

Table 1: Distribution of different types of phobia among the studied schoolchildren

Type of phobia	Total n=2015 n (%)	p-value
Total score of phobia		
No (0)	79 (3.9)	<0.001
Low 1–9	1227 (60.9)*	
High 10 or more	709 (35.2)*	
Agoraphobia		
Phobia from narrow places	714 (35.4)	<0.001
Phobia from train or bus even they are not crowded	545 (27.0)*	
Phobia from crowded places	752 (37.3)*	
Phobia from darkness		
Phobia from dark places while he is in	1208 (60.0)	<0.001
Imagine that somebody is talking to him while he is in darkness	750 (37.2)	
Phobia from going alone to bed at night	658 (32.7)*	
Feeling shudder when he is in darkness	984 (48.8)	
Imagine in darkness that somebody on the wall	930 (46.2)	
Phobia from sitting in dark room	1044 (51.8)	
Phobia from going bathroom when it is dark	1151 (57.1)*	
Phobia from animal		
Feeling dizzy and shudder when he sees a dog or cat	572 (28.4)*	<0.001
Runaway and be tachycardia when seeing a dog or cat	790 (39.2)	
Phobia from rats and be tachycardia on seeing a rat	1031 (51.2)*	
Phobia from snacks even if he saw them in TV or pictures	893 (44.3)	
Phobia from untreatable illness (like corona)	890 (44.2%)	
Phobia from insect		
Phobia from cockroach and become tachycardia on viewing a cockroach	690 (34.2)	
Phobia from height		
Phobia from heights	1034 (51.3)	<0.001
Feeling that he will fall down while he is in high places	1340 (66.5)	
Social phobia		
Phobia from something or people he knows they are harmless	514 (25.5)	<0.001
Phobia when entering place where people are gathered and talking	390 (19.4)	

* $p < 0.001$.

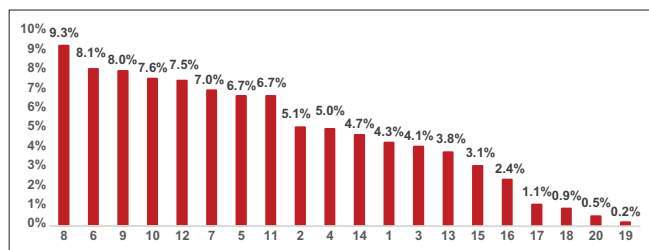


Figure 1: Percent distribution of different no. of phobias among the studied schoolchildren

The low score of phobia was more among the studied female schoolchildren (63.5%), while the high score of phobia was more among the studied male schoolchildren (71.8%). As regards low versus high scores of phobia, males were 4.4 times with highly significant ($p < 0.001$). There is a highly significant difference between rural and urban areas regarding no phobia versus high scores of phobia with odds ratio 3.5 (95% CI 2.1–5.7). Governmental schools were almost two times likely than private schools regarding low versus high scores of phobia with a highly significant difference ($p < 0.001$). Fifth graders scored higher than other graders, for low scores versus high scores of phobia with highly significant difference ($p < 0.001$) Table 2.

Table 2: Prevalence of phobia among the studied schoolchildren according to certain characteristics

