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Factors Contributing to Refusal of Testing in the Pediatric COVID-19 Suspect Population

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ABSTRACT

Background: Coronavirus has been declared a pandemic, and strategies like vaccination, social distancing, and extensive testing have played crucial roles in controlling its spread. Diagnosing COVID-19 in children is particularly challenging due to their susceptibility to upper respiratory tract infections. Studies have indicated that suspected patients often refuse COVID-19 testing.
Objective: This study aimed to identify pediatric patients whose parents refused COVID-19 testing despite clinical symptoms and physicians' advice and to highlight significant factors contributing to this refusal.
Material and Methods: A cross-sectional descriptive study was conducted at the Department of Pediatrics, Abbasi Shaheed Hospital, Karachi. After consent was obtained, data was collected from the parents of 146 pediatric patients suspected of having COVID-19 using a predesigned proforma. Both quantitative and qualitative data were analyzed.
Results: The study showed that 78% (114) of parents refused COVID-19 testing for their children, while 22% (32) agreed. The primary reasons for refusal were: parents believing their child had another illness despite medical advice, fear of side effects, lack of knowledge, fear of quarantine, illiteracy, viewing COVID-19 as a social taboo, and fear of a positive test result.
Conclusion: Illiteracy and lack of knowledge were major factors contributing to testing refusal and influenced other reasons as well. Through social and electronic media, it is essential to increase awareness and reduce the fear associated with the disease. Clinicians can play a significant role in educating parents. Enhancing awareness and alleviating fear may lead to greater testing acceptance, contributing to accurate disease statistics and benefiting future research.
Keywords: COVID-19, Illiteracy Quarantine, Refusal, Testing.

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INTRODUCTION

The COVID-19 emerged in late 2019 as an unprecedented global public health crisis, and was declared as pandemic in early 2020.[1] By mid-June 2020, COVID-19 had affected 213 countries, resulting in 7.76 million confirmed cases and approximately 430,000 deaths.[2]

COVID-19 is highly transmissible, spreading from person to person through coughing or sneezing.[3,4] The virus primarily affects the respiratory system, and some patients, can rapidly progress to acute respiratory distress syndrome.[5,6] COVID-19 has high fatality rate.[7,8] Essential strategies such as vaccination campaigns, social distancing measures, and widespread testing became crucial in combating the virus's global spread. COVID-19 is detected using PCR testing, which identifies the virus's genetic material, and antigen tests, which detect specific proteins. PCR testing offers the highest accuracy, while antigen tests provide faster results but are less reliable. The antibody test is also used to identify current or past infections.[9] Prevention is the mainstay, which Includes diagnosing cases and isolating them. International studies have shown that refusing COVID-19 testing due to fear of quarantine by suspected patients remains a problem.[10,11] Many patients refuse COVID-19 testing due to myths, misconceptions, and fear. The societal stigma associated with the virus has made it a social taboo. Additionally, the prospect of strict quarantine following a positive test result poses a significant hurdle for families. Our study aims to ascertain the prevalence of COVID-19 testing acceptance and refusal among suspected pediatric patients and identify factors leading to the refusal of COVID-19 testing.

This study highlights an important issue of potential pediatric patients refusing COVID-19 tests, which is a problem that needs to be addressed for its prevention. Fear of quarantine, social shame, and misunderstandings about the virus are to blame for the issue, which makes it hard for people to get tested. Even though most people are aware of how easily the virus spreads and how many people die from it, not much study has been done on the specific reasons why kids refuse to get tested. This lack of knowledge makes it harder to progress in intensive ways. The study's scientific purpose is to find the psychological, social, and cultural reasons why people refuse to take tests. These will help create more effective health education campaigns and public health strategies to get people to take tests, especially kids and other vulnerable groups.

