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Qualitative study investigating the health needs of school-aged children and adolescents in Dubai

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ABSTRACT

Background Children's health has been linked with morbidities such as cardiovascular events, type 2 diabetes and obesity in adulthood. Further efforts are needed to understand the current and emerging challenges due to the potential changes in the social context among school-aged children and adolescents at schools.

Objective The study aims to investigate the health needs of school-aged children and adolescents in Dubai, United Arab Emirates (UAE).

Design 9 semistructured focus groups and 1 in-depth interview among 10 entities and 5 schools were used to investigate current health needs for schools. The participants were selected using purposive sampling. Data were analysed using a content analysis approach.

Setting The focus groups and the in-depth interviews were conducted face to face in Dubai, UAE, from February to May 2023.

Participants 52 participants representing different specialties and roles in school health, such as senior employees, managers, teachers, healthcare professionals, principals, social workers/counsellors and parents, participated in this study. Most participants were females, 41 (78.8%) compared with 11 males (21.2%).

Results The study identified six health themes that address the health needs in schools. The themes highlighted the importance of creating new school health services, programmes, health education sessions, policies, data quality measures and innovative technologies. The participants deemed developing and improving health services, programmes, health education sessions, policies in nutrition, social and mental health, physical activity, and health promotion necessary in schools. Training school staff to manage and handle data was also essential to improve data quality. Using innovative technologies such as applications and electronic student files linked to electronic medical systems may further support school health professionals in schools.

Conclusion The health needs assessment identified the gaps and challenges that must be addressed to improve students' health. Policy-makers could use the key results from the six themes to develop effective school health strategies.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Semistructured focus groups and an in-depth interview investigated the health needs of school-aged children and adolescents in Dubai.
⇒ Participants represented various specialties and roles in school health.
⇒ 10 entities (from 12 different departments) and 5 schools participated.
⇒ Schools represented four different educational curriculums.
⇒ The study included private schools only.

INTRODUCTION

The WHO promotes school health programmes as a strategic means to prevent important health risks among youth and to engage the education sector in efforts to change. A health-promoting school engages school officials, teachers, students, parents, health providers and community leaders to make the school a healthy place for children.[1] In addition, the 2016–2021 Dubai Health Authority (DHA) Strategy supports all children in reaching their full potential in health and well-being.[2] The DHA strategy also supports the development of a healthy school environment, school health education and appropriate school health services for students.

Moreover, the DHA sets standards for all school health clinics in private schools in Dubai.[3] The clinics provide students with basic medical care but are not limited to promoting general health through encouraging physical activity and healthy nutrition practices, oral hygiene, caries screening and other oral cavity-related conditions.[3] In addition, the clinics promote ophthalmic screening, early detection of ocular-related conditions, obesity screening, prevention of bullying, non-communicable and communicable diseases, and early detection of non-communicable and communicable diseases. The clinic also includes services such as management and early detection of disabilities, immunisation and maintaining

immunisation records, health education, and counselling and psychological services.[3]

Furthermore, children's health is critical and has been linked with diseases in adulthood. For instance, a study used a z score, that is, age-specific and sex-specific, which includes the following risk factors: body mass index, systolic blood pressure, total cholesterol level, triglyceride level and youth smoking.[4] The study reported that childhood risk factors and the change in the combined risk z score between childhood and adulthood were associated with cardiovascular events in midlife.[4] In addition, a study that followed up with a cohort of children until adulthood for 32 years has reported that children with a positive psychosocial environment had a beneficial influence in reducing the risk of type 2 diabetes.[5] Another study also reported that risk factors in childhood, such as childhood obesity, unhealthy diets, increasingly sedentary lifestyles and other risk factors, play a role in the persistence of obesity in adulthood.[6] In addition, the WHO Health and Well-being report illustrates that risk factors such as obesity in the United Arab Emirates (UAE) among the age group 13–18 are high compared with the region.[7] More specifically, the Dubai Household Survey 2019 revealed that among the 1741 children aged 5–17, 21.6% were overweight and 17.3% were obese.[8] These percentages are alarming and are similar to the global prevalence of overweight and obesity among children and adolescents.[9]

