Review Article

MODESTUM

Burden and risk factors of anxiety disorders among Arabic pediatric population: A systematic review

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ARTICLE INFO	ABSTRACT
	Aim: In the general population, where 6 to 20% of individuals experience anxiety disorders, children also experience a higher burden of anxiety. We undertook a systematic review In order to examine and summarize the results from studies that estimated the prevalence of anxiety and/or its associated risk factors in the pediatric populations of Arab nations, primarily the gulf countries. **Methods:** Any study that focused on the pediatric population and completed in Arab nations to determine the incidence of anxiety and/or its risk factors among children under the age of 18. The review had 13 articles were included. **Results:** The results of the systematic review found that there was a wide variation in the prevalence of anxiety among children. At least 30.2% of the children were found to suffer from anxiety and the prevalence could go up to 60% in some countries with a higher prevalence among girls than boys. Associated factors of anxiety were diverse including exposure to environmental tobacco smoke, parenting style, living with parents suffering from mental disorders, school type, and being female. **Conclusion:** The findings of the review demonstrate the higher prevalence of anxiety among children as almost at least one-third of children suffer from anxiety in the Gulf countries. The program managers and the respective government of these Arab countries need to devise some strategies and interventions that not only focus on the children but also their environment. **Keywords:** anxiety, children, prevalence, risk factors, systematic review

INTRODUCTION

Anxiety refers to a group of conditions that include excessive anxiety and apprehension, as well as behavioral abnormalities [1]. The literature has looked at a number of anxiety disorders, including generalized anxiety disorders, social phobia, panic attacks, and social anxiety [1]. Anxiety disorders are recognized as a major public health problem not only in the general population, affecting 6-20% of adults, where 6 to 20% of adults, but also among children, who are affected more frequently [2, 3]. Years of epidemiological studies show that anxiety disorders are one of the most common mental disorders in children [4]. For example, according to the most recent meta-analysis of worldwide epidemiological research studies, 6.5% of children and adolescents are anxious [5]. According to other reliable epidemiological research, the estimated prevalence ranged from 10% to 13.9% [4, 6]. Even though the typical age for anxiety is 11 to 21 years, studies show that anxiety that is triggered early in life tends to become chronic over time, with negative repercussions and recurrence [3, 7, 8]. Moreover, there is no single risk factor of anxiety rather it is multifactorial, and both genetic [9] and environmental factors as the social life of the child including (unstable family environment, adverse life events, and parenting style) interact

and contribute to the onset and incidence of mental dysfunctions especially anxiety [10-12].

The etiology of most mental problems in childhood is a mixture of genetic and environmental factors. This multifactorial etiology is supported by a meta-analysis of hereditary anxiety studies, which found that environmental factors account for a greater proportion of anxiety variation, with approximately 40 to 60% being heritable [11, 13].

Attention deficit hyperactivity disorder (ADHD) may be one of the causes of conduct disorder CD, anxiety disorders and major depression [4, 13]. While this psychological problem is studied very widely in high income populations, its epidemiology including risk factors and prevalence is not studied comprehensively mainly in Arab countries. Further, existing reviews conducted in well-paid countries have not been successful in comprehensively reviewing and summarizing result on holistically the prevalence of anxiety in children and related factors among children rather these reviews have emphasized limited health conditions that can create anxiety in children [14-16]. The current systematic review is unique from previously conducted reviews as it has focused on all studies that explored anxiety among children regardless of any health condition. Secondly, most highly none of such reviews conducted in Arab countries before, which makes this review different from other similar reviews.

Due to the rising burden of psychiatric problems in Arabic countries because of changes in population dynamics and environmental factors, there is a huge burden on the health care system [17, 18]. Furthermore, there is an increasing interest in investigating mental issues such as anxiety, particularly among children from Arab nations, and various observational studies have been done in this vein. The outcomes of those research, however, are not systematically consolidated and analyzed, which may be required to make evidence-based informed decisions for pediatric populations. As a result, we set out to conduct a systematic analysis of the findings from studies that evaluated the anxiety popularity and or its related risk factors in the pediatric populations of Arab countries, primarily the Gulf countries.

