RESEARCH PAPER

Knowledge, Attitude, And Practice of Over the Counter (OTC) Medication Use Among Undergraduate Nursing Student in UAE

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ABSTRACT

Introduction

Over the counter (OTC) medications are widely used for the treatment of minor illnesses because they are affordable, easily accessible, and convenient. Despite their benefits, improper use of OTC medications may result in adverse effects, drug interactions, and unsafe self-medication practices. A study conducted among university students in the UAE reported that 57.5% of students used OTC medications, indicating a high prevalence of self-medication. As future healthcare professionals, nursing students require adequate knowledge and safe practices regarding OTC medication use. The aim of the study was to assess knowledge related to OTC medications, attitudes toward safety, and practices of self-medication among nursing students.

Methodology

A quantitative descriptive cross-sectional study design was adopted. Total enumeration sampling was used with a final sample of 172 participants. Data were collected using a structured self-administered questionnaire assessing demographic characteristics, knowledge, attitude, and practice regarding OTC medication use. The reliability and validity of the tool were established prior to data collection.

Results

The findings showed that 72.09% of students used OTC medications. Most participants demonstrated good knowledge (63.37%), while 18.60% had moderate knowledge and 18.02% had poor knowledge. Most students recognized that OTC medications can cause side effects (81.39%), but gaps remained regarding drug interactions and safe medication practices. The majority showed a negative attitude toward OTC medications (80.23%). A significant association was found between year of study and attitude ($p = 0.018$).

Conclusion

The study findings highlight the need for structured educational interventions to strengthen nursing students' understanding of safe OTC medication use. Integrating focused sessions on medication safety, drug interactions, and responsible self-medication into the undergraduate curriculum is recommended. Universities should also promote evidence-based decision-making by encouraging students to consult healthcare professionals rather than relying on previous experiences or peer advice.

Key words: OTC; Undergraduate Nursing Students; Knowledge, Attitudes, Practice.

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Introduction:

Over-the-counter (OTC) medications are medicines that can be obtained without a prescription and are commonly used among the general population and university students.[1,2] The increasing use of OTC medications has been associated with factors such as easy accessibility, convenience, affordability, and self-management of minor illnesses.[1,2,3]

Although OTC medications are considered safe when used appropriately, inappropriate use may result in adverse drug reactions, incorrect dosing, drug interactions, and delayed diagnosis.[1,3] Inadequate knowledge and misconceptions regarding the safe use of OTC medications may also contribute to unsafe self-medication practices among students.[2] Positive attitudes toward OTC medications and the belief that they are safe for minor illnesses may encourage frequent self-medication practices among university students.[4] In addition, factors such as previous experience, advice from family and friends, and information obtained from media sources have been reported to influence OTC medication use.[5] As the use of OTC medication continues to grow, understanding how individuals use and approach them in everyday life has become increasingly important.[4,5]

Furthermore, research evidence from a web-based cross-sectional survey conducted among pharmacy students in Uganda indicated that the majority of students practiced self-medication using OTC medications despite having basic pharmacological knowledge. Commonly used medications included analgesics, antipyretics, and antibiotics. The study also identified gaps in responsible self-medication practices, including use of medications without professional consultation, reliance on previous experiences, and sharing medications with others. These practices may increase the risk of adverse drug reactions, inappropriate medication use, and other medication-related complications among healthcare students.[6]

Among medical and nursing students highlights that convenience, perceived mildness of illness, and reluctance to seek medical consultation are major reasons for self-medication. High prevalence rates of OTC drug use have been reported, with fever, headache, cough, and common cold being the most frequent conditions prompting self-treatment. Inappropriate self-medication practices, such as incorrect dosing, prolonged use, and lack of awareness of adverse effects, have been associated with increased health risks, including drug interactions and delayed diagnosis. These concerns underline the importance of assessing knowledge, attitude, and practice related to OTC medication use among undergraduate nursing students to promote safe and rational medication behavior.[8,9] Furthermore, findings among medical students demonstrated that OTC medications were commonly used for the management of minor illnesses and common health conditions. Many students showed basic knowledge and positive attitudes regarding OTC medication use; however, gaps in responsible self-medication practices were still identified. Unsafe practices such as inconsistent reading of medication instructions, inadequate awareness regarding adverse effects and drug interactions, and the use of medications without proper professional consultation were also reported among students. Frequent and unsupervised use of OTC medications may increase the risk of inappropriate medication use, adverse drug reactions, and other medication-related complications. The findings highlighted the importance of improving awareness regarding safe and responsible OTC medication practices among healthcare students.[10]

OTC medications are commonly used among the general population and university students because they can be obtained without prescription and are easily accessible.[1,2]

A study conducted among university students in the United Arab Emirates found that 57.5% reported self-medication practices using OTC medications, particularly for the treatment of fever, headache, cough, and common cold.[3] Studies also identified inappropriate self-medication practices such as incorrect dosing, prolonged medication use, use without professional consultation, and lack of awareness regarding adverse effects and drug interactions.[6,8,9]

Positive attitudes toward self-medication and the belief that OTC medications are safe for common illnesses may contribute to frequent and unsupervised medication practices among students.[7,9]

Although healthcare students possess basic pharmacological knowledge, gaps in responsible OTC medication practices and medication safety awareness have still been reported among students.[6,10] Therefore, assessing the knowledge, attitude, and practice regarding OTC medication use among undergraduate nursing students is important to identify unsafe medication behaviors and promote safe and rational medication practices. The aim of the study was to assess the

knowledge, attitudes, and practices related to OTC medication use among undergraduate nursing students.

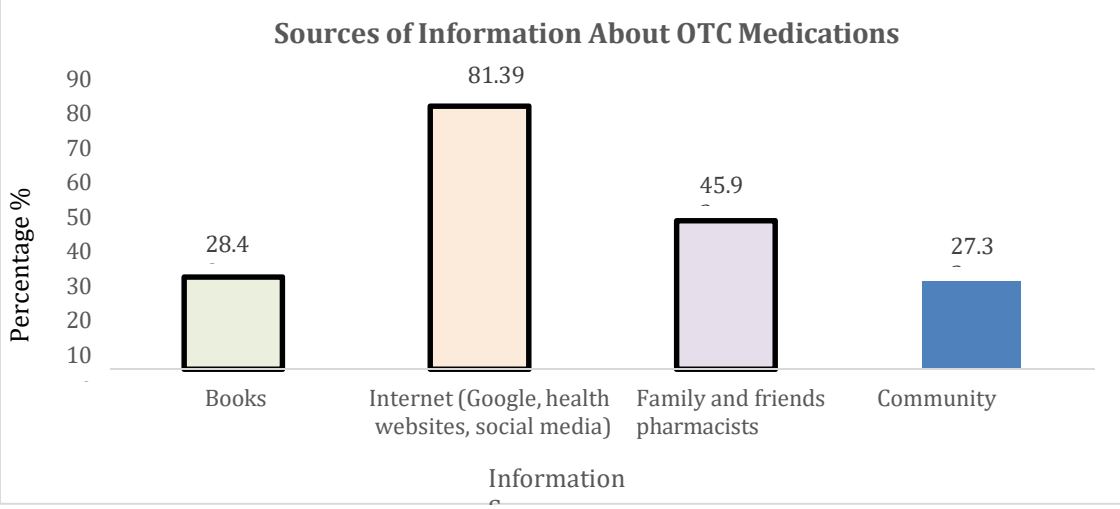
The study has three main objectives. The first is to assess undergraduate nursing students' knowledge of OTC medications, including their use, risks, and benefits. The second is to evaluate the students' attitudes toward the safety and effectiveness of these medications. The third is to examine their self-medication practices, including the frequency and types of medications used and the reasons behind their use.

Methodology:

The study employed a quantitative descriptive cross-sectional design with the the target sample comprising of all undergraduate nursing students enrolled during the 2025–2026 academic year. A total enumeration sampling strategy was used, including all eligible students (n = 235) for screening. After excluding 29 students with chronic diseases—an exclusion criterion noted in the report—the final sample consisted of 172 participants. Data were collected using a structured self-administered questionnaire consisting of four sections: Demographic data, Knowledge of OTC medications (MCQ), Attitude toward OTC use (Likert Scale), Practice of self-medication, (MCQ). Content validity was established by subject experts. And reliability score was more than 0.7 for the tool. Ethical approval was obtained from the Institutional Review Board (IRB) of the University. Informed consent was collected electronically. The questionnaire was administered via Google Forms. Data were analyzed using SPSS version 24. Descriptive statistics (frequency, percentage, mean, SD) summarized demographic variables and KAP scores. Inferential statistics included Chi-square tests to assess associations and Pearson's correlation to examine relationships between knowledge and attitude.

