

Knowledge, Attitudes, Practices, and Awareness towards Medication use among Health Care Students in Hamdard University.

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Abstract

The present study aimed to determine the knowledge, attitude and practices of health profession-related university students of Hamdard University Karachi towards self-medication for minor ailments.

The self-medication trend is increasing day by day which is defined as the use of drugs without prescription or consultation of a physician.

A cross-sectional, descriptive study with convenience sampling was conducted through a self-administered questionnaire. Data were analyzed by SPSS-21 and Goodness of fit and Pearson's chi-squared test were applied. Data were considered significant when $p < 0.05$.

The prevalence of regular self-medication was 38.5%. About 80% of students showed adequate knowledge, 57% showed a positive attitude and 68.6% showed good practices. The data on attitude was positively correlated with gender showing a positive attitude of female participants compared to male participants. Whereas good practice was related to departments

especially pharmacy and physical therapy.

In this study the self-medication with proper knowledge of the medicine and their mechanism of action can be appreciated as it saves time and cut the cost of treatment but those who are not well versed with the scientific knowledge should be thoroughly discouraged.

Keywords

Self-medication (SM), Over the counter medicine (OTC), Knowledge, Attitude, Practices (KAP).

1. INTRODUCTION

According to a definition by the World Health Organization (WHO) (Organization, W.H., *et al.*, 2000), self-medication is classified as a component of "self-care" which includes selecting a medication to treat oneself without the suggestion of a physician.

Mostly available drugs for self-medication are over-the-counter (OTC) or non prescription

medication, the use of which can be considered “responsible self-medication” (Tomas Petroviae, A., *et al.*, 2022). These drugs are used for minor ailments and obvious symptoms and this may reduce the pressure on the health care system as well (Noone, J. *et al.*, 2018). This relatively non-significant act may turn into a disaster if the self-use of medication is shifted to prescription-only medicines (Albusalih, F.A., *et al.*, 2017) which may result in serious to fatal ADRs, delayed diagnosis and drug-induced diseases these contributing to public health burden (Ruiz, M.E *et al.*, 2010) this is termed as “irresponsible/irrational self-medication” (Ruiz, M.E *et al.*, 2010).

The prevalence of self-medication increases as the year of study increases which may be due to increased study exposure to diseases and medications (Beyene, A., *et al.*, 2017). In the general population, medication use as self-medication is due to long waiting periods in hospitals, minor ailments, cost to save money and time, lack of accessibility, shortage of doctors, or a feeling that their ailment is beyond the knowledge of well-trained doctors (Aishwaryalakshmi, K., *et al.*, 2012). An extensive review of the literature showed that self-medication is very common among healthcare professionals and students related to these fields (Montgomery, A., *et al.*, 2011).

The present study was planned to evaluate the knowledge, attitude and practices of students from health-related fields regarding self-medication.

2. MATERIALS AND METHOD

2.1. Study Area and Design

This study was performed at Hamdard University, Karachi Campus, Pakistan. Karachi is located on the coastline of Sindh province in

Southern Pakistan, along a natural harbour on the Arabian Sea. A cross-sectional study was conducted among the undergraduate health field students of Hamdard University Karachi. The study period was of three months, i.e., from September 2022 to November 2022. All the protocols were according to standard practices.

2.2. Target Population

All Medical, Physiotherapy, Eastern medicine and Pharmacy students of Hamdard University.

2.3. Inclusion criteria:

Undergraduate students from medicines and allied faculties who were willing to participate.

2.4. Exclusion criteria:

Students from non-medical faculties, non-willing students.

2.5. Sample size calculation:

With a population size of 7000 (Total number of students of Hamdard University), and 80% frequency of self-medication (Bekele, K.M., *et al.*, 2020) at a 97% confidence level the sample size was calculated to be 289 (Dean AG *et al.*, 2022).

2.6. Sampling

The study design was cross-sectional and the convenience sampling (non-probability) technique was used. The main focus for data collection was on 4th & final-year students.

2.7. Study Tool

A “self-administered”, structured and pre-examined questionnaire was used. The ques-

tionnaire was designed keeping in view previous similar studies with slight modifications considering the current setup.

2.8. Limitations of the Study

Since the study was a cross-sectional study, the results of the study are dependent on the response given by the study participants thus giving the possibility of respondent bias.