MATERIALS AND METHODS

Searching Strategy

The updated preferred reporting items for systematic reviews and meta-analyses (PRISMA) [19] was applied to carry out this systematic review on the popularity of anxiety and or its related risk factors in the pediatric populations of Arab countries, mainly gulf countries. Searching of three main electronic databases including Embase, PubMed, and Scopus was undertaken by using keywords and specific search terms such as Emtree (Embase) and Mesh (Pubmed). Additionally, using two techniques such as snowballing [20] and pearl growing methods [21], relevant articles were also searched and reviewed. All applicable published articles from January 2001 to September 2021 were included and limited on the published articles in the English language to avoid translation concern in other languages. Using different combinations of keywords, the following terms were used during searching: "Anxiety AND children", "Anxiety disorders AND kids", "Anxiety AND Pediatric population", and "General OR social anxiety disorders AND children OR kids". In addition, the most prevalent concepts were employed including anxiety and children. These key ideas were then merged in accordance with the study topic using combinations (AND, OR). An illustration of a thorough search plan include: "Anxiety disorders OR anxiety OR general anxiety disorders AND Children OR kids". Also, abbreviation (*) using a related root term was used to find more Germane articles. To include eligible studies in search, which limits, and filters were applied to the language (English), time frame, and age rang.

Study Selection

Any study that focused on the pediatric population and predicted incidence anxiety and or its risk factors among children aged less than 18 and conducted in Arab countries (mainly Gulf countries) were considered eligible to be included in the review. Since the main focus of the review was on prevalence and risk factors of anxiety, only cross-sectional, case-control, and cohort observational studies were considered. However, grey literature, review articles, qualitative studies, experimental studies, this review did not include case reports, secondary data, or letters to the editors. The main outcome of interest was anxiety among children and to make it unique from previously conducted reviews, we included all studies that explored anxiety and its associated risk factors among children regardless of any health condition.

Data Extraction

Data extraction and risk of bias assessment were performed independently. First, all eligible research studies were imported into reference management software, where single studies were reviewed, and all duplicate studies were discarded. In the first step, the selected articles were sorted by title, then by abstract, and finally a fulltext evaluation of the articles was performed. The following information was extracted from the selected observational studies:

> Study authors, study reference, year of publication, country, total sample size, gender of study participants, age group, main results, and study limitations. Abstracts that did not clearly explore the purpose of the study were not reviewed further, and fulltext articles were searched, and appropriate articles were reviewed. A standardized form was used to summarize and summarize items meeting required eligibility criteria. Also, references of all relevant studies were evaluated to ensure that useful studies were not missed.

Risk of Bias Assessment

Assessments of quality and risk of bias for each eligible fulltext article were performed using different Newcastle-Ottawa scales across all cross-sectional studies [26]. According to the Newcastle-Ottawa cross-sectional research scale, the three most important criteria evaluated were selection, comparability, and outcome determination. The maximum selection score was five, which was based on study sample representativeness, sample size and evidence, response rate, and exposure assessment. Similarly, the maximum comparability score was two. This is based on adjustment for potential confounders and additional factors in extended analyses. Finally, the results received a maximum score of three based on the outcome scoring method and statistical tests to validate the results. With a total score of 10 based on all these domains, each eligible study received a score reflecting its quality. Good studies were rated 7-10, satisfactory studies 5-6, and unsatisfactory studies 0-4.

Data Synthesis and Analysis

To synthesize the findings of eligible studies, a narrative synthesis and qualitative summarization were carried out. There were large variations in the scales being used to measure the anxiety and also there was a wide variation in sample size and study methods, which precluded us from conducting a meta-analysis.

