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# Health services utilization among slum dwellers: An experience from Iran

Mohammadreza Amiresmaili, Vahid Yazdi-Feyzabadi<sup>1</sup>, Majid Heidarijamebozorgi<sup>2</sup>

## Abstract:

**INTRODUCTION:** Health services utilization is a complex behavioral phenomenon affected by multiple factors including availability, distance, cost and quality of health services as well as personal attitudes, cultural beliefs, and socioeconomic characteristics. This study aimed to assess the status of health-care utilization among dwellers of slums in one of the Iran's big cities.

**METHODS:** This was a cross-sectional study in which 559 slums people were selected using a random clustered sampling method. Data on health services utilization were collected using health equity assessment and response tool questionnaire. Data analysis was performed using descriptive statistics and logistic regression analysis through SPSS ver. 22.

**RESULTS:** In this study, 42.5% (238) people who required outpatient services. 21% (118) of them were able to use them. Furthermore, among the families, who needed outpatient services during the past month, 15% (38) were able to use the services for at least once. Regarding inpatient services, 62% (349) of people needed hospitalization, of which 31% (175) were able to be hospitalized. Age ( $P = 0.2$ ), gender ( $P = 0 < 0.001$ ), marital status ( $P = 0 < 0.001$ ), income status ( $P = 0.1$ ), and education ( $P = 0.21$ ) determined utilization of outpatient services; however, inpatient services utilization was affected by age ( $P = 0.03$ ), gender ( $P = 0.02$ ), marital status ( $P = 0 < 0.001$ ), and income status ( $P = 0.32$ ). The final model of multiple regression showed that, there was a relationship between age (odds ratio [OR] = 1.7, confidence interval [CI] 95% = 0.47–0.88), marital status (OR = 2.78, CI 95% = 0.64–1.2), and the use of inpatient services.

**CONCLUSION:** The utilization of health services in slum areas is not desirable. As it was showed that the utilization of health services in slums people is a multifactorial event; thus, proper planning and policy for this increasingly demand are essential.

## Keywords:

Demand, health services utilization, Kerman, slum

Department of Health Management, Economics and Policy, Kerman University of Medical Sciences, <sup>1</sup>Social Determinants of Health Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, <sup>2</sup>Health Services Management Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

## Address for correspondence:

Dr. Majid Heidarijamebozorgi, School of Management and Medical Information, Kerman University of Medical Sciences, Kerman, Iran.  
E-mail: majidheidarieco90@yahoo.com

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## Introduction

Today, slums are one of the social and cultural phenomena in the world, as lots of people, especially in developing countries, are living in this unauthorized settlements with bad economic, social, and environmental conditions.<sup>[1]</sup> UN-HABITAT has estimated the slum population of the world to reach 2 billion by 2030.<sup>[2]</sup>

Studies have shown that the phenomena of slums around large cities are much more prominent in developing countries. For

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example, of the world's 20 largest cities in 2015 that have a large population, 17 are located in developing countries, with over 20% of their urban population living in slums.<sup>[3]</sup> In Iran, as one of the developing countries, along with the expansion of urbanization in recent decades, abnormal and spontaneous settlements have rapidly grown within or around the cities.<sup>[4]</sup>

Since health is recognized as one of the main prerequisites of the social welfare system and healthy people are referred to as the pillar of sustainable development, people in addition to having a healthy lifestyle, should use health services to promote or to

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restore their health in case of illness.<sup>[5]</sup> Therefore, one of the main responsibilities of any country is to provide, to maintain, and to promote equitable and affordable health services.<sup>[6,7]</sup> Access to health services is one of the key issues contributing to development of any society including slums which, in turn, determines health services realization.<sup>[8]</sup>

More than three decades of research on social determinants of health has indicated that improving health services utilization improve the health indicators.<sup>[9]</sup> To achieve health-care equity, financial and nonfinancial barriers to access health services should be reduced.<sup>[10,11]</sup> There is considerable disparity in availability, accessibility, and affordability of health services between the rich and poor living in urban settlements in developing countries, which is a well-recognized interplay of economic, social, and political factors.<sup>[12]</sup>

Therefore, one of the prerequisites for developing interventions which address fair access to health services is identifying current state of health services utilization, which has often been neglected, especially in developing countries.<sup>[13]</sup> Meanwhile, it seems that reviewing the status of health services utilization by public in general, and by slum dwellers, in particular, is very important for addressing issues related to health services access.