Results:

The analysis of Demographic Variables included age, gender, marital status, year of study, sources of information about over-the-counter (OTC) medications, and types of OTC drugs consumed The majority of respondents (55.81%) were within the 18–20 years age group, followed by 37.20% aged 21–23 years. Smaller proportions of participants were observed in the 24–26 years age group (5.23%) and 27–29 years (1.74%). Regarding gender distribution, the study sample consisted predominantly of female participants (82.55%), while 17.44% were male. In terms of marital status, the majority were single (94.76%), whereas 4.65% were married and 0.58% were widowed. No participants reported being divorced. The study's sample consists of students from all four study years, but second-year students constituted the largest proportion (29.65%), followed by first-year students (27.32%), third-year students (25.58%), and fourth-year students (17.44%).



Regarding sources of information about OTC medications, the internet (including Google, health websites, and social media) was reported as the most common source (81.39%), followed by family and friends (45.93%), books (28.48%), and community pharmacists (27.32%) **(Figure 1)**.

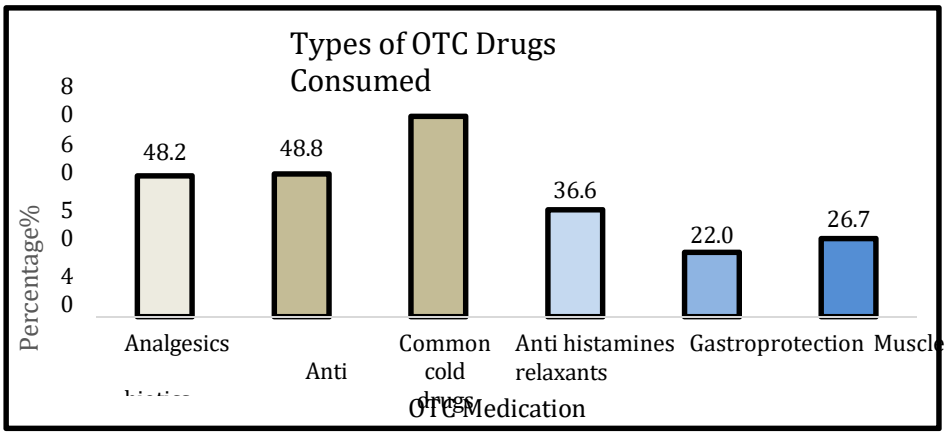


Figure 2. Types of OTC Drugs Consumed

Concerning the types of OTC drugs consumed, common cold medications were the most frequently reported (68.6%), followed by antibiotics (48.83%), analgesics (48.25%), antihistamines (36.62%), muscle relaxants (26.74%), and gastroprotective medications (22.09%) **(Figure 2)**.

Table 1 Level of Knowledge Among Participants

(n=172)

Knowledge Level	Frequency (*f*)	Percentage (%)
Good Knowledge	109	63.37
Moderate Knowledge	32	18.60
Poor Knowledge	31	18.02
Total	172	100

Overall, the knowledge level analysis showed that 63.37% of students had good knowledge, while 18.60% had moderate knowledge and 18.02% demonstrated poor knowledge regarding OTC medication use. These findings **(Table 1)** suggest that although the majority of students have good knowledge, some students still require further awareness regarding the safe use of OTC medications.

Table 2 Distribution of Attitude Related to OTC Medications

(n=172)

Attitude	Frequency	Percentage
Positive Attitude	34	19.76
Negative Attitude	138	80.23
Total	172	100

The findings indicate that most students in this study (80.23% (n=138) hold an overall positive attitude toward OTC medications, while 19.76% (n=34) showed a negative attitude **(Table 2)**.

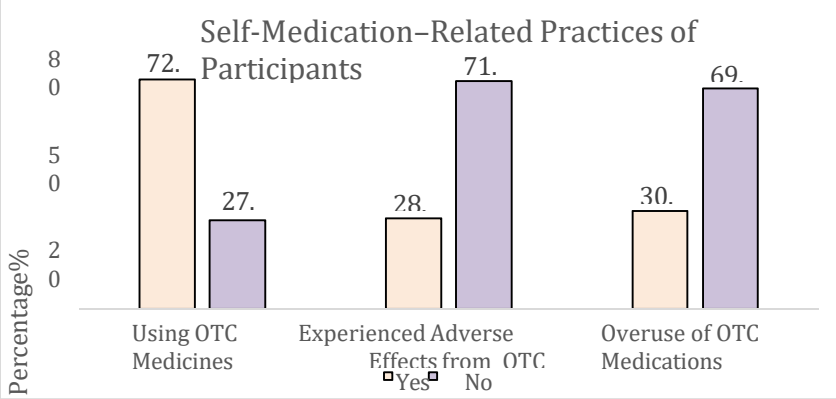


Figure 3. Self-Medication–Related Practices of Participants

The findings show that a large majority of respondents (72.09%) reported using OTC medications, while only 27.9% indicated that they do not use them. Although most students practiced self-medication, the occurrence of adverse effects was relatively lower, with 28.48% reporting experiencing side effects compared to 71.51% who did not. In addition, 30.81% of students admitted overusing OTC medications, whereas 69.18% denied overuse, indicating that inappropriate use still exists among a considerable proportion of respondents **(Figure 3)**.

Table 3 .Distribution of Students' Practices Toward OTC Medication

Practice-Related Questions	Frequency (*f*) (Percentage%)
When do you usually consume OTC medication?	
• When symptoms are minor	88 (51.16%)
• Whenever I feel sick	99 (57.55%)
• When I cannot visit a doctor	56(32.55%)
• When pain or discomfort is unbearable	60(34.88%)
For which illnesses do you usually take OTC medication?	
• Fever and headache	132(76.74%)
• Menstrual pain	76(44.18%)
• Indigestion	50(29.06%)
• Abdominal cramps	62(36.04%)
• Cough and common cold	108(62.79%)
What is the most common reason for using OTC medication(s)?	
• Time saving	78(45.34%)
• Low cost	85(49.41%)
• Safe and well-tolerated	66(38.37%)
• Easy accessibility	102(59.30%)
• Effectiveness	55(31.97%)
What do you do if an OTC drug shows a change in shape, color, or odor?	
• Immediately discard the drug	136(79.06%)
• Continue using it until it expires	29(16.86%)
• Continue using it even after it expires	7(4.06%)
Where do you usually store your OTC medication(s)?	
• Medicine box	116(67.44%)
• Bedroom/on an open table	54(31.39%)
• Refrigerator	57(33.13%)
• Kitchen	15(8.72%)
How often do you read the instructions on the medicine's label before use?	
• Always	49(28.48%)
• Often	37(21.515%)
• Sometimes	63(36.62%)
• Rarely	14(8.13%)
• Never	9(5.23%)
How often do you check the expiry date of OTC medicine(s)?	
• Always	94(54.65%)
• Often	33(19.18%)
• Sometimes	38(22.09%)
• Rarely	2(1.16%)
• Never	5(2.90%)
How often do you store your OTC medicine(s) in a cool, dry place or as stated on the label?	
• Always	88 (51.16%)
• Often	36 (20.93%)
• Sometimes	40 (23.25%)
• Rarely	4 (2.32%)
• Never	4 (2.32%

The table shows circumstances of use, more than half of the students (57.55%) reported taking OTC medicines whenever they feel sick, and 51.16% used them when symptoms are minor. The most common conditions for which OTC medications were used were fever and headache (76.74%), followed by cough and common cold (62.79%). Other frequently reported conditions included menstrual pain (44.18%) and abdominal cramps (36.04%). The main reasons for self-medication were easy accessibility (59.30%), low cost (49.41%), and time-saving (45.34%), highlighting the convenience of OTC medications as the primary motivating factor. In terms of safe practices, a high proportion of students (79.06%) stated that they would discard a medication if there was any change in its color, shape, or odor, which reflects a generally safe attitude toward medication use. More than half of the respondents (54.65%) always check the expiry date, and 51.16% reported always storing medications in a cool and dry place. However, only 28.48% of students always read label instructions before using OTC medications, indicating a gap in safe medication practices that requires further awareness and education **(Table 3)**.