RESULTS

An overall of 1,468 articles were consistent in three databases (Embase, PubMed, and Scopus). After removing 125, the remaining 1,343 unique studies were left whose titles and abstracts were screened. During this process of reviewing abstracts, 135 articles did not meet the eligibility criteria based on the abstract reading, and 73 articles were not considered potentially eligible after reviewing full documents. Following a comprehensive review of the research articles based on For inclusion criteria, 13 articles were included in the review as shown in **Figure 1**.
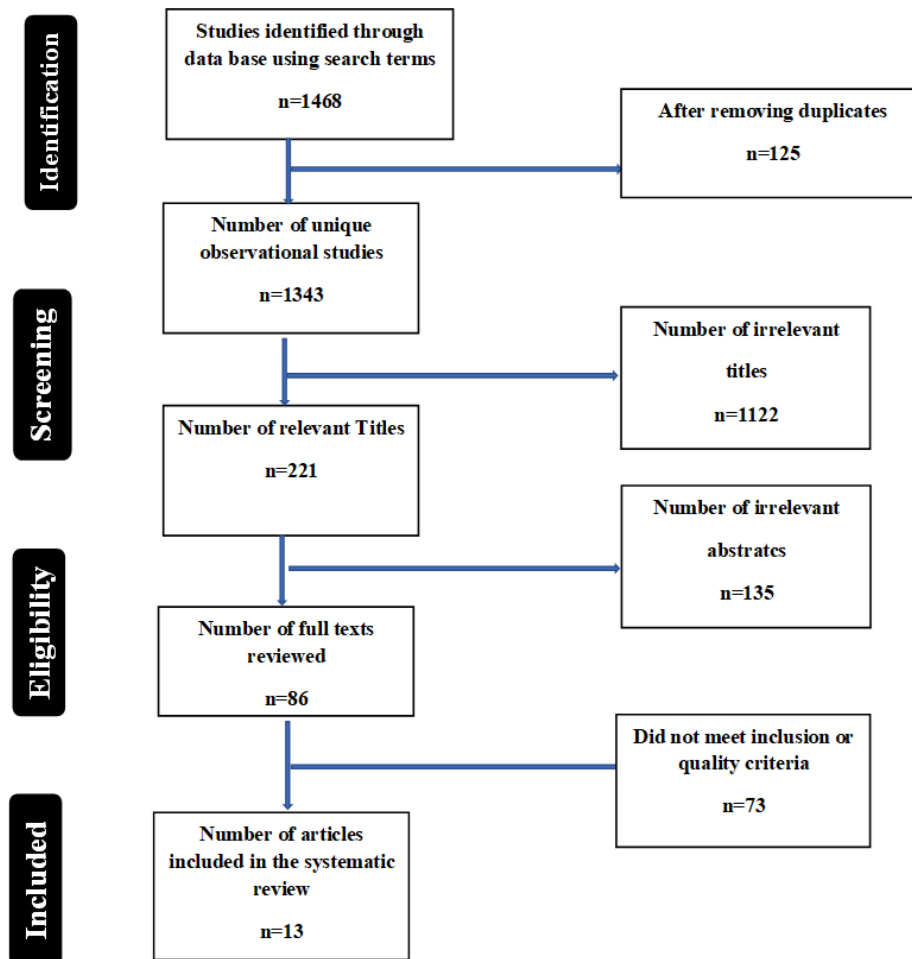
Figure 1. Flow chart summarizing identification & selection of relevant papers (Source: Author's own elaboration)

Study Characteristics

Studies were conducted in various Arab countries, with a particular emphasis on Gulf countries such as Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). More specifically, the majority of the studies (n=7) came from Saudi Arabia, followed by two from Qatar and one each from Egypt, UAE, and Yemen. We also included one large multicounty study that was conducted in Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, and UAE.