Some studies have shown that the ultra-poor subpopulation within the urban poor has the least access to health care due to extreme poverty, unawareness, and social exclusion.<sup>[12,14]</sup> The determinants of poor access and utilization are likely to vary with differing local contexts both within and across countries. Identifying the specific barriers of access to health-care for a population is crucial to ensure universal health coverage.<sup>[12]</sup>

A survey conducted in poor Islamic countries such as Mali and Senegal indicated that only one physician is available per 15–20 thousand people.<sup>[3]</sup> In developed countries, inequality in access to health facilities is quite evident, especially in cities such as London, Washington. A study conducted in the United States shows that different mortality rates are largely depend on various levels of access to hospital services and facilities.<sup>[15]</sup> And so far, no studies have been published in Iran on the utilization of health services among slum residence as one of the most vulnerable populations of society. Moreover, the results of studies in other countries indicate that urban problems are prominent among slum residence and have no access to most of the social services available in cities, including health services.<sup>[11,13]</sup> Therefore, investigating the status of health-care utilization among slum dwellers and socioeconomic factors affecting it seems necessary.

By examining the status of health-care utilization among slum dwellers, we can obtain a clear picture of the demand of slum residence for health services, understand how to respond to this demand, how to allocate resources, and plan to provide health services for this group of society. Accordingly, the aim of this study was to assess the status of health-care utilization among slum dwellers of Kerman city and to identify its effective factors to determine the level of health care utilization among these groups of people and to improve the performance of health-care delivery systems in these areas.

## Methods

This descriptive-analytical study was conducted in 2019 among slum households of Kerman in south east of Iran. The statistical population of this study was all people living in slum areas of Kerman, which consisted of three areas of Chahardah Masoom district, Sanaty district, and Seyedi district, with a total population of 35,100, of which 11,499 people were living in the Sanaty district, 12,363 people in the Seyedi district and 11,238 people were living in in the Chahardah Masoom district.

A random cluster sampling method was used to obtain the required sample due to since the population heterogeneity and the geographically scattered of the subjects. For this purpose, the slum neighborhoods were first identified, then the blocks were determined in each neighborhood; and finally, the clusters were identified in blocks, and the households were randomly selected. Before completing the questionnaires, while explaining the purpose of the study to the individuals, they were assured that their information would remain completely confidential, then their consent was obtained. They were also informed that participation in the study is completely voluntarily. The sample size was calculated to be 400 people using Cochran formula<sup>[16]</sup> with 95% confidence ( $Z = 2$ ,  $\alpha = 0.05$ ) and estimation error of  $P = 0.5$  ( $d = 0.05$ ). In order to compensate for the increase in variance or decrease in the accuracy of measurement estimation, by declaring a coefficient of 1.5 as a design effect, the sample size was set to be 600 subjects. The urban health equity assessment and response tool (HEART) was used in this study. HEART is introduced by the World Health Organization to assess the health status and key determinants in urban population. This questionnaire has been reviewed by experts and its content validity was confirmed by a national expert panel in various disciplines.<sup>[17]</sup> A reminder period for outpatient services (including referral to clinics and private GP clinics) for the past 2 weeks, and for inpatient services (including referrals and hospital admissions) for the past 1 year were reviewed in this study. Self-reporting was the method of responding to

the questions in this questionnaire and about 30-min time was required to complete the questionnaire. Finally, Statistical Package for the Social Sciences (SPSS) software version 22 was used in two sections of descriptive and inferential statistics for data analysis. In the descriptive section, statistics such as mean, frequency, frequency percentage, and standard deviation were used; and in the inferential section, *t*-test, Chi-square, Mann-Whitney, and logistic regression were used.