Table 4. Correlation Between Knowledge & Attitude

	Knowledge Score	**Attitude Score**	**Pearson's r**	**df**	**p-value**
Mean	8.35	27.9	0.128	170	0.095
Median	9.00	28.0			
Standard Deviation	3.26	5.29			

Table 4 presents the correlation between the knowledge scores and attitude scores of the participants. The descriptive statistics show a mean knowledge score of 8.35 (SD = 3.26) and a mean attitude score of 27.9 (SD = 5.29). A Pearson's correlation test was conducted to assess the correlation between knowledge and attitude. The resulting r value of 0.128 signifies a weak positive correlation, this suggests that as knowledge scores increase, there is a slight tendency for attitude scores to also increase. Statistical analysis revealed a p-value of 0.095, indicating that the observed correlation is not statistically significant. Consequently, the study concludes that there is no significant linear relationship between a participant's level of knowledge and their attitude toward OTC medications within this population (df = 170).

Discussion:

The evaluation of students' understanding of OTC medications revealed that a majority (63.37%) had a strong grasp, while 18.60% had a moderate understanding, and 18.02% showed poor knowledge. These findings suggest that although a significant number of students are well-informed, a notable minority remains at risk of unsafe medication practices due to inadequate knowledge. One of the most positive outcomes was that 81.39% of students correctly recognized that OTC drugs can lead to side effects, and a similar percentage (80.81%) understood that medications should be stopped and reported to a healthcare provider if adverse effects are suspected. These results align with those of Loni et al. (2023), who found that while many female health-science students demonstrated awareness of OTC medication risks, significant gaps remained, particularly regarding adverse effects and the dangers of unsupervised antibiotic use. Additionally, 75% of participants correctly identified painkillers as a type of OTC medication, indicating a basic awareness of common drug categories encountered in daily life.[11]

However, significant knowledge gaps were found in several crucial areas. Only 54.06% of respondents knew that not all OTC medications are entirely safe and effective, and just 45.93% recognized the potential dangers of combining OTC drugs with prescribed medications. This latter finding is particularly important from a clinical safety standpoint, as drug interactions involving OTC products can lead to serious adverse outcomes, including therapeutic failure, toxicity, and hospitalization. Shaghaghi et al. (2014) similarly reported that inadequate awareness regarding medication safety and self-medication practices among university students may contribute to inappropriate medication use and medication-related complications. Furthermore, the fact that only 68.02% of students were aware that OTC drugs can interact with foods, beverages, and underlying health conditions such as hypertension and diabetes suggests that awareness regarding food–drug interactions and medication safety requires greater emphasis in pharmacy and nursing curricula. These knowledge deficits highlight specific areas where formal education and targeted awareness campaigns could significantly enhance student competency and patient safety outcomes in future practice settings.[12]

The evaluation of students' perspectives on OTC medications revealed a surprising result: although individual responses to attitude statements showed several areas of appropriate caution and concern, the overall classification indicated that 80.23% of students had a negative view of OTC medications, with only 19.76% expressing a positive attitude. This seeming contradiction might be due to the scoring system used to categorize attitudes, where a higher level of caution and reluctance to use OTC medications without supervision was labeled as negative, while confidence in and acceptance of proper OTC use was considered positive. It is crucial to interpret this finding carefully, as an excessively restrictive or fearful attitude toward OTC medications could be counterproductive if it results in the under-treatment of minor ailments or unnecessary reliance on formal healthcare consultations for conditions that could be safely managed through self-care. Abdullah et al. (2022), in their national survey of university students in Brunei Darussalam, found that more balanced and informed attitudes toward OTC medications were associated with safer usage behaviors, including greater attention to label instructions and more appropriate source selection for medication information.[2]

On the level of individual items, several positive attitudinal findings are noteworthy. For instance, 64.53% of students correctly identified paracetamol overdose as toxic, and 63.37% agreed they would seek advice from a pharmacist when unsure about a minor illness, reflecting a commendable inclination toward

professional guidance. Additionally, 63.37% disagreed with the statement that all OTC drugs can be used during pregnancy, indicating appropriate caution regarding vulnerable populations. However, the fact that only 41.27% disagreed with sharing OTC medications with others is concerning, as sharing medications is a well-known unsafe practice associated with inappropriate dosing, masking of serious conditions, and the spread of antibiotic resistance. In line with this, a systematic review by Dawson et al. (2024) found that medication sharing is commonly driven by cost, convenience, and running out of personal supplies rather than intentional misuse, highlighting that structural and economic factors underpin this unsafe practice across student and community populations. Furthermore, 19.76% of respondents incorrectly believed that environmental storage conditions such as temperature, moisture, and sunlight do not affect OTC medications, highlighting a significant gap in medication safety awareness that has implications for therapeutic efficacy.[13]