Moreover, the WHO emphasises that globalisation may strongly affect and influence national social policies, macroeconomics, regulatory institutions and environments. These factors are closely linked to the health outcomes of individuals.[10] In addition, although less frequently investigated in empirical studies, social and economic policies are likely to have measurable health impacts. For example, policies that affect communities' physical and social environments may have health consequences.[11] In addition, qualitative research explores complex phenomena encountered by clinicians, healthcare providers, policy-makers and consumers in healthcare.[12] For example, a study that investigated the nurses' narratives found that developing a well-structured professional programme for nurses could help improve mental healthcare in schools in the UAE.[13]

Therefore, various needs assessments are conducted to support school health policies as part of the DHA's efforts to continuously improve and protect children's health. The researchers conducted this study to support DHA's plan to implement impactful initiatives in schools. Therefore, this study aims to investigate the health needs of school-aged children and adolescents in Dubai through focus groups and an in-depth interview.

METHODS
Study design
The moderators conducted nine focus groups and one in-depth interview. The focus groups and the interview were conducted as semistructured discussions by asking questions about the topic of interest. The authors applied the consolidated criteria for reporting qualitative research to all study aspects.[12] Although the participants individually answered the facilitator's questions, they were encouraged to talk and interact with each other. This technique is built on the idea that group interaction encourages respondents to explore and clarify individual and shared perspectives. The questions for this qualitative study were developed based on the Whole School, Whole Community, Whole Child (WSCC) Model and School Health Policies and Practices Studies 2014 and 2016.[14 15] In addition, a systematic review was reflected to develop the questions. The systematic review included 67 studies investigating measurement tools for school health policy implementation.[16] From these studies, 86 measures were extracted. The most common topic was general wellness policy (eg, more than two health policy areas; n=35, 40.6%), followed by nutrition (n=21; 24.4%), physical activity (n=11; 12.8%) and tobacco/drug (n=9, 10.4%). The least common topic was mental health (n=1; 1.2%). However, mental health was also included under the wellness policy topic whenever it was combined with other topics for the measurement tools. The questions used during the focus group sessions and in-depth review were formulated based on these various sources and are displayed in online supplemental appendix 1 table 1.

Patient and public involvement
Participants or the public were not involved in our research's design, conduct, reporting or dissemination plans.

Participants' selection, recruitment and sample size
The ideal group size is between four and eight individuals.[17] Therefore, not more than eight individuals were invited per focus group. The participants for this study were selected based on purposive sampling. In addition, we ensured that the sample selected was representative and inclusive. For instance, the participating entities were selected based on the entity's role in school health. An email was sent to these entities to nominate senior employees, managers and healthcare professionals to attend the focus groups. Entities were excluded from the invitation if their sector was not involved in any school-related role. In addition, five random schools were selected and invited by email to nominate participants from the following five categories: teachers, healthcare professionals, principals, school social workers/counsellors and parents. The schools were selected based on whether the curriculum for these five schools was either the UAE curriculum, British curriculum, American curriculum or Indian curriculum. All 52 participants were nominated from their entities or schools based on their roles and specialties in school health. All the invited entities and schools accepted our email invitation and nominated representatives, except for one entity that did not respond without any justification. The absence of this entity resulted in converting one of the focus groups into