## Results

Of the 600 households studied, 41 households were excluded from the study due to their lack of interest in answering the questions. Finally, 559 households were studied in three slums areas of the city. The three areas were almost identical in terms of population density. Demographic data of slum households by areas are presented in Table 1. As shown in Table 1, the average age of the head of households was 44 years with the age range of 17–79 years. Furthermore, the household size ranged from 1 to 9 people. The average household size was four. Among the households, 24% had a female head of household, and 83.7% had children. They were mostly married. In addition, 27% of the household were without a spouse due to the death of a spouse, divorced, or never been married. In terms of education, 25.6% of the head of households were illiterate and <5% of the people had a university degree. The majority of households (55.8%) had the income of lower than 20 million Rials (Official currency of Iran with 1 USD equals to 130,000 Rials at the time of the study) per

month, and the average length of household residency in slums was 10 years [Table 1].

Regarding inpatient services, the average age of the inpatient patients was 49 years, the average household size was three people, and the average length of living in the slum area was 9 years. 78.3% of male household heads, 49.7% persons with less than diploma education, 76% married persons, and 53.1% of insured persons received inpatient services.

The average age of outpatient users was 48 years, the average household size was 4, and the average length of living in the slum location was 13 years. 85.6% male head of households, 70% persons with less than diploma education, 77.9% married persons, and 62.7% of insured persons received outpatient services [Table 2].

In regard to outpatient services over the past month, 42.5% of the household members required outpatient services, and eventually, 21% of them were able to use outpatient services. In addition, among the families in need of outpatient services during the past month, 15% were able to use the services for at least once. The mean frequency of using outpatient services over the past month among the slum households was estimated to be 2 times. The most commonplace that these families received outpatient services were public hospital with the frequency of 37%, with the referral of a general practitioner. The main reasons for not using outpatient services in the slum areas of Kerman included; having medication at home, self-treatment, not having

**Table 1: Characteristics of study participants, slums settlements, Kerman**

Variables	Chahardah Masoom district (n=185)	Sanaty district (n=181)	Seyedy district (n=193)	Total (n=559)	P
Age of head of household, mean±SD	44±19	40±41	47±24	44±19	0.579
Household size, mean±SD	4.02±1.47	3.92±1.36	4.17±1.49	4.05±1.42	0.169
Duration of household residency in slums, mean±SD	9.26±6.77	11.16±7.83	12.16±7.62	10.87±7.51	0.001
Gender of the head of household, n (%)					
Male	156 (84.3)	136 (75.1)	152 (78.8)	428 (76)	0.09
Female	29 (15.7)	45 (24.9)	41 (21.2)	131 (24)	
Marital status of head of household, n (%)					
Married	143 (77.3)	131 (72.4)	134 (69.4)	408 (73)	0.71
Never married, or separated or divorced	42 (22.7)	50 (27.6)	59 (30.6)	151 (27)	
Education of head of household, n (%)					
Illiterate	53 (28.6)	46 (25.4)	44 (22.8)	143 (25.6)	0.5
Lower than diploma	97 (52.4)	97 (53.6)	114 (59.1)	308 (55.1)	
Diploma	24 (13)	32 (17.7)	28 (14.5)	84 (15)	
University degree	11 (5.9)	6 (3.3)	7 (3.6)	24 (4.3)	
Monthly income (US dollar) of the head of household, n (%)					
<200	123 (66.5)	93 (51.4)	96 (49.7)	312 (55.8)	0.13
≥200	62 (33.5)	88 (48.6)	97 (50.3)	247 (44.2)	
Insurance, n (%)					
Yes	44 (23.7)	107 (59.1)	87 (45.1)	238 (42.6)	0.81
No	131 (76.3)	74 (40.9)	106 (54.9)	311 (55.6)	