The research on over-the-counter (OTC) medication habits shows that self-medication is widespread among the participants, with 72.09% currently using OTC drugs. The primary reasons for using OTC medications were 'whenever I feel sick' (57.55%) and 'when symptoms are minor' (51.16%), suggesting that convenience and symptom-based choices are the main reasons for self-medication in this group. The most common ailments treated with OTC medications were fever and headache (76.74%) and cough and common cold (62.79%), which are generally seen as suitable for OTC treatment. However, the analysis of medication types revealed a concerning 48.83% prevalence of OTC antibiotic use, raising significant safety issues. Self-treating suspected infections with antibiotics is a major factor in antimicrobial resistance and can obscure serious conditions that need professional evaluation. The most frequently cited reasons for using OTC medications were easy access (59.30%), low cost (49.41%), and time efficiency (45.34%), highlighting the structural and economic influences on self-medication among students. These results are consistent with findings by Janatolmakan et al. (2022), who identified easy access to medications, lack of time, and cost of medical consultations as the primary reasons for self-medication among nursing students, reinforcing that structural and logistical factors are key drivers of this behavior.[14]

The evaluation of safety-related practices showed mixed results. Positively, 79.06% of respondents said they would discard a medication if it showed changes in color, shape, or smell, and 54.65% always checked expiry dates before use. Additionally, 51.16% consistently stored medications in a cool and dry place, indicating a basic level of medication safety awareness. However, a significant gap was found in label-reading habits: only 28.48% of participants always read the instructions on the medicine label before use, and 36.62% did so only occasionally. This is particularly worrisome because label instructions provide crucial information on dosing, contraindications, drug interactions, and warnings for special populations. Masumoto et al. (2023) demonstrated that poor comprehension of OTC medication package inserts is significantly associated with incorrect dosing and a reduced likelihood of reporting adverse drug events, underscoring the critical role of label literacy in safe self-medication practice. Furthermore, 30.81% of students admitted to overusing OTC medications, and 28.48% reported experiencing adverse effects, indicating that unsafe practices are not just theoretical risks but have real health consequences in this population. These findings highlight the urgent need to incorporate practical medication safety education, including guidance on label reading, storage, and recognizing adverse effects into nursing and health-science curricula.[15]

Conclusion: The study findings highlight the need for structured educational interventions to strengthen nursing students' understanding of safe OTC medication use. Integrating focused sessions on medication safety, drug interactions, and responsible self-medication into the undergraduate curriculum is recommended. Regular workshops, simulation-based learning, and pharmacist-led awareness programs may help reinforce safe practices. Universities should also promote evidence-based decision-making by encouraging students to consult healthcare professionals rather than relying on previous experiences or peer advice. Strengthening institutional policies on medication education can further support rational and safe OTC medication use among future nurses. This study was limited to undergraduate nursing students from a single university, which may

restrict the generalizability of the findings. Data were collected through self-reported questionnaires, which may introduce recall bias and social desirability bias. The cross-sectional design captures responses at one point in time and does not allow assessment of changes in knowledge or behavior over time. Additionally, the exclusion of students with chronic illnesses may have limited insights into medication practices among individuals who frequently use medications. The study revealed that although most nursing students demonstrated good knowledge regarding OTC medications, significant gaps remained in their attitudes and self-medication practices. Unsafe behaviours such as using medications without consultation, relying on previous experiences, and limited awareness of drug interactions were evident. These findings underscore the need for targeted educational strategies to promote responsible OTC medication use. Strengthening students' knowledge, shaping safer attitudes, and improving self-medication practices are essential to ensure that future nurses contribute effectively to patient safety and rational medication use.

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Author Contribution:

1. Ashma Gautam, Abdullah Lutfi Aldubai, Larissa Fattouh - Conceptualization, Methodology, Investigation, Data compilation, Formal analysis & Report Preparation.
2. Dr. Ponchitra Ramanathan - Methodology, Supervision, Formal Analysis, Writing the original draft Reviewing & Editing the draft.
3. Masani Abdelbagi Ahmed Elmahdy - Methodology, Supervision, Preparation of Tool.

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