2.9. Statistical Analysis

Data were analyzed using SPSS-20 and were subjected to descriptive analysis, along with a non-parametric test i.e. chi-squared test for Goodness of fit. The processed data of KAP scores were cross-tabulated with the gender and education department and were analyzed using Pearson's chi-squared test of correlation. All the values were considered significant when $p < 0.05$.

2.10. Ethical consideration

The Hamdard University ethics review committee granted permission and issued an approval number ERC-FoP-2022-001, after describing the study's objectives, a verbal informed consent was obtained from each responder. Data collection was done anonymously to ensure participant privacy.

3. RESULTS AND DISCUSSION

The Google forms were distributed to the study participants 306 correctly completed forms were received back and their data were included in the study.

Out of 306 participants included in the study, 62% of the study participant were women ($n = 191$) majority of whom were in the 21 – 23 years

age group ($n = 137$, 45%). Approximately 57% ($n = 173$) of participants belonged to the faculty of pharmacy followed by rest of medical students ($n = 133$, 43%) among 306 participants 98.4% of participants were single ($n = 301$)

Table 1.

3.1 Knowledge toward OTC Medicines

Regarding knowledge of self-medication, 80% of the study population showed good knowledge ($n = 246$, $\chi^2 = 113.1$, $p < 0.001$). Pearson's chi-squared test of correlation showed no dependence of knowledge on gender ($\chi^2 = 1.75$, $p > 0.05$) or departments ($\chi^2 = 0.56$, $p > 0.05$) shown in Table 5.

About 117 (38.2%) of participants self-medicate themselves regularly ($\chi^2 = 16.94$, $p < 0.001$). 70% ($n = 214$) of participants think that all doses are not preferred for self-medication ($\chi^2 = 185.7$, $p < 0.001$). Almost 77% participants think that self-medication is not safe in all age groups ($n = 236$, $\chi^2 = 265$, $p < 0.001$). whereas 62% use self-medication in urgent conditions ($n = 189$, $\chi^2 = 113.5$, $p < 0.001$). 75.5% ($n = 231$) of participants think that self-medication can be done to treat mixed ailments ($\chi^2 = 246.5$, $p < 0.001$). this concept was mainly seen in students of Pharmacy ($\chi^2 = 16.4$, $p = 0.012$). However, 78% ($n = 240$) of participants agree that self-medication is not free from ADRs ($\chi^2 = 280.8$, $p < 0.001$). 50.3% ($n = 154$) of participants responded that they can identify the expiry of medication by its physical appearance or color. Three-fourths of the respondents ($n = 236$, 77.1%) did not think on the appropriateness of sharing medication with others ($\chi^2 = 27.53$, $p = 0.006$) shown in Table 2.

Table 1: Scio-Demographic characteristics (N=306)

Variable	Options	Frequency (N)	Percentage (%)	χ^2
Gender	Male	115	38	18.88 P < 0.001
	Female	191	62	
Age	18 – 20	108	35	28.43 P < 0.001
	21 – 23	137	45	
	24 – 26	61	20	
Marital Status	Married	05	1.6	179.52 P < 0.001
	Unmarried	301	98.4	
Faculty	Health & Medical sciences	51	17	179.52 P < 0.001
	Pharmacy	173	57	
	Physical Therapy	16	5	
	Eastern Medicine	66	22	

Table 2. Score for Knowledge toward OTC medicines (N=306)

Variable		Goodness of fit			Pearson's chi-squared test of Correlation				
Question	Options	Response	%	X ²	MBBS	Pharm D	Doctor of Physical Therapy	Bachelor of Eastern Medicines	X ²
All dosage ranges of drugs are preferred for self-medication or not safe	Agree	214	70	185.73 P < 0.001	36	112	14	52	9.578 NS
	Disagree	38	12.4		4	26	2	6	
	Neither agree nor disagree	54	17.6		11	35	0	8	
Self-medication is safe in all age group	Agree	42	14	265.02 P < 0.001	10	15	5	12	27.118 P < 0.001
	Disagree	236	77		39	146	11	40	
	Neither agree nor disagree	28	9		2	12	0	14	
Self-medication would be the urgency of the problem	Agree	189	62	113.47 P < 0.001	26	110	12	41	6.653 NS