Overall, the sampling sizes of the admitted studies ranged from 66 to 518 children, most of whom were in school at the time of the study. In terms of participant gender distribution, the findings revealed that both males and females participated equally in the respective studies; however, one study was exclusively focused on males and another on females. All of the studies (100%) used cross-sectional research designs to assess the prevalence and/or risk factors for anxiety in children. Almost every study mentioned their outcome, which was anxiety of any kind, including childhood anxiety disorders, dental anxiety in children, and social anxiety disorder. In addition, we discovered that almost all of the included studies used validated and dependable tools to assess the outcome of interest. Liebowitz social anxiety scale test (LSAS), Abeer children dental anxiety scale (ACDAS), Frankl behavioral rating scale (FBRS), beck depression inventory, and the generalized anxiety disorder 7-item scale were among these tools (**Table 1**).

Table 1. Important characteristics throughout the selected studies in the systematic review (n=13)

Author	Year	Country	Study design	Sample size	Age (years)	Gender	Outcome	Scale to measure outcome
[23]	2021	Saudi Arabia	Cross-sectional	468	6 to 12	NR	Childhood anxiety disorders	Child anxiety related disorders (SCARED) screening instrument
[24]	2021	Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, & UAE	Cross-sectional	1,057	15 to 24	Females: 71.5% Males: 28.5%	Anxiety & depression	Depression, anxiety, & stress scale (DASS)
[25]	2021	Qatar	Cross-sectional	730	12 to 18	NR	Major depression & generalized anxiety disorders	PHQ-9 & iGAD-7

Table 1 (Continued). Important characteristics throughout the selected studies in the systematic review (n=13)

Author	Year	Country	Study design	Sample size	Age (years)	Gender	Outcome	Scale to measure outcome
[26]	2020	UAE	Cross-sectional	968	13 to 18	Females: 65.8% Males: 34.2%	Anxiety	Child anxiety screening related disorders scale
[27]	2020	Saudi Arabia	Cross-sectional	903	Mean: 16.29 (0.84)	NR	Anxiety & depression	Beck depression inventory, & generalized anxiety disorder 7-item scale
[28]	2020	Saudi Arabia	Cross-sectional	500	15 to16	Females: 47.2% Males: 52.8%	Dental anxiety	ACDAS & FBRS
[29]	2020	Qatar	Cross-sectional	250	NR	Male: 58.8% Females: 41.2%	Anxiety	Anxiety scale or children with autism spectrum disorder
[30]	2016	Saudi Arabia	Cross-sectional	454	Mean: 17.4	Males: 100%	Social anxiety disorder	LSAS
[31]	2015	Egypt	Cross-sectional	1,200	12 to 18	Males: 44.7% Females: 55.3%	Generalized anxiety disorder	GHQ (28 items with cut point 14), anxiety scale, & SCID.
[32]	2011	Saudi Arabia	Cross-sectional	518 middle school children & 88 caregivers	11 to 15	Male: 61.2% Females: 38.8%	Dental anxiety	Norman Corah's DAS
[34]	2009	Saudi Arabia	NR	66	11 to 14	Females: 100%	Anxiety	Anxiety for children & adolescents prepared by Alleili
[38]	2009	Saudi Arabia	Cross-sectional	545	Mean (SD) of 17.1 (1.1) years & a median of 17 years	Females: 100%	Anxiety	Arabic version of symptom-revised checklist 90 (SCL i90-R)
[39]	2008	Yemen	Cross-sectional	1,210	7 to 10	NR	General anxiety disorder & other psychiatric disorders	Strengths & difficulties questionnaire (SDQ) is a brief behavioral screening questionnaire. Development & well-being assessment (DAWBA)

Prevalence and Risk Factors of Anxiety Among Children: A Review of Key Findings

Table 2 outlines the relevant main findings from the articles and there was a wide discrepancy in the prevalence of anxiety as clarified in **Table 2**. Recently three articles were published in 2021 that estimated the prevalence and risk factors of anxiety across different countries. For example, one of them directed in [23] in 2021 on 468 primary school children by using child anxiety related disorders (SCARED) screening

Table 2. Key results & summary findings from the included studies (n=13)

Author	Year	Key results	Summary findings	Limitations & gaps
[23]	2021	-Childhood anxiety disorders prevalence were as 32.7% of kids had one anxiety, 18.4% had 2, 10.9% had 3, 8.1% had 4, & 7.7% had 5. -Around 22.2% of kids did not suffer from any anxiety problem in study sample.	-There was a high prevalence of anxiety among school-going children.	-No gender differences were assessed. -Large studies are required to include other regions with a focus on both genders.
[24]	2021	-Anxiety: 57%, depression: 40.5%, & stress: 38.1% among children. -Associated risk factors of anxiety were being connection with a family member or friend who has an anxiety disorder, spending time on the Internet, being quarantined for two weeks, & being female gender.	-Prevalence of anxiety was high with significant factors associated with anxiety.	-Questionnaire was distributed via social media, which may be subject to selection bias. -Due to a limited sample from a defined area, findings cannot be generalized to other settings.
[25]	2021	-Generally prevalence of anxiety is estimated to be 30%, which is closer to global studies prevalence of 25 to 50%.	-NA.	-Low response rate. -Length of screening questionnaires may be an issue as it is time-consuming. -Stigma associated with anxiety may underreport actual prevalence.
[26]	2020	-Anxiety prevalence was 28%, with a relatively higher burden in girls (33.6%) compared to boys (17.2%) (p<0.0001). -<16 years old children from low & middle-income countries with a maid suffered more from social anxiety, generalized anxiety, & separation anxiety than children with >16 years and without a maid & those who were from high-income countries(p≤0.05). -Predictors of anxiety were being female & caregiver other than parents (p-value≤0.01).	-A higher burden of anxiety among school-going children with a greater prevalence among girls in the UAE.	-Data were not collected from Abu Dhabi, which is considered as a larger region of UAE.

Table 2 (Continued). Key results & summary findings from the included studies (n=13)

Author	Year	Key results	Summary findings	Limitations & gaps
[27]	2020	-Around two-thirds of kids suffered from moderate to severe anxiety & 70% suffered from mild to severe depression. -Kids playing with electronic devices were 1.5 times likely to suffer from anxiety than their counterparts (p=0.026).	-A higher prevalence of anxiety among girls is an issue of concern.	-NR.
[28]	2020	-Children exposed to environmental tobacco smoke were more likely to develop anxiety (p=0.002) & demonstrate non-cooperative behavior (p=0.006).	-Children exposed to environmental tobacco smoke were found to be more anxious in advanced analysis than those who were unexposed.	-Children's differences in age could have affected results & findings can not be generalized to all settings.
[29]	2020	-Low prevalence of anxiety among children with autism is low in Qatar. -Gender & school stage was not found to be different between children with & without anxiety disorders.	-Autistic children do not experience a higher burden of anxiety in Qatar.	-Children with autism were targeted only.
[30]	2016	-11.7% of children were suffering from social anxiety disorders. -36% & 11.4% of kids suffer from severe & more severe forms of social anxiety disorders. -Parental anger, criticism, overprotection, maltreatment, & family provocation emerged as important factors. -Parental provocation & physical or emotional maltreatment (odds ratio [OR]=3.97, 95% CI: 1.90-8.31 & OR=2.67, 95% CI: 3.17-5.19, respectively).	-Social anxiety disorder among children appears to be higher in children of Saudi Arabia with parental provocation & maltreatment being considered important.	-Study focused only on boys from secondary schools. -Study participants self-reported sources of maltreatment, which may introduce a bias. -No causal inferences be drawn.
[31]	2015	-Positive clinical cases signify 20.6%, depression is the most common disorder 23.8%, anxiety was (6.69%), body dysmorphic disorder (15.2%), adjustment disorder (13.8%); GAD (9.2%); obsession (7.4%).	-Findings illustrate importance of socio-demographic risk factors to be associated with GAD.	-NR.
[32]	2011	-34% children suffered from severe dental anxiety. -A significant & positive correlation was found between caregivers dental anxiety & anxiety among children (r=0.34, p=0.001). -School type (public school children) & gender (female) were found to be significant risk factors of dental anxiety (p=0.05 each).	-Public school children & female students had higher level of anxiety.	-NR.
[34]	2009	-The most common symptoms among students were phobic anxiety (16.4%), psychoticism (14.8%), anxiety (14.3%), & somatization (14.2%). -Hostility (12.8%) & obsessive-compulsive behavior (12.3%) were less common. -16.3% of the girls suffered from psychological symptoms.	-Secondary school girls suffer from psychoticism, somatization, & phobic anxiety.	-NR.
[38]	2009	-Average performance score among elementary group was (M=149.75), it was 132.36 in middle stage with a statistically significant p-value of <0.05.	-Burden of anxiety is higher in gifted girls	-NR.
[39]	2008	-An overall burden of DSM-IV disorders was 15.7% in Yemen (95% CI 11.7-20.2%). -Common disorders include anxiety in children (9.3%, 95% CI=5.8-12.8%), followed by behavioral problems (7.1%, 95% CI=4.4-9.9%) & attention-deficit/hyperactivity disorder (ADHD; 1.3%, 95% CI=0.1-2.5%).	-Approximately one-sixth of Yamini children suffer from DSM-IV psychiatric disorders.	-Children were sampled from schools so probable missed children not enrolled in schools. -Small sample size. -Limited statistical power to detect uncommon disorders