Table 1 Time frame of focus groups and in-depth interviews

	Entity	Focus group number/in-depth Interview	Time	Date
1	Entity 1	Focus group 1	8:30	9 February 2023
2	Entity 2 Entity 3 Entity 4 Entity 5	Focus group 2	10:30	9 February 2023
3	Entity 6 Entity 7	Focus group 3	12:30	9 February 2023
4	Entity 8	In-depth interview	14:00	9 February 2023
5	Entity 9	Focus group 4	9:00	23 March 2023
6	Entity 10	Focus group 5	10:30	23 March 2023
7	Schools 1, 2, 3 and 4 (teachers and healthcare professionals)	Focus group 6	8:30	3 May 2023
8	Schools 1, 2, 3, 4 and 5 (principals)	Focus group 7	10:30	3 May 2023
9	Schools 1, 2, 3, 4 and 5 (school social workers/counsellors)	Focus group 8	12:00	3 May 2023
10	Schools 1, 2, 3, 4 and 5 (parents)	Focus group 9	14:00	3 May 2023

an in-depth interview for entity 8. Follow-up telephone calls were conducted 1 day before the focus group's scheduled date. The focus groups and the in-depth interviews were conducted face to face in Dubai, UAE.

Data collection
The study commenced in February 2023 and was completed in May 2023, as shown in table 1. All the focus groups and the interview were conducted face to face in a meeting room with a laptop and a projector. The duration for each focus group and interview is around 1 hour. The researchers (AMA, SEB, FHMK and KA) conducted and moderated the focus groups and the interview according to the focus group and interview guide in online supplemental appendix 1. There were no non-participants present during all of the sessions and no new themes were generated after the seventh focus group. Therefore, the data collection reached a saturation point. However, we continued data collection for two more focus groups to confirm that there are no new emerging themes.

In addition, the findings were summarised and reviewed by participants at the end of each session. The sessions were audio recorded and transcribed verbatim by AMA and KA, and the participants were informed of this procedure before initiating the recording. In addition, the consent forms were emailed to the participants after the session and returned to the researchers once they were signed. The consent forms used in the study are illustrated in Arabic and English in online supplemental appendix 2. In addition, our entity is a paperless organisation in which we have strict rules to avoid using paper, and therefore, we have decided to request the consent forms through email. The study investigators ensured that the participants' anonymity was maintained. All data were stored securely in an electronic database. No individually or entity-identifiable information was included in

the research. Personal or entity-identifying information will be maintained in a secure server, accessible only by specifically designated staff.

Data analysis
The data were analysed using the content analysis approach. Initially, the two coders, AMA and KA, have familiarised themselves with the data through reading written transcripts. NVivo V.14 was then used to manage and analyse the data. The coders used deductive codes based on the WSCC Model and the agreement among the authors. The inductive codes were then added when new areas emerged. Coders discussed the assigned codes and the coded passages or sentences to ensure intersubjective comprehensibility and reproducibility. The results were then presented and discussed with the coauthors (SEB and FHMK).

Researchers characteristics
Tong *et al* report that researchers should recognise and clarify for readers their identity, credentials, occupation, gender, experience and training. Subsequently, this improves the credibility of the findings by allowing readers to assess how these factors might have influenced the researchers' observations and interpretations. Therefore, the researchers in this study declare they had no established relationship prior to study initiation. In addition, the investigator should identify and state their assumptions and personal interests in the research topic.[12] AMA (male): post-doc and public health specialist, experienced in health promotion; SEB (female): school health section manager; FHMK (female): MRCPCH (UK), paediatrician, experienced in school health promotion; KA (male): DrPH, FRCP (Glasgow), FFPH (UK), senior public health specialist and medical doctor, experienced