If it is acceptable to use	Agree	231	75.5	246	44	134	14	39	16.418	
	Disagree	47	15.4		4	26	0	17		
OTC drugs to treat mixed ailments such as a common cold	Neither agree nor disagree	28	9	P < 0.001	3	13	2	10	P = 0.012	
Self-medication is not completely free of adverse reactions	Agree	240	78.4	280.77	40	134	15	51	4.818 NS	
	Disagree	39	13		P < 0.001	5	26	0		8
	Neither agree nor disagree	27	8.8		6	13	1	7		
Do you think expired drug can be identified by its physical appearance or color	Yes	154	50	0.013 NS	17	72	9	56	42.827 P < 0.001	

3.2. Attitude toward OTC Medicine

Approximately 57% of participants showed positive attitude towards self-medication ($n = 175$, $\chi^2 = 6.33$, $p = 0.025$). The relationship of attitude towards self-medication with gender showed a positive correlation ($\chi^2 = 6.598$, $p = 0.010$), thus showing a more positive attitude of female participants towards self-medication compared to male participants. However, departmental segregation failed to show the difference in attitude ($\chi^2 = 5.105$, NS) as shown in Table 5.

The participants showed a mixed response, i.e., 56 % of participants think that all OTC medicines are not safe ($n = 171$, $\chi^2 = 4.24$, $p = 0.04$). 92.2% ($n = 282$) of participants thinks that basic knowledge is necessary for self-medication and one should have basic information about drug action before taking medication and it shows that they have sound knowledge regarding OTC drugs ($\chi^2 = 217.53$, $p < 0.001$). Whereas 58% think that

the medicines should not be shared with others ($n = 177$, $\chi^2 = 7.53$, $p = 0.006$). Cross-tabulation with departments and individual questions however did not show a statistically significant difference as shown in Table 3.

3.3. Practice towards OTC Medicine

Approximately 68.6% participants showed good practice regarding self-medication ($n = 210$, $\chi^2 = 42.47$, $p < 0.001$). The correlation of practice with gender showed no correlation ($r = 0.076$, NS) but it was significantly dependent on departmental segregation ($\chi^2 = 9.546$, $p < 0.025$). A positive response was found from students of the pharmacy and physiotherapy departments shown in Table 5.

The most commonly used medicine was for cough and cold ($n = 116$, 38%) followed by analgesic ($n = 111$, 36.3%) and minerals and vitamins ($n = 56$, 18%, $\chi^2 = 170.96$, $p < 0.001$).

Paracetamol was the most used medicine for fever and headache (n = 185, 63.7%) followed by ibuprofen (n = 58, 19%; $\chi^2 = 253.45, p < 0.001$). It was found that self-medication is mainly done for feeling that the illness is mild (n = 166, 54.2%) followed by the history of use for the same symptoms (n = 83, 27%) followed by time-saving

(n = 34, 11%, $\chi^2 = 166.29, p < 0.001$). In the case of the appearance of adverse drug reactions (ADRs), the majority of participants reported to a physician/pharmacist (n = 201, 65.7%) followed by participants who responded that they discontinue medicine on the appearance of side effects (n = 78, 25.5%, $\chi^2 = 306.4, p < 0.001$) represented in Table 4.

Table 3. Score for attitude toward OTC medicines (N=306)

Variable		Goodness of fit			Pearson's chi-squared test of Correlation				
Question	Options	Response	% age	X ²	MBBS	Pharmacy	Doctor of physical therapy	Bachelor of Eastern medicines	X ²
Do you think that all OTC drugs are effective and safe	Yes	135	44	4.24 P = 0.04	27	72	8	28	2.350 NS
	NO	171	56		24	101	8	38	
Do you think basic knowledge about drug action is required for self-medication	Yes	282	92	217.53 P < 0chi-squared.001	48	162	14	58	2.950 NS
	No	24	8		3	11	2	8	
Do you think it is acceptable to share OTC medicines with others	Yes	129	42	7.53 P = 0.006	24	76	9	20	5.832 NS
	No	177	58		27	97	7	46	

Table 4: Score for Practice toward OTC Medicines (N=306)

Variable		Goodness of fit			Pearson's chi-squared test of Correlation				
Options	Response	%age	X ²	MBBS	Pharmacy	Doctor of physical therapy	Bachelor of Eastern medicines	X ²	

What is the most commonly available nonprescription drugs for self-medication?	Analgesic	111	36.3	170.96 P < 0.001	17	70	6	18	39.528 P < 0.001
	Skin treatment	14	4		2	4	0	8	
	Cough/cold	116	38		22	68	6	20	
	Sleeping pills	9	2		0	1	0	8	
	Vitamin and minerals	56	18		10	30	4	12	
What type of OTC medicine do you take when you have a fever and headache	Paracetamol	185	63.7	253.45 P < 0.001	28	134	11	22	48.350 P < 0.001
	Ibuprofen	58	19		12	16	3	27	
	NASAIDs	25	8		7	10	1	7	
	None of them	28	9		4	13	1	10	
For which reason you took OTC medicines	Feeling that illness is mild	166	54.2	166.29 P < 0.001	19	112	11	24	57.463 P < 0.001
	Cost of consultation	23	7		2	4	0	17	
	Past history of use	83	27		23	37	4	19	
	Less time consuming	34	11		7	20	1	6	
How often do you go to the hospital to visit a doctor for common illness	Sometimes	169	55.2	179.49 P < 0.001	18	108	13	30	34.449 P < 0.001
	Usually	43	14.1		12	16	2	13	
	Seldom	81	26.4		20	45	1	15	
	Always	13	4.2		1	4	0	8	
If side effects appear what is your next step	Discontinue the medicine	78	25.5	306.42 P < 0.001	18	34	5	21	13.319 NS

Table 5. Pearson's chi-squared test of Correlation on KAP scores

KNOWLEDGE			
	Adequate	Poor	X ²
Total	246	60	113.1 P < 0.001
Gender			
Male	88	27	1.751
Female	158	33	NS
Departments			
MBBS	41	10	0.56 NS
Pharmacy	138	35	
Doctor of physical therapy	14	2	
Bachelors of Eastern medicines	53	13	

ATTITUDE			
	Positive	Negative	X ²
Total	175	131	6.327 P < 0.025
Gender			
Male	55	60	6.598 P = 0.010
Female	120	71	
Departments			
MBBS	25	26	5.105 NS
Pharmacy	106	67	
Doctor of physical therapy	6	10	
Bachelors of Eastern medicines	38	28	
PRACTICE			
	Good	Poor	
Total	210	96	42.47 P < 0.001
Gender			
Male	80	35	0.076 P = 0.784
Female	130	61	
Departments			
MBBS	33	18	9.546 P < 0.025
Pharmacy	124	49	
Doctor of physical therapy	15	1	
Bachelor of Eastern medicines	38	28	
Total	210	96	

OTC medicine are those medicines which are used without a prescription or consultation with a doctor. These agents are easily available so are used widely and are very useful if taken correctly in relieving acute pain and treatment of mild symptoms. Moreover, it reduces the cost of treatment and saves time (Alshogran, O.Y *et al.*,

2018). The OTC medicines used for a longer period or used improperly may be associated with drug resistance, abuse and life-threatening adverse effects (Naveed, S., *et al.*, 2014).. Pakistan is a country where not only OTC medicines but also prescription medicines are easily available without a prescription.

Developing countries show a trend of re-use of prescriptions, sharing of medicine among family members and ending treatment early or continuing it for a longer time of one's own free will (Aslam, A., *et al.*, 2022 ; Zafar, S.N., *et al.*, 2008) Careful sifting of the literature shows that countries like Ethiopia (Abay, S. and W. Amelo, 2010), Jordan (Al-Azzam, S.I., *et al.*, 2007), Oman (Al Flaiti, M., *et al.*, 2014) and Saudi Arabia (Al Essa, M., *et al.*, 2019) have a very high prevalence of self-medication.

The present study was designed to know the attitude of students of pharmacy and medical college towards self-medication. From the literature survey, it is evident that self-medication is quite common among university students especially medical and pharmacy students in developing countries. Like prevalence of self-medication was found to be 38.5% among students of Ethiopia in 2010 (Abay, S. and W. Amelo, 2010) which showed a steep rise up to 80% in 2020 (Bekele, K.M., *et al.*, 2020). There was a 78.5% prevalence of self-medication among university students in 2016 (Alkhatatbeh *et al.*, 2016) which rose to 96% in 2018 (Alshogran, O.Y., *et al.*, 2018). Students in Bengal showed a 57.08% prevalence in 2012 (Banerjee *et al.*, 2012). The current study has not studied the prevalence of self-medication in students but it was found that the prevalence in the current study population was 67%.

Self-medication if taken properly can be useful. Its use is safe in those patients who manage their medicines themselves (Aishwaryalakshmi, K., *et al.*, 2012) but it can be very disastrous for those who are taken care of by an attendant. Irrational use of medicine without a prescription can lead to drug resistance in the case of antibiotics (Al-Azzam,

S.I., *et al.*, 2007). There can be other consequences of this practice like masking the diagnostic symptoms, inappropriate dosing and therapeutic failures (Zafar, S.N., *et al.*, 2008).

It was concluded from the responses of the participants that there are majorly four reasons to self-medicate namely mild illness (54.2%), prior use of the drug (26.7%), to save the time of consultation (11%) and cutting the cost of treatment (7.5%).

Many KAP studies show that there is no correlation between gender with the use of self-medication (Gyawali, S., *et al.*, 2015). The same was seen in the current study as gender was not significantly correlated with Knowledge ($\chi^2 = 1.75$, NS) and Practice ($\chi^2 = 0.756$, NS). However, when the attitude was correlated with gender, a positive attitude about self-medication was found in female students ($\chi^2 = 6.598$, $p = 0.01$) represent in **Figure 1 and 2**, that means not all the medicine taken by self-medication are safe, basic mechanisms should be known before the use of medicine and that OTC medicines should not be shared with people based on one's experience.

In many studies, major comparisons were made between pharmacy and medical students or between health professionals and non-health professionals. The present study included students from eastern medicine and physiotherapy in addition to students from the pharmacy faculty and medical college. Results show that knowledge ($\chi^2 = 0.56$, NS) and attitude ($\chi^2 = 5.105$, NS) are not dependent on faculties. Responses are similar but the results of practice showed significant differences between faculties ($\chi^2 = 9.546$, $p < 0.025$) as the majority of the (68.6%) participants showed good practice mainly from the Faculty of Pharmacy and physiotherapy.

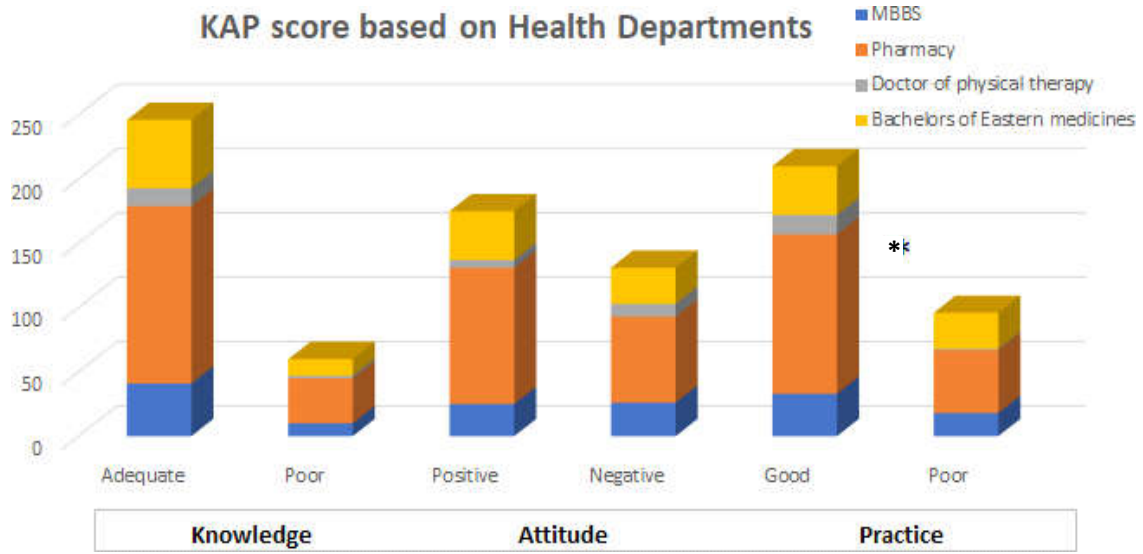


Fig. 1: KAP scores based on Health Departments

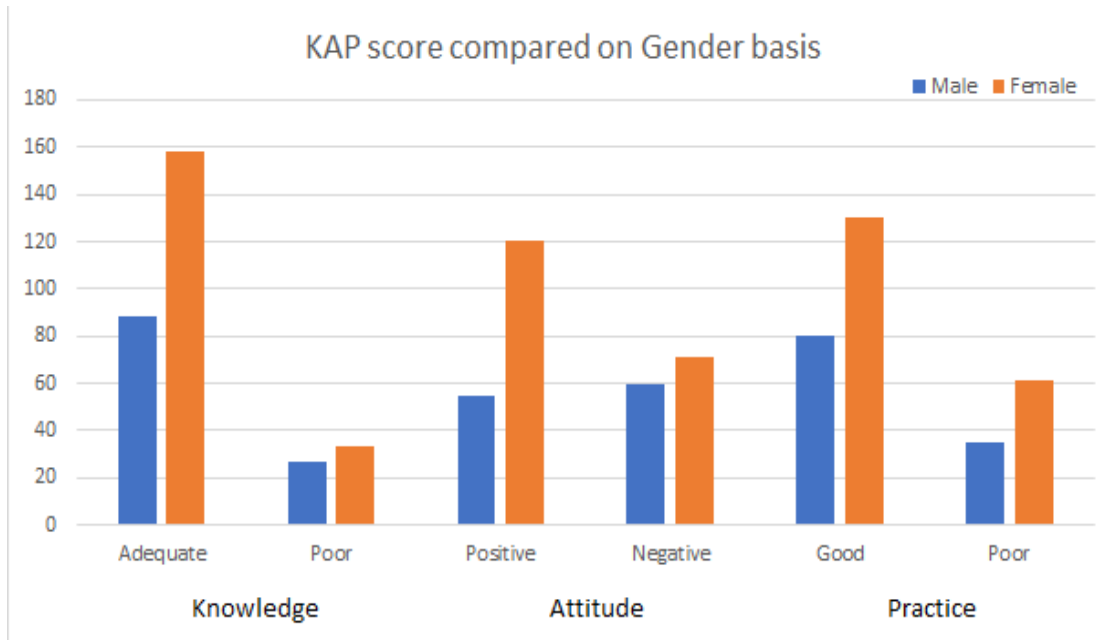


Fig. 2: KAP score based on Gender

Many of the studies showed that self-medication is done by the use of painkillers, antibiotics, and multivitamins. The present study was restricted with the use of only analgesics (n = 111, 36%), skin (topical application) treatment (n = 14, 4%), medicine for cough and cold (n = 116, 38%) and vitamins and minerals (n = 56, 18.6%). The use of any other medicine was taken as bad practice.

In the light of results achieved, the prevalence of self-medication among university students especially in health sciences is on the rise which can be due to their knowledge of medicine. Painkillers especially paracetamol and NSAIDS were commonly used to treat mild ailments. Current results were in the line of studies of Abay, S. and W. Amelo, (2010) and (Beyene, A., *et al.*, 2017).

Students under high stress of studies and tight deadlines mainly get a headache and irregular meals tend them to become malnourished, therefore the use of painkillers and vitamins and minerals is understandable (Demirkirkan *et al.*, 2006 ; Nandha *et al.*, 2013).

Students in the current study showed good knowledge, positive attitude and good practice towards self-medication. One reason might be that the study population was students who belonged to the health profession. Students were additionally 4th and final-year students. The study could have been more generalized if students of all years were included.

4. CONCLUSION

To conclude, it can be said that self-medication is fairly prevalent among students in health field. It also concludes that people tend to self-medicate because of lack of trust towards doctors, economic instability and easy availability

of medicine through pharmacies without a prescription.

Despite good knowledge levels, self-medication cannot be supported because it may lead to malpractice, overdosage, and use of expired medicine due to a lack of knowledge in the field. It is a very dire need to develop a mechanism where people cannot access medicine without a prescription in addition to mandatory improvement of health care facilities in the country.

Further cohort studies with healthcare and non-healthcare students can shed more significance on knowledge, attitudes and practices towards self-medication. Further cohorts of antibiotics use compared to OTC medicines or drugs of abuse with OTC medicine, can also shed light on the gravity of the situation.

Author contribution

All authors contributed significantly to the idea and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or editing it critically for essential intellectual content; agreed on the journal to which the article would be submitted; provided final approval of the version to be published; and agree to be responsible for all parts of the work.

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The authors declare that they have no competing interests.

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