Variable	Phobia			
	Total n=2015	No (0) n (%)	Low (1–9) n (%)	High (10 or more) n (%)
Gender				
Males	967	10 (12.7)	448 (36.5)	509 (71.8)
Females ^o	1048	69 (87.3)	779 (63.5)	200 (28.2)
OR (CI) between: No versus low=4.0 (2.0–7.8)**, no versus high=17.6 (8.9–34.8)**, low versus high=4.4 (3.6–5.4)**				
Residence				
Rural	1259	28 (35.4)	765 (62.3)	466 (65.7)
Urban ^o	756	51 (64.6)	462 (37.7)	243 (34.3)
OR (CI) between: No versus low=3.0 (1.9–4.9)**, no versus high=3.5 (2.1–5.7)**, low versus high=1.2 (1.0–1.4)				
Type of school				
Governmental	780	17 (21.5)	425 (34.6)	338 (47.7)
Private ^o	1235	62 (78.5)	802 (65.4)	371 (52.3)
OR (CI) between: No versus low=1.9 (1.1–3.3)*, no versus high=3.3 (1.9–5.8)**, low versus high=1.7 (1.4–2.1)**				
School level/grade**				
Primary three	483	27 (34.2)	309 (25.2)	147 (20.7)
Primary four	434	11 (13.9)	264 (21.5)	159 (22.4)
Primary five	611	30 (38.0)	371 (30.2)	210 (29.7)
Primary six	487	11 (13.9)	283 (23.1)	193 (27.2)

* $p < 0.05$, ** $p < 0.001$, OR: Odds ratio; CI: Confidence interval.

Table 3 illustrates the prevalence of different types of phobia among the studied schoolchildren according to certain characteristics. Prevalence of different types of phobia was more frequent in males than females with significant differences (agoraphobia [$p = 0.008$], phobia from darkness [$p < 0.001$], animal phobia [$p = 0.035$]). The frequency of different types of phobia was increased in rural areas than urban areas with significant difference (agoraphobia [$p < 0.001$], phobia from darkness [$p = 0.043$], animal phobia [$p < 0.001$]). In addition, private schools demonstrated higher percent than governmental schools in almost all types of phobia with significant difference (phobia from darkness [$p = 0.029$], animal phobia [$p = 0.001$]). The

studied fifth graders (about one third) show the highest percentage for almost all types of phobia, whereas phobia from untreatable illness was more common in third and fourth grades students (27.6% and 27.0%, respectively).

Figure 2 with regard to PD symptoms due to coronavirus pandemic, somatic symptoms were not common; the most common somatic complaints were in order: Shortness of breath of children (40%), chest pain, palpitations, nausea, trembling, sweating, and choking. Meanwhile, fear of losing family members was the most common (97%), then the fear of the unknown consequences of the corona (78%) and fear of dying (68%) with a highly significant difference ($p < 0.001$).

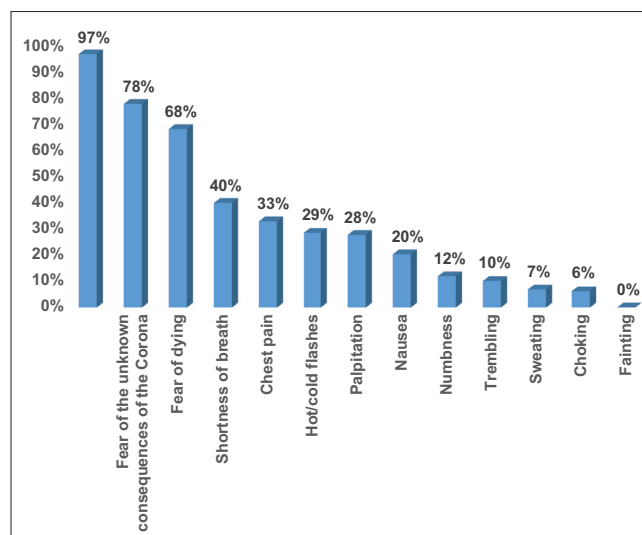


Figure 2: Prevalence of panic disorder's symptoms from catching coronavirus among the studied schoolchildren according to certain characteristics, $p < 0.001$

Table 4 presents the logistic regression analysis for investigating factors affecting phobia among studied schoolchildren. It was carried out using a type of school, residence, gender, and school level/grade in the model. It revealed that male studied schoolchildren, urban areas, and governmental schools were highly significant predicting factors for phobia regarding low score of phobia versus high score of phobia, no phobia versus high scores of phobia, and no phobia versus low scores of phobia, $p < 0.001$.