instrument on six to 12 older children. The authors in [23] found that 32.7% of children had anxiety, which can be considered as a high prevalence of anxiety among children. However, the authors did not study differences in anxiety between boys and girls [23]. Further, no gender differences were assessed in the study and authors recommended undertaking large studies that should focus on both genders [23].

Similarly, another study in different Arab countries (Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, and UAE) found a prevalence of anxiety as 40.5% with no substantial differences across countries [24]. The authors in [24] used the depression, anxiety, and stress scale (DASS) on 1,057 children. While exploring the risk factors of anxiety, it was found that being a female, staying in touch with friends and family with mental illness, spending time online, and being quarantined for 14 days due to COVID-19 were found to increase the risk of anxiety among children [24]. One study in 2021 [25] anticipated a prevalence of around 30% among children using validated tools. However, this study was limited by the low response rate and stigma associated with anxiety may underreport the actual prevalence [25].

Further, we found four studies published in 2020. The study [26], for instance, overall currency of anxiety revealed was 28% in the UAE and it was higher in girls with a 33.6% prevalence and 17.2% in boys (p<0.0001). The authors used the screen for child anxiety related disorders scale on 968 children aged 13 to 18 years [26]. The authors found that children less than 16 years old had more anxiety than older children (p≤0.05). Other factors associated with anxiety included a household with a maid, children from low and middle socioeconomic status, being female, and caregivers other than parents of a child (p<0.0001) [26]. Another study conducted in 2020 [27] (used Beck depression inventory, and the generalized anxiety disorder 7-item scale on 903 kids) demonstrated that 66% of the kids suffered from moderate to severe anxiety, and the use of electronic devices at bedtime increased anxiety by 52% among children. These findings revealed that students need to avoid using electronic devices to escape from the issue of anxiety [27]. The authors in [28] used ACDAS and FBRS and explored the relationship between environmental tobacco exposure and anxiety among 500 children aged 15 to one year [28]. The authors found a significant association between childhood environmental tobacco disclosure and anxiety among children with a p-value of 0.002 [28]. In contrast, a study conducted in Qatar [29] demonstrated a low prevalence of anxiety among children with autism and they did not find any significant differences (p-value≥0.05) between children (n=250) with and without autism.

One study was conducted in 2016 [30], where the authors used LSAS on 454 children in Saudi Arabia while the mean age of 17.4 years old. These findings related to the prevalence of anxiety as 11.7% and 36% of children were found to have a severe form of anxiety. While examining the risk factors, authors found that maltreatment by parents (physical or emotional), the anger of parents, and criticism mainly in front of others were associated with anxiety [30]. Ismail et al conducted a study in 2015 by administering GHQ (28 items with cut point 14), the anxiety scale, and SCID [31]. The findings illustrated that the prevalence of anxiety was 6.69% and socio-demographic and paternal relations were found as important factors of generalized anxiety disorders among children [31]. While estimating dental anxiety among children using Norman Corah's dental anxiety scale (DAS), it was found that 34% of the children aged 11 to 15 years suffered from dental anxiety and there was a significant relation between type of school and gender (p=0.05) [32]. Children studying in public schools showed higher anxiety level than others who studied in private schools [32].

Two studies were published in the year 2009 [33]. The authors in [33] used the Arabic version of the symptom revised checklist 90 (SCL 90-R) on 545 children with a mean age of 17.1 years. The findings showed that the most commonly found symptoms among female students were phobic anxiety with a prevalence of 16.4% followed by anxiety with a prevalence of 14.3% and somatization (14.2%), which revealed a common occurrence of psychological problems in school going children [33]. However, the authors did not find any significant risk factors of anxiety in the sample [33]. Another study by Aljughaiman et al on 1,210 children calculated a score using the means and found that the average score of the performance of the elementary group was 149.75, and it was 132.36 for the middle age group with a p-value of <0.05 [34].

Table 3. Risk of bias assessment of eligible studies using Newcastle-Ottawa scale (n=13)

Author	Year	Selection	Comparability	Outcome	Overall score
[23]	2021	3	0	2	5
[24]	2021	4	2	2	8
[25]	2021	5	2	3	10
[26]	2020	4	2	2	8
[27]	2020	4	2	2	8
[28]	2020	4	2	3	9
[29]	2020	5	2	2	9
[30]	2016	3	2	2	7
[31]	2015	3	0	2	5
[32]	2011	3	1	2	6
[34]	2009	3	0	2	5
[38]	2009	3	2	2	7
[39]	2008	5	2	3	10

Findings of Risk of Bias Assessment

While assessing the quality of all eligible articles, we found that the average score was 7.46 suggesting the good quality of the included articles. Two of the studies (15.3%) scored 10 indicating the excellent quality of the studies, while five studies (38.5%) scored between seven to nine, and four studies (31.7%) scored between five to six as shown in **Table 3**.

DISCUSSION

This study conducted a reviewing of thirteen studies to outline the findings from studies assessing the popularity of anxiety and its associated risk factors among children (all cross-sectional). To our knowledge, this is the first study of its kind that has examined data on anxiety and its associated components, particularly in Arab countries. Overall, at least one-third of Arab youth (particularly those in the Gulf) suffer from anxiety, with some countries reporting as many as two-thirds. Anxiety was linked to a number of factors, including environmental cigarette smoke exposure, parenting style, living with parents who had mental illnesses, school type, and gender. While these characteristics may be risk factors, these findings explained with discretion due to the cross-sectional nature of the studies, which makes establishing temporality between different factors and anxiety impossible. Also, because of the style of observational research, the included studies have immeasurable confusion limitations.

Other studies undertaken across high income nations have estimated the prevalence to be between 10 and 13.9% based on other robust epidemiological studies, contradicting the findings [4, 8]. These disparities could be attributed to differences in techniques and scales used across countries, as well as differences in child dynamics in low and high resource settings. Another factor that could explain such differences is the type of sample used and the sampling processes used in different countries. Regardless of these differences, the main takeaway from these findings is the importance of psychological issues in children. The prevalence of anxiety may be a risk factor for other mental illnesses, so it is critical to monitor it [35]. Furthermore, no research was found that investigated the extent to which being in the presence of nervous children can predict anxiety in the targeted child. Separation anxiety disorder, which generalized by anxiety disorder, social anxiety disorder or social phobia, obsessive-compulsive disorder, panic disorder with agoraphobia, and