MATERIALS AND METHODS

This cross-sectional descriptive study was conducted in the Department of Pediatrics at Abbasi Shaheed Hospital, Karachi, from 1st January 2022 to 31st June 2022. The sample size was calculated using the OpenEpi calculator, and a non-probability consecutive sampling technique was employed. Sample size for our study was calculated using Open-Epi calculator (www.open.epi). Population of Karachi was set at 1 Million. The sample size stands to be n=146, calculated by using the proportion of 95% Confidence Interval, 5%

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margin of error, and aprevalence of parents' refusal for COVID testing is 10.39%, respectively.[12]

Participants included parents of children aged 2-12 years, suspected of having COVID-19, aged between 18 and 50 years. Parents who did not provide consent to be part of the study were excluded from the study. Informed consent was obtained from one parent of each patient after explaining the purpose of the study. Data were collected by the researcher using a structured proforma.

The collected data encompassed demographic information such as age, gender, and place of residence, ethnicity, parents' age, and qualifications. Additional information included patients' exposure to risk factors, parents' responses to COVID-19 testing, factors for refusal of testing, and assessment of knowledge at the time of enrolment. All data were kept confidential.

Study variables recorded included the acceptance or refusal of COVID-19 testing and factors responsible for refusal, such as illiteracy, fear of quarantine, fear of a positive result, COVID-19 being perceived as a social taboo, suspicion of other illnesses (e.g., seasonal cough or rhinitis), lack of knowledge, and fear of side effects. Assessment of knowledge was done by Five important questions, which were used to gauge knowledge, including whether or not respondents believed that COVID-19 actually existed. If they believe it could result in a major disease or it might even result in death, or do they think there are disease carriers who don't show any symptoms? Or do they believe that COVID is extremely contagious? These five questions were used to gauge ignorance, with answers marked as "yes" (1) or "no" (0). Less than 60% of participants who replied "no" to three or more questions were categorized as lacking knowledge. Fear of side effects referred to concerns about local trauma or bleeding at the sampling site during sample collection. Data was entered and analyzed using SPSS Version 24.0 (Statistical Package for Social Sciences). Frequencies and percentages were calculated for qualitative variables. The mean and standard deviation (SD) were calculated for quantitative variables. The normality of the data was assessed using the Shapiro–Wilk test. To control for confounding variables stratification was employed. The Independent t-test and Chi-square test were applied for quantitative and qualitative variables, respectively. A p-value of less than 0.05 was considered statistically significant for all analyses.

RESULTS

Our study had 146 participants (parents interviewed), 32 (22%) accepted to COVID-19 testing for their child, while 114 (78%) refused.

Demographics of our study population are given in Table 01.

Risk factor assessment and its relation to acceptance and refusal of testing is given in Table 02.

Table 01. Demographics of population in our study

		Total No of Cases	Accepted Testing	Refused Testing	P-Value
		n=146 (%)	n=32 (22%)	n=114 (78%)	
Gender	Male	46 (31.5)	7 (4.8)	39 (26.7)	0.184
	Female	100 (68.5)	25 (17.1)	75 (51.4)	
Age (Mean, Range) Years		31, 20-50	28.6, 20-41	31.7, 22-50	0.012
Education Status	Graduate	2 (1.37)	2 (1.37)	0 (0.0)	<0.001
	Intermediate	23 (15.75)	10 (6.85)	13 (8.9)	
	Matric	48 (32.87)	13 (8.9)	35 (23.97)	
	Middle (Class 8)	12 (8.22)	0 (0.0)	12 (8.22)	
	Primary (Class 5)	25 (17.12)	0 (0.0)	25 (17.12)	
	None (Uneducated)	36 (24.66)	7 (4.79)	29 (19.86)	

The parents ranged in age from 20 to 50 years and were stratified into four age groups: 18–24 years, 25–30 years, 31–40 years, and over 41 years old. A Chi-square test revealed a significant correlation between parents' age and their response to COVID-19 testing for their child ($p = 0.012$).

For the risk factor assessment regarding visits to crowded places, (14/53) parents agreed to testing ($p = 0.321$). For children attending schools or madrassahs, (7/39) parents accepted testing ($p = 0.484$). For recent travel history, none of the 11 parents agreed to testing ($p = 0.068$). However, for living in unventilated houses, only 1 out of 40 parents consented to testing.