Discussion

Phobias are the most common anxiety disorder. It is characterized by the overwhelming and constant fear of specific objects or situations that present little or no real threat causing distress and impairment to the child's life [11], [23], [24]. If phobias are not treated and continue into adulthood, they will become chronic, causing a marked reduction in

Table 3: Prevalence of agoraphobia, phobia from darkness, animal, illness, insect, height, and social phobia among the studied schoolchildren according to certain characteristics

Variable	Gender		Residence		Type of School		School level/primary grade			
	Males	Females	Rural	Urban	Governmental	Private	Three	Four	Five	Six
Phobia from narrow places n=714	445 (62.3)	269 (37.7)	522 (73.1)	192 (26.9)	318 (44.5)	396 (55.5)	160 (22.4)	155 (21.7)	223 (31.2)	176 (24.6)
Phobia from train or bus even they are not crowded n=545	294 (53.9)	251 (46.1)	387 (71.0)	158 (29.0)	228 (41.8)	317 (58.2)	133 (24.4)	130 (23.9)	164 (30.1)	118 (21.7)
Phobia from crowded places n=752	453 (60.2)	299 (39.8)	482 (64.1)	270 (35.9)	345 (45.9)	407 (54.1)	165 (21.9)	172 (22.9)	245 (32.6)	170 (22.6)
p-value	0.008		<0.001		0.347		0.744			
Phobia from dark places while he is in n=1208	743 (61.5)	465 (38.5)	737 (61.0)	471 (39.0)	508 (42.1)	700 (57.9)	255 (21.1)	242 (20.0)	380 (31.5)	331 (27.4)
Imagine that somebody is talking to him while he is in darkness n=750	425 (56.7)	325 (43.3)	468 (62.4)	282 (37.6)	369 (49.2)	381 (50.8)	168 (22.4)	127 (16.9)	250 (33.3)	205 (27.3)
Phobia from going alone to bed at night n=658	431 (65.5)	227 (34.5)	418 (63.5)	240 (36.5)	293 (44.5)	365 (55.5)	138 (21.0)	142 (21.6)	208 (31.6)	170 (25.8)
Feeling shudder when he is in darkness n=984	562 (57.1)	422 (42.9)	627 (63.7)	357 (36.3)	442 (44.9)	542 (55.1)	211 (21.4)	207 (21.0)	304 (30.9)	262 (26.6)
Imagine in darkness that somebody on the wall n=930	543 (58.4)	387 (41.6)	635 (68.3)	295 (31.7)	402 (43.2)	528 (56.8)	245 (26.3)	179 (19.2)	283 (30.4)	223 (24.0)
Phobia from sitting in dark room n=1044	662 (63.4)	382 (36.6)	657 (62.9)	387 (37.1)	458 (43.9)	586 (56.1)	225 (21.6)	227 (21.7)	329 (31.5)	263 (25.2)
Phobia from going bathroom when it is dark n=1151	677 (58.8)	474 (41.2)	727 (63.2)	424 (36.8)	546 (47.4)	605 (52.6)	252 (21.9)	214 (18.6)	353 (30.7)	332 (28.8)
p-value	<0.001		0.043		0.029		0.153			
Feeling dizzy and shudder when he sees a dog or cat n=572	368 (64.3)	204 (35.7)	340 (59.4)	232 (40.6)	251 (43.9)	321 (56.1)	93 (16.3)	136 (23.8)	205 (35.8)	138 (24.1)
Runaway and be tachycardia when seeing a dog or cat N=790	498 (63.0)	292 (37.0)	462 (58.5)	328 (41.5)	311 (39.4)	479 (60.6)	174 (22.0)	159 (20.1)	250 (31.6)	207 (26.2)
Phobia from rats and be tachycardia on seeing a rat n=1031	690 (66.9)	341 (33.1)	601 (58.3)	430 (41.7)	368 (35.7)	663 (64.3)	214 (20.8)	256 (24.8)	301 (29.2)	260 (25.2)
Phobia from snacks even if he saw them in TV or pictures n=893	541 (60.6)	352 (39.4)	636 (71.2)	257 (28.8)	388 (43.4)	505 (56.6)	169 (18.9)	183 (20.5)	298 (33.4)	243 (27.2)
p-value	0.035		<0.001		0.001		0.017			
Phobia from untreatable illness (like corona) n=890	564 (63.4)	326 (36.7)	630 (70.8)	260 (29.2)	392 (44.0)	498 (56.0)	246 (27.6)	240 (27.0)	176 (19.8)	228 (25.6)
Phobia from cockroach and become tachycardia on viewing a cockroach n=690	473 (68.6)	217 (31.4)	458 (66.4)	232 (33.6)	215 (31.2)	475 (68.8)	181 (26.2)	157 (22.8)	190 (27.5)	162 (23.5)
Phobia from heights n=1034	550 (53.2)	484 (46.8)	679 (65.7)	355 (34.3)	440 (42.6)	594 (57.4)	201 (19.4)	266 (25.7)	323 (31.2)	244 (23.6)
Feeling that he will fall down while he is in high places n=1340	748 (55.8)	592 (44.2)	856 (63.9)	484 (36.1)	568 (42.4)	772 (57.6)	290 (21.6)	276 (20.6)	431 (32.2)	343 (25.6)
p-value	0.217		0.244		0.969		0.027			
Phobia from something or people he knows they are harmless n=514	305 (59.3)	209 (40.7)	372 (72.4)	142 (27.6)	238 (46.3)	276 (53.7)	126 (24.5)	112 (21.8)	154 (30.0)	122 (23.7)
Phobia when entering place where people are gathered and talking n=390	242 (62.0)	148 (38.0)	286 (73.3)	104 (26.7)	196 (50.3)	194 (49.7)	92 (23.6)	90 (23.1)	118 (30.3)	90 (23.1)
p-value	0.449		0.806		0.267		0.962			