phobias related to specific things such as needle phobia, fear of animals, and blood related injury may all be important to research [36-39]. We attempted to include papers that approximated the prevalence of all of these anxiety disorders in a single study, but none of the authors were successful. This suggests a future research topic in which authors can attempt to quantify the prevalence of variety kind of anxiety disorders in children. Anxiety disorders are most common in children than other psychiatric problems including ADHD or depression. Even in the most developed countries, despite the increased prevalence of anxiety among children, a lesser proportion of children receive any necessary therapy and are handled in the health sector. This emphasizes the importance of not ignoring these children in developing countries where resources are limited, because failing to provide them with the necessary care can have a number of negative consequences, including an increased burden on the healthcare system in the long run.

The existing primary health care system can be used to identify and treat anxious children at a young age. Also, age and gender specific interventions are required, as interventions designed for one age group or sex may not work for the other.

Strengths and Limitations

This is a unique review as it is the first of its type that estimated the popularity of anxiety in children with its associated risk factors in the Gulf countries. Further, a PRISMA checklist was used to complete this systemic review, and a risk of bias assessment was carried out using an appropriate and widely used scale. The results from this study can contribute a framework to clinicians, pediatricians, psychiatrists, and policymakers to develop a framework and design some preventive strategies that could be helpful for these children in terms of alleviating anxiety. Further, all of the included studies used validated and reliable, though not the same, scales to measure anxiety among children.

Despite these strengths, the findings of the present review should be understood with consideration due to some sign related with the particular studies. Since almost all of the studies ended up being cross-sectional studies, one can does not establish causality between various factors and anxiety. Further, based on the risk of bias assessment, it was found that children in majority of the studies were not selected randomly, which may lead to some bias related to thier study findings. In addition, we did not include all Arab countries rather our main focus, as per the objective, was on studies from Gulf countries. However, future reviews are required to encompass the studies from other Arab countries as well. Lastly, the included studies used different scales to measure anxiety among children, which may have resulted in the wide range of prevalence in the anxiety. Lastly, some of the study findings were limited in generalizability due to limited focus on one region or one area in a given country. For example, a study conducted in the UAE not collected data from Abu Dhabi City, which is considered a larger region of UAE. Moreover, children's differences in age could have affected the results and findings can not be generalized to all settings. Likewise, studies solely focused on boys or girls cannot be generalized to another gender. Further, it is possible that due to stigma associated with anxiety, there may be underreporting of anxiety prevalence, and this could be further exaggerated in the studies relying on sending questionnaires via emails or any other social media. Also, there could be a possibility of response or reporting bias due to the length of screening questionnaires.

CONCLUSIONS AND IMPLICATIONS FOR FUTURE

The findings of the review demonstrate the higher prevalence of anxiety among children as almost at least one-third of children suffer from anxiety in the Gulf countries. At least 30.2% of the children were found to suffer from anxiety with a higher prevalence among girls than boys. Risk factors of anxiety included diverse including parenting style, parental anger, physical or emotional maltreatment and family provocation criticism in front of others, living with parents suffering from mental disorders, exposure to environmental tobacco smoke, friendship with anxious children, school type (public school children), playing with electronic devices, being taken care of by caregivers other than parents, and being female. Program managers and governments in these Arab countries must design strategies and actions that focus not only on the children but also on the environment. This is because, while one may be limited in their ability to alter a child's genes, one can always alter the child's environment, which contributes to anxiety to a higher extent. Furthermore, the causes of girls' higher anxiety levels should be investigated further in the future, and specialized programs should be developed accordingly. Anxiety should be considered a major worry and should be highlighted by academics and policymakers in the respective countries because it is a triggering factor that can disclose underlying psychiatric diseases. To determine the incidence of different types of anxiety disorders among juvenile populations in Arab countries, future epidemiological research with bigger sample size and a focus on random sampling methodologies are needed.

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