Table 2 Participant demographics

Focus group (n)	Entity/department/school	Occupations (n)	Gender Male	Female
1 (7)	Entity 1	Managers (5) Senior employees (2)	0	7
2 (5)	Entity 2	Managers (2)	0	2
	Entity 3	Manager (1)	0	1
	Entity 4	Manager (1)	1	0
	Entity 5	Manager (1)	1	0
3 (3)	Entity 6	Managers (1) Senior employee (1)	0	2
	Entity 7	Manager (1)	0	1
Interview (1)	Entity 8	Manager (1)	0	1
4 (7)	Entity 9	Healthcare professionals (7)	1	6
5 (6)	Entity 10	Senior employees (6)	2	4
6 (8)	Schools 1, 2, 3 and 4	Teachers (4)	0	4
	Schools 1, 2, 3 and 4.	Healthcare professionals (4)	0	4
7 (5)	Schools 1, 2, 3, 4 and 5	Principals (5)	0	5
8 (5)	Schools 1, 2, 3, 4 and 5	School social worker/counsellor (5)	1	4
9 (5)	Schools 1, 2, 3, 4 and 5	Parents (5)	5	0
Total (52)			11	41

in qualitative research (prevention of non-communicable diseases).

RESULTS
Participant characteristics
The study conducted nine focus groups and one in-depth interview. A total of 52 participants (41 females and 11 males) attended the focus groups and the in-depth interviews in this qualitative study, as shown in table 2. 10 entities (representing 12 departments) and 5 schools participated in the study. Participants from the healthcare professionals' category represented different specialties and departments. For instance, entity 9 included health professionals such as consultant paediatrician, specialist paediatrician, specialist dental public health, consultant paediatric endocrinologist, consultant infectious diseases, senior clinical dietitian and specialist psychiatrist. In addition, the healthcare professionals representing schools 1, 2, 3 and 4 included three nurses and one family physician. The teachers representing schools 1, 2, 3 and 4 also included teachers from different education stages. For example, one kindergarten/foundation stage teacher, one primary teacher, one preparatory teacher and one secondary teacher were included in the focus groups.

School health themes
Six school health themes were identified. The semistructured focus groups and the in-depth interviews guided the development of these themes. The themes highlighted the importance of creating new school health: (1) services, (2) programmes, (3) health education sessions,

(4) policies, (5) data quality measures and (6) innovative technologies. The study also identified subthemes, such as the need for improving current school health services, programmes and health education sessions.

In the context of school health themes, the terms services and programmes, health education sessions, and policies signify distinct aspects of student wellness in this study. The services refer to the clinical services provided in the school clinic and mandatory services provided in schools, such as physical education. In contrast, programmes in this study refer to activities or interventions that promote health in schools. Health education sessions and policies could also be referred to as programmes but were given a distinct theme to emphasise certain areas. For example, the health education theme focused on educating the students on specific topics to raise awareness and motivate students to adopt healthy behaviours. In addition, the policy theme emphasised the laws or mandates that should be implemented to support the school health services and programmes. The six themes are described below with anonymised quotes.

School health services
Essential services in schools
Overall, most schools have already established the essential services. However, some schools may still need to invest to provide essential health services in nutrition, social and mental health, first aid, health and safety, and dental health.

There are many ways we can improve nutrition services in schools, like customizing nutrition requirements

in school canteens based on local nutrition guideline (Manager 1, Entity 1)

Improving services in schools

Existing school services may need to improve to further enhance students' well-being. The most prevalent improvements needed were in the quality of physical education, creating health-supporting environments and training for school staff in different health-related areas.

All staff need to be trained, any person that will deal with any student, should learn how to deal with minor cases of mental issues, creating a supportive environment in schools. (Senior Employee 3, Entity 6)

School health programmes
Essential health programmes

Several health programmes were suggested to be implemented in schools. Some of the suggested health programmes were already established and deemed successful in the school that implemented the programme. The most prominent suggested health programmes focused on improving social skills and mental health, physical activity, first aid skills, healthy food, and community-related programmes.

As you know we are multicultural country and have schools with different parents of different cultures that think differently, we need to raise awareness in programs for the community on tolerance and social skills. (Manager 5, Entity 2)

Something I took away when I was a 16-year old girl, a professional company gave us self-defence classes, these things could save your lives. (Parent 2, School 2)

Improving health programmes

The major findings suggested improving existing or future health programmes by implementing process and impact evaluation, increasing collaboration between different entities and increasing the coverage of extra-curricular activities (and reducing costs). Other things worth mentioning in this theme include the orientation of school staff involved in the health programmes.