Table 4: Logistic regression of factors affecting phobia

Variables	B	p	OR	95% CI of OR	
				Lower	Upper
Low versus high					
Type of school*	-0.485	<0.001	0.615	0.501	0.757
Residence*	0.321	0.003	1.379	1.115	1.706
Gender*	-1.478	<0.001	0.228	0.186	0.279
School level/grade	0.076	0.106	1.079	0.984	1.183
No versus low					
Type of school*	-0.798	0.006	0.450	0.255	0.796
Residence*	1.423	<0.001	4.148	2.525	6.816
Gender*	-1.458	<0.001	0.233	0.117	0.462
School level/grade	0.209	0.070	1.232	0.983	1.545
No versus high					
Type of school*	-1.389	<0.001	0.249	0.130	0.479
Residence*	1.388	<0.001	4.005	2.297	6.985
Gender*	-2.816	<0.001	0.060	0.030	0.120
School level/grade	0.118	0.396	1.125	0.857	1.476

Variables entered in the model: Type of school, residence, gender, and school level/grade. B: Regression co-efficient; OR: Odds ratio; CI: Confidence interval.

quality of life and disability in young populations. Thus, early diagnosis may help in the prevention of severe psychiatric symptoms [5], [23], [25].

Therefore, the present study discussed two major observations: First, identify the prevalence of most common phobias in the studied Egyptian primary schoolchildren, and second, determine the prevalence of different types of phobia according to certain characteristics. Most importantly, determine the influence of phobia from diseases on the occurrence of PD due to the corona pandemic.

Phobia consists of many types as a specific phobia (e.g., fear from darkness, animal, insect, or

heights), agoraphobia (e.g., fear of crowded or narrow places), as well as, social phobia (as phobia when entering a place where people are gathered and talking for fear of embarrassing yourself and being humiliated in public), and medical phobia (afraid of illness). The results suggest that the most commonly reported phobias among the studied Egyptian schoolchildren were certain types of specific phobia (falling down from high places, phobia from dark places, and phobia from going bathroom when it is dark). Our study is aligned with others showing that the specific phobias were more common in children versus adults and adolescents, making it the most common anxiety disorder and one of the most common psychiatric disorders among children [25], [26]. This is explained by many stressors as parental overprotectiveness, physical abuse, parental separation or loss, death of a close relative, physical health, genetic vulnerability, etc. [26]. In contrast, social phobia was found to be more common among children by other studies [5], [27], [28], [29], [30]. Certain risk factors causing increase prevalence of social phobia as environmental and biological changes, family type, physical activity, meditation, etc. [5], [29].

The present study demonstrated that more than 5% of the studied schoolchildren had more than 5 types of phobia. This finding is supported by a study done by de Vries *et al.*, 2019, who found that 8% of children reported four or more phobias [31]. The present

study also scored the phobia into the low score (1–9) and high score (≥ 10) which accounted for 60.9% and 35.2%, respectively, of the studied participants. In this respect, the study carried out by Archana *et al.*, 2017, described that mild and severe phobia accounted for 24.1% and 1.6%, respectively [29]. Different levels of phobia may be due to the underlying influence of paternal and maternal factors on child development starting early after childbirth [32], [33], [34].

Gender differences in different phobias were explored in the current study which clarified that the different types of phobia were more prevalent in males than females with a significant difference. This is because boys are more susceptible to stress and neuropsychiatric disorders, so they need more care and support from their mothers [35] and maybe due to the way of the child-rearing with overprotectiveness of boys than girls especially in Egyptian rural communities which were more in this study. Moreover, the phobia was increased in rural areas than urban areas with a significant difference because of firm social controls by these communities [36]. However, other studies who were inconsistent with the current study finding and reported that phobias were more prevalent in female students than in males [5], [25], [27], [37], [38]. In addition, the problem of phobia is varying in rural and urban populations based on multiple issues [29].

Most of the phobias generally appear in early childhood, the studied fifth or sixth graders (9–12 years) showed the highest percentage for almost all types of phobia because older children are more susceptible to phobia than younger children. With respect to phobias, our results are in agreement with Bener *et al.*, 2011; Varughese and Peteru, 2019; and de Vries *et al.*, 2019 suggesting that phobias were common in the age group 6–11 years [5], [26], [31]. Results of other studies were somewhat different from those found in our sample, two studies suggested that the average age of onset of phobias symptoms at approximately 8 years [11], [37]. While one study found that the onset of phobias symptoms was more in the age group of 11–13 years [29]. This variation may be due to different socioenvironmental stresses.

Because phobia can spread quickly, so it has played an important role in coronavirus spread and the fear of catching the virus expressed by panic, stress, unhappiness, avoiding public places, psychosomatic diseases, etc. The most important thing that we have to fear is fear itself [39], [40], [41], [42]. Regarding PD due to the corona pandemic, the study reported 44.2% prevalence which could be considered as the highest prevalence worldwide. PD is likely to be increased with increased number of infected persons with coronavirus and number of deaths and expected to reach almost all people (80% or 90%) if it is surveyed at this time. The highest PD symptoms were fear of losing any of the family members, especially grandparents (97%), fear of the unknown consequences of the corona (78%), and fear of dying because it has not a treatment yet (68%).

The observed somatic complaints such as shortness of breath of children, chest pain, palpitations, nausea, trembling, sweating, and choking often misdiagnosed as anxiety or mood disorders. Such diagnosis often masks the presence of PD in primary schoolchildren. The majority of Egyptian studies among primary school-aged groups seldom considered PD for such symptoms or studied its effect on cognitive and psychosocial development [42], [43], [44], [45], [46], [47]. These somatic symptoms were slightly higher in this study due to fear from corona and its complications more than symptoms caused by the disease itself.

Furthermore, our results indicate that the studied male schoolchildren, urban areas, and governmental schools were highly significant predicting factors for phobia regarding low score of phobia versus high score of phobia, no phobia versus high scores of phobia, and no phobia versus low scores of phobia, $p < 0.001$.

It was notable that even with the high percentages of different types of phobia and with PD, no child who was diagnosed or had been referred to seek advice, further evaluation or treatment, indicating a very low level of awareness. It is really recommended to encourage community-based awareness programs to raise awareness of parents about phobia and how to manage. Such programs in Egypt are proved to be effective in many health settings resulted in the empowerment of the communities and in mitigation of many health problems [48], [49], [50], [51], [52], [53], [54].

Strengths of the study

Up to date, the majority of studies for phobia and PD has both small sample size and was done in a clinical setting such as hospitals or clinics. Our study is characterized by being a community based one. It is the first one in Egypt to study common and specific phobia as well as a PD due to the corona pandemic among primary school-aged children with a very large sample size (2015 children), with a high confidence level of 97% and low two-sided margin of error (0.05).

Limitation of the study

As this study was limited to investigate different forms of specific phobia without studying the symptoms of the specific phobia and without studying the sociodemographic implication. Moreover, self-reported symptoms of being panic due to the corona pandemic were the focus of the study without studying the comorbidity between PD and internalizing and externalizing disorders. Another limitation is that children were assessed by a self-reported questionnaire rather than with the use of structured diagnostic interviews that tend to be lengthy. Meanwhile, the cognitive capabilities of school-aged children are below what is required to fill in these questionnaires. Although

the role of the paternal and maternal parameters on child development is well evident in many Egyptian studies [32], [33], [34] starting early after childbirth, yet the current study also obscured exploring such influence as underlying factors for the variation of the widespread of specific phobia.

Conclusion and Recommendation

Although our sample is not representative of the whole Egyptian schoolchildren, yet it represents the opinion of primary schoolchildren of different geographical and socioeconomic levels. Phobia from heights and darkness was the most common with a higher frequency in the 9–12 years old age group (fifth or sixth graders). Boys had higher rates of all phobic disorders than girls. The important determinants of phobias were the type of school, residence, gender, and school-level/grade.

The prevalence of PD due to the corona epidemic is very high, it is reported by almost half of the surveyed primary schoolchildren. Fear of losing any of their family members, especially grandparents, fear of the unknown consequences of the corona, and fear of death were reported to be the highest PD symptoms. The prevalence of PD due to the coronavirus epidemic is reported to be very high.

It is important to assure fearful children and their parents that during lockdown, they should be optimistic. They should know that mental and spiritual wellbeing are linked and important during the crisis to decrease their suitability to diseases. To enable parents to work optimally from home, it is necessary to create an enabling environment that is free from any phobia or panic. This is also necessitated to calm down children who might be experienced with a phobia that is triggering their PD.

We believe our responsibility lies in catalyzing the process of helping people seamlessly to be engaged and motivated on ways to make their work from home “business as usual” safe, smart, and swift. This will be achieved by assuring their children and reducing their PDs.

Ethics Approval and Consent to Participate

The study complied with the International Ethical Guidelines for Biomedical Research Involving Human Subjects. Written consent was obtained from parents of all participants after ensuring their full

understanding of the research. Information obtained at the individual level was kept strictly confidential.

Approval of the Ministry of Education before starting the research was taken. The study ethical approval was obtained from the Medical Research Ethics Committee of the National Research Centre with the ethical approval number of 19068.

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Authors' Contributions

AMM and HE conceived and designed the study. MME, EE, and AE conducted field visits and data collection. AMM, HE GAA, and NAI oversaw the implementation. GAA did the statistical analyses and interpreted the data. GAA and MME drafted the paper. AMM and LE reviewed the manuscript. GAA submitted the manuscript. All authors provided input into the manuscript and approved the final version.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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