Table 02. Risk Factor Assessment

Risk Factor Assessment	Total No of Cases	Accepted Testing	Refused Testing	P-Value
History with COVID-19 Patient	9	1	8	0.419
Attended Gathering	60	20	40	0.005
Visits to Crowded Places	53	14	39	0.321
Children Attending Schools or Madrassahs	39	7	32	0.484
Recent Travel History	11	0	11	0.068
Living in Unventilated Houses	40	1	39	<0.001

The Chi-square test indicated a significant correlation between attending gatherings and agreeing to testing ($p = 0.005$), suggesting that parents whose children attended gatherings were more likely to consent to testing.

Given that 78% of parents refused testing, the study explored the factors leading to this refusal (Figure 01). Factors are shown in table 3. It is to note that several parents have multiple reasons (factors) leading to refusal of COVID-19 testing of their child.

Table 03. Factors responsible for refusal of COVID-19 Testing

Factors	No of Parents	%
Suspecting other illness	103	90.4
Fear of side effects	61	53.5
Insufficient knowledge	56	49.1
Apprehensive about quarantine, isolation, or social stigma	55	48.2
Lacked comprehension of the pandemic	52	45.6
Afraid of receiving a positive test result	45	39.5
Viewed COVID-19 as a social taboo, fearing disgrace	48	42.1
Lacked comprehensive knowledge about COVID-19	65	45

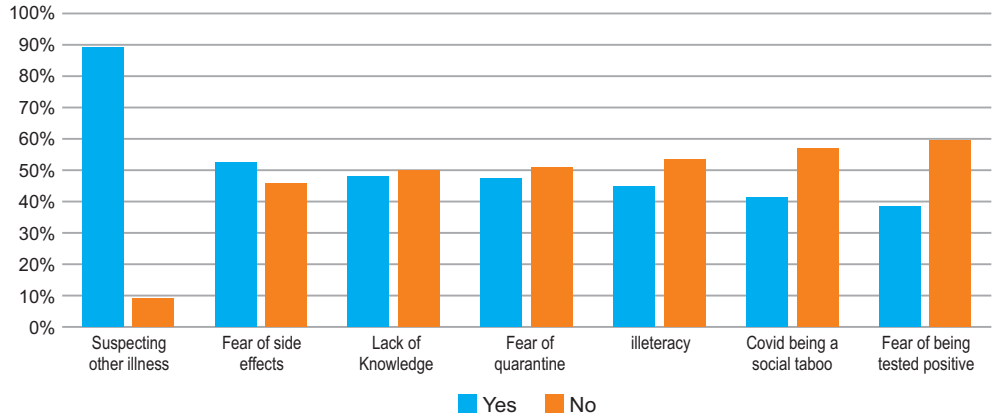


Figure 01. Factors leading to refusal to COVID-19 testing of child

DISCUSSIONS

Crowded environments and gatherings without social distancing are established environmental risk factors for SARS-CoV-2 transmission, as they increase the likelihood of encountering an infected individual.[13] Public transportation also poses challenges for social distancing, potentially elevating transmission risks. Poor air conditioning or inadequate ventilation increases the chances of virus acquisition.[14] Consequently, people are advised to ensure proper airflow in offices and workplaces. However, individuals residing in small houses with poor ventilation are more susceptible to COVID-19 infection. So all such patients who were suspected as COVID-19 carriers on the basis of based on the presence of these risk factors were offered testing, but many parents refused to test. Mostly, refusals were based on their own beliefs or myths or underlying fear of being quarantined.

Overall, 73.3% of patients were exposed to at least one of the six risk factors, 43.15% (n=63) to at least two, and 23.97% to three out of six risk factors. Despite explanations from clinicians and the test being provided free of charge by the Government of Pakistan, only 21.9% consented to testing, while 78.08% refused. In contrast, a study conducted in India observed comparatively lower refusal rates, with 40.3% of participants declining COVID-19 testing.[15]

One of the major reasons for refusal in our study was illiteracy; 45.61% of patients lacked an understanding of the importance and lethality of the virus and the necessity of testing. While illiteracy is traditionally defined as the inability to read and write, in our context it extends to the inability to comprehend the pandemic situation. Our data showed that 32.61% of the 46 fathers interviewed and 21% of the 100 mothers had never attended school or received formal education. Among 110 parents who had some form of formal education, 77.27% refused to have their child tested for COVID-19 seems they were still unable to understand the pandemic scenario.