If we can plant these habits within them from early age like involving them in physical activity external curriculums (meaning extra-curricular activities) (Manager 6, Entity 2)

School health education sessions
Priority of health education topics

The focus groups and the in-depth interview participants identified around 14 health education topics. For example, the participants expressed the need for health education in nutrition, social skills and mental health, antibullying, and general health (healthy lifestyle).

I think cyberbullying is really big now and conflict resolution (Counsellor 1, School 2)

Even social skills are important. (Social Worker 1, School 1)

Maybe building self-confidence, which makes them stand up for their rights and say no to things. (Parent 5, School 5)

Improving health education sessions

The participants expressed that parents' engagement in health education sessions effectively changes children's and their parent's health behaviours. In addition, the parents' engagement ensured that behaviours are sustainable because parents and their children have the same level of understanding regarding healthy behaviours.

It is the parents in my opinion, go after the roots they say, so if the parents are convinced they will make sure the house is in order. (Nurse 2, School 2)

It's better if we have the sessions with the parents so that they would understand better (Nurse 3, School 4)

We need the children to understand and not only eat the food provided to them. They need to understand why this certain food is harmful and why other is beneficial. (Parent 4, School 4)

School health policies
Essential policies

Federal and local laws in Dubai and the UAE, such as Wadeema's law (child protection law), are well established. However, during the focus groups, policies in health promotion, health and safety, antibullying, and health literacy curriculums in schools were mainly emphasised. Enforcement of these policies may further improve the health of students in schools.

Counselling to be part of the schedule for every class at least once in a month, I think they need to talk more about well-being. (Counsellor 4, School 4)

I think there are so many options for a 7-year-old and it's not meditation, its communication, maybe it's just about talking. (Parent 3, School 3)

Data quality measures

The participants in the study mentioned various methods to improve school data quality measures. For example, the most prominent method was training school staff (eg, health professionals and administrative officers) on handling and managing data. In addition, the participants also suggested establishing a unified communication channel to reach schools and parents regarding health-related matters. Finally, there was an emphasis on mandating parents to submit all health-related information (eg, chronic disease conditions) to schools to adequately address the students' health needs.

Some parents don't inform schools of their child's condition, we need to understand the child's condition not only for academic purposes but on how we can help and serve their child. I feel these things should be mandatory to declare. (Principal 3, School 3)

Innovative school technologies

The importance of technology in schools was emphasised during the discussions. For instance, one of the prominent suggestions was to use software applications that act as a communication channel between students, teachers, counsellors and parents. The application should enable students to send urgent and non-urgent issues to their teachers and counsellors. In addition, the application should be designed to assist teachers in rating and to monitor the students' behaviours. If the student's behaviour requires further attention or intervention, the teacher can escalate the issue to the counsellors or parents. In addition, the participants suggested creating an electronic student file linked to the local electronic medical systems. The electronic file will support school health professionals to follow the student's health status and allow them to refer students to specialists if needed with ease.

> A designated person who actually looks at the behavior of the students, and the behaviors either positive or negative to be uploaded in the school system. All the abnormal behaviors are documented and dealt with separately with a school counsellor. (Nurse 1, School 1)

DISCUSSION

The findings illustrate the current health needs of schools in Dubai, UAE. There is a need to improve current or create new services, programmes, health education sessions, policies, data quality measures and innovative technologies to promote health and prevent diseases in schools. The identified themes in the study have similar aspects to the WSCC model.[15] The similarity between the findings and the WSCC model confirms that these themes are critical to improving student's health in schools. For example, the counselling, psychological and social services component in the WSCC model is discussed in three themes (school health services, programmes and health education topics). The need for improving mental health was mentioned in different themes, illustrating the importance of this area in school health. A longitudinal cohort study further supports the necessity of mental healthcare services for students. The study investigated the use of mental health services and depressive symptoms among 14-year-old adolescents and their primary carers (1238 participants).[18] The study reported that adolescents who had contact with mental health services had higher reductions in depressive symptoms than those without contact.[18] The WHO guideline on school health services recommends including seven broad health areas as part of school health services.[19] Three of these health areas, positive health and development, violence, and mental health, are related to the theme of mental health discussed in this study.[19] Therefore, improving and developing these aspects is necessary for school students.