SD=Standard deviation

**Table 2: Health services utilization (outpatient or inpatient) according to sociodemographic characteristics, Kerman, 2019**

Variables	Inpatient health services utilization		Outpatient health services utilization	
	Yes	No	Yes	No
Age of head of household	49.11±7.52	43.29±6.21	48.28±9.27	41.27±6.34
Household size	3.26±1.72	4.96±4.36	4.26±1.77	4.78±1.71
Duration of household residency in slums	9.26±3.17	12.16±7.83	13.16±7.62	10.87±7.51
Gender of the head of household				
Male	137 (78.3)	162 (93.1)	101 (85.6)	93 (77.5)
Female	38 (21.7)	12 (6.9)	17 (14.4)	27 (22.5)
Marital status of head of household				
Married	133 (76)	103 (59.2)	92 (77.9)	73 (60.1)
Never married, or separated or divorced	42 (24)	71 (40.8)	26 (22.1)	47 (39.9)
Education of head of household				
Illiterate	40 (22.9)	46 (26.4)	17 (14.4)	29 (24.2)
Lower than diploma	87 (49.7)	97 (55.8)	79 (70)	81 (67.5)
Diploma	35 (20)	28 (16.1)	19 (16.1)	9 (7.5)
University	13 (7.4)	3 (1.7)	3 (2.5)	1 (0.8)
Monthly income (US dollar) of the head of household				
<200	81 (46.2)	153 (87.9)	91 (77.1)	78 (65)
≥200	94 (53.8)	21 (12.1)	27 (22.9)	42 (35)
Insurance				
Yes	93 (53.1)	47 (27.1)	74 (62.7)	49 (40.8)
No	82 (46.9)	127 (72.9)	44 (37.3)	71 (59.2)

money, expensive services, and resolve of the problem, respectively.

In the field of inpatient services over the past year, 62% of people covered by households needed hospitalization. Finally, 31% of these people were hospitalized. In addition, among people in need of admission to hospitals, over the past year, 27% of them required at least one inpatient visit. The average number of hospital admissions throughout the year among slum households was estimated at 1.2 times. The largest hospitalization rate was the public hospital with 47%. Mostly referred by a specialist. The main reasons explaining not using inpatient services include financial problems, and unavailability of services at the center.

In regard to the costs that the families had paid for the outpatient services 21% of them had paid the costs through the health insurance, 46% had paid the costs from their monthly income, 22% had paid the cost from family saving, 5% had to take loan, and finally 6% of them had not only taken loan but also had to sell some of their assets to cover the costs.

In regard to the costs that the families had paid for the inpatient services, 17% of them had paid the costs through health insurance, 24% had paid the costs from their monthly income, 12% had paid the cost from family saving 18% had to take loan, and finally 29% of them had not only taken loan but also had to sell some of their asset to cover the costs.

The results of regression showed that the odds ratio (OR) of using inpatient services among married people was 1.51 times more than single ones and this ratio among illiterate people was 2.34 times more than literate ones, as well as, the OR of using inpatient services among women was 1.41 times more than men. In addition, the results of regression showed that the OR of using outpatient services in married people was 1.7 times more than single ones and this ratio among illiterate people was 1.94 times more than educated ones. The OR of using outpatient services among women was 1.7 times more than men [Table 3].

The final model of multiple regression showed that there was a relationship between age, marital status, and the use of inpatient services. This means that with increasing age and change of marital status, from single to married, the utilization of inpatient services was increased, but with increasing household size, the chance of using inpatient services decreased, and this relationship was statistically significant ( $P \leq 0.05$ ). The results of multiple regression models showed a relationship between marital status and the use of outpatient services. The chance of using outpatient services among women was 1.6 more than men. In addition, the chance of using outpatient services among married people was 3.2 times more than single ones, and this relationship was statistically significant ( $P \leq 0.05$ ) [Table 4].

## