

BUID CONFERENCE EXTENDED ABSTRACT

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[As a guide, an extended abstract should not be more than 1000 words. It should not contain any references.....]

PURPOSE

[What are the reasons for writing the abstract; what are the aims of the study?]

This study is a quantitative, descriptive cross sectional one investigating about the associations between indoor air quality (IAQ) factor and the prevalence of sick building syndrome (SBS) symptoms in United Arab Emirates (UAE) houses. Poor IAQ is evolving as one of the top global health hazards. Although its harmful impacts, particularly in the housing domain, the associations between IAQ and SBS have not yet been formulated. Hence, the objective of this study is to measure the impact of poor IAQ on SBS prevalence among UAE residents.

The study major aim is to highlight general guidelines that associate between IAQ status in UAE houses and the prevalence of SBS. The objectives of the study are:

Measuring the impact of IAQ conditions, compared with other indoor environmental quality (IEQ) parameters, on SBS.

Exploring the influence of the air conditioning (AC) system on the SBS cases.

This study is addressing three main problems:

First, the prevalence of SBS is persistently evolving worldwide. In UAE, indoor air contamination was categorized as the “second-highest” environmental risk. Poor IAQ is considered as the drive behind most asthma cases and the hidden cause of most deadly lung diseases.

Second, the correlations between IAQ contaminants and buildings which despite of their importance have not yet been recognized Globally, regulators failed in establishing exposure regulations for all indoor air pollutants due to their diversified rapid growth. In United States of America (USA), from where acceptable IAQ standards are adopted by many countries, exposure standards for only 0.4% of toxic substances are identified.

Third, the deficiency of established regulations in the housing environments is more when compared with industrial and office buildings. Subsequently, two main concerns arise. The first is the longer exposure duration in residential spaces than in working spaces. Second the housing environments accommodate vulnerable occupants to hazardous health impacts i.e. children, old or sick.

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DESIGN/ METHODOLOGY/ APPROACH

[How are the objectives achieved? Include the main method(s) used for the study; What is the approach to the topic and what is the theoretical or subject scope of the study?]

To achieve these objectives, the study performed the following stages:

First stage:

Literature review.

Determining appropriate approach, methodology and instruments.

Second stage:

Data collection via self-administered questionnaires.

Third stage:

Data analysis.

Conclusions and recommendations.

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This research adopts a quantitative approach since it aims to quantify and predict the impact of the IEQ dimensions of UAE houses on SBS prevalence. Creswell definition for a quantitative research as that of narrow, specific, measurable and observable purpose and hypotheses identically describes this study. Thus, this study is built in a deductive approach aiming to test the following hypotheses:

H1: Unsatisfactory IEQ status of UAE housing is strongly associated with the prevalent SBS cases.

H2: IAQ housing conditions is influencing the prevalence of SBS more than the other IEQ dimensions: thermal, noise and light.

H3: The applied AC system has greater impact on SBS cases than population and building parameters.

H4: Central AC system, exemplifying the supply and extract AC, has worse impact on SBS than window and split AC systems that exemplify the supply only AC systems.

This study's methodology is descriptive cross sectional one.

Based on the literature review, field measurements and questionnaires are the most popularly utilized data collection instruments in the domain of IAQ and SBS. Questionnaires are widely used to investigate occupants' perceptions regarding IAQ conditions and to report the prevalence and frequency of SBS symptoms. One of this method's advantages are their broad coverage and low cost compared with field measurements.

This is a pilot study measuring the prevalence of SBS and perceived IAQ among UAE residents. To achieve this, the standardized MM questionnaires developed by the Örebro Model is adopted

FINDINGS

[What was or will be found in the course of the study? This will refer to analysis, discussion, or results.]

The study revealed strong associations between the IEQ conditions of investigated UAE houses and the prevalence of SBS symptoms. The IAQ housing conditions are of highest impact on SBS than the thermal, noise and light conditions. According to literature, the prevalent SBS complaints and respondents' perceptions of IAQ points to ventilation problems in both house types. No significant difference in the prevalent SBS cases is detected between houses utilizing different AC systems. However, having previous allergy infection, nearby heavy traffic road, smoking and passive smoking has great influence on SBS. Based on that, locating the housing areas away from heavy streets in addition to reducing internal contamination sources i.e. smoking, might immensely help in mitigating SBS cases.

RESEARCH LIMITATIONS/IMPLICATIONS

[If research is reported on in the study this section must be completed and should include suggestions for future research and any identified limitations in the study or research process.]

Further research to identify IAQ deficiencies in UAE houses and highlight solutions for it.

PRACTICAL IMPLICATIONS

[What outcomes and implications for practice, applications and consequences are identified? How will the study impact upon the business or enterprise? What changes to practice should be made as a result of this study? What is the commercial or economic impact? Note that not all studies will have practical implications.]

The associations between IAQ and SBS are still not characterized. Hence this research is filling a theoretical gap since its findings might:

Increase the knowledge in this under-researched domain by realizing the correlations between IAQ and SBS.

Guidance to planners, architects and engineers on how to promote IAQ in UAE houses by identifying their current deficiencies.

Assist policy makers in reviewing existing IAQ regulations and designing new ones.

SOCIAL IMPLICATIONS

[What will be the impact on society of this study? How will it influence public attitudes? How will it influence (corporate) social responsibility or environmental issues? How could it inform public or industry policy? How might it affect quality of life? Note that not all studies or research will have social implications.]

Enhanced IAQ has direct impact on the wellbeing and welfare of the society which in turn reflects in increased economic growth rate and state GDP.

ORIGINALITY/VALUE

[What is new within the discipline in the study? What is the value of the study and to whom?]

Since the associations between IAQ and SBS have not yet been formulated. Hence, this study is a step in understanding the impact of poor IAQ on SBS prevalence among UAE residents.

The study may show the areas where policy makers shall address in reviewing and tailoring future regulations and laws with regard to IAQ and SBS.