Moreover, the literature also supports four themes in this study (school health services, programmes, policies and health education topics).[15 20] For instance, a pooled-level analysis, which included 11 European countries, aimed to identify the priority measures for governments to establish healthy environments.[20] The findings reported that the most critical gaps in creating such environments were due to the availability of policies for health, food promotion, provision, retail, monitoring and funding.[20] In comparison, WHO recommends seven types of school health services activities that are similar to the themes of this study. For instance, WHO emphasised that health promotion, health education, screening, preventive interventions, clinical assessment, health services management and other health-promoting school pillars distinguish comprehensive school health services from narrowly focused health service interventions.[19] Therefore, these types of school health services activities confirm the importance of the themes discussed in this study.

Furthermore, the data quality measures, such as creating a unified communication channel to reach schools and parents, are also reported elsewhere. For instance, a study investigating all electronic patient data flows in England reported a set of recommendations to enhance data flow.[21] One of the recommendations included improving transparency and encouraging citizen and patient engagement (eg, through public dialogue and research), which is similar to the data quality measure theme.[21] The study also recommends linking data (eg, primary and secondary care data) to enable government entities to capture the complete patient lifetime journey to meet the population's needs.[21] The innovative technology theme also discusses the same concept, such as creating an electronic student file linked to electronic medical systems. Therefore, all the themes suggested in this study provide insight for policy-makers and health authorities to promote health and prevent diseases in schools.

Strengths and limitations

The main strengths of this study include having 52 participants from various specialties and roles representing different entities. The semistructured discussions allowed the focus groups and interviews to highlight the gaps in school health. The focus groups were conducted in English, which was not a problem because all participants could understand and speak English. In contrast, a limitation of this study was that only five private schools participated. However, the schools participating in the focus groups represented four different curriculums, which added a unique perspective to the study. Another limitation is that the study did not include public schools. However, it has been reported that there are 216 private schools and 13 public schools in Dubai in the academic year of 2022–2023.[22 23] Therefore, the majority of students in Dubai are in private schools. In addition, the nominated participants from the entities preferred that their entities be anonymised when signing the consent form.

Therefore, this study did not list the entities' names and the sectors they represent. However, the participants' occupations were listed to preserve the benefits of their specialties and roles in the study. Finally, the study did not involve students in the focus groups, which could have added another perspective on student's health.

Furthermore, different techniques were used, such as triangulation, to enhance the reliability and validity of the study findings. For example, the coders independently assessed the transcripts and compared the level of agreement between the themes. The audio recordings were also compared with the written transcripts. In addition, during the study, different professions were separated to establish a power balance among the focus groups. This balance allowed participants to express themselves freely. For example, school principals were not in the same focus group as teachers or parents. The focus groups were also designed to have specific questions that focused on the roles and responsibilities of the participants. As a result, these measures have supported the researchers in acknowledging the limitations and mitigating their effects to strengthen the study findings.

Future studies
The cost-effectiveness and impact of the suggested themes (eg, new services and programmes) should be investigated through well-designed school interventions. The success of these interventions will pave the way for standardising them across schools in Dubai and the UAE to improve student health.

CONCLUSION
The health needs assessment identified the areas that must be addressed to improve students' health. The themes focus on improving current or new services, programmes, health education sessions, policies, data quality measures and innovative technologies. Policymakers and health authorities could use the findings from the six themes to develop effective school health strategies and interventions.

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