Other factors contributing to the refusal of COVID-19 testing included the fear of a positive result, reported by 39.47% of patients. Additionally, 48.25% of parents refused testing due to fear of being quarantined. Moreover, 42.11% of parents perceived COVID-19 as a social taboo.

In our study, a significant proportion of parents refused COVID-19 testing because they believed that a positive result would lead to forced quarantine. Literature indicates that the fear of isolation and anxiety associated with social disconnection are substantial concerns.

People fear being labeled as COVID-19 positive, blamed for carelessness, and subjected to quarantine. A comparable study in India reported similar reasons for refusal, including altered behavior of friends and relatives, unwanted hospital admission, workplace discrimination, fear of isolation, and job loss.[16] In Bangladesh, McGowan et al. found fear and disbelief in COVID-195 were the most cited reasons.[17]

In our study, a large number of people (90.3%) refused testing because they attributed symptoms to other illnesses like seasonal cough and rhinitis, especially in children with allergic tendencies. COVID-19 emerged during allergy and pollen seasons in many countries.[18] People often self-diagnose without proper laboratory evidence, a common practice in Pakistan. Illiteracy and poverty contribute as another significant factor in our study: lack of knowledge. Approximately 49.12% of refusals were due to insufficient knowledge about the virus, while 53.51% feared side effects of testing. A survey conducted in Bangladesh between July 9 and October 21, 2020, involving 222 patients, exhibited similar reasons for refusal.[19-21] The four most commonly cited reasons were fear, disbelief in COVID-19, belief that Allah would protect them from contracting the virus, or the conviction that their symptoms were not due to COVID-19.[22]

Several studies have been conducted in Pakistan assessing knowledge, attitudes, and practices (KAP) regarding COVID-19[23] We assessed knowledge through a series of five precise questions. Comparing our results with a KAP survey of a large cohort in Pakistan, we found that in our study, 56.16% of participants believed COVID-19 is highly contagious. In contrast, in their study, 50.1% of respondents were aware of human-to-human transmission.[24]

Strength

This study effectively underscores critical issues, including illiteracy and insufficient understanding, contributing to refusing COVID-19 testing among pediatric patients. Its efficacy is derived from quantitative and qualitative analyses to investigate these significant obstacles in a practical clinical environment.

Limitation

This study's key limitation is its cross-sectional design, which limits the ability to establish causality between factors and testing refusal. Additionally, the sample was limited to one pediatric department, which may affect the generalizability of the findings.

Future recommendations

The study underscores the need for targeted educational interventions to improve parents' awareness and understanding of COVID-19. Healthcare professionals and public health authorities must address misconceptions and fears concerning testing and the disease itself.

CONCLUSION

This study highlights a high refusal rate for COVID-19 testing among parents of Pediatric patients suspected of having the disease. Illiteracy and lack of knowledge were significant factors in refusal, as they influenced other reasons. (19) Therefore, it is necessary to increase awareness and reduce the fear associated with the disease through social and electronic media. By enhancing knowledge and reducing stigma, it may be possible to increase testing acceptance, leading to better disease surveillance and more effective public health responses.

Ethical Consideration

This study was approved by Institutional Review Board of Abbasi Shaheed Hospital, Karachi, Pakistan.

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Conflict of Interest
Authors declared no conflict of interest.

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DATA SHARING STATEMENT: The data that support the findings of this study are available on request from the corresponding author. The data is not publicly available due to privacy or ethical restrictions.

AUTHORS' CONTRIBUTION

The following authors fulfill authorship criteria as per ICMJE guidelines;

Abbas SS: Substantial contribution to conception and design, drafting the manuscript, final approval, agreed to be accountable for all the work.

Abbas SH: Substantial contribution to conception and design, data acquisition, drafting the manuscript, final approval, agreed to be accountable for all the work.

Shakoor I: Analysis and interpretation of data, drafting the manuscript, final approval, agreed to be accountable for all the work.

Nazar S: Analysis and interpretation of data, critical revision, final approval, agreed to be accountable for all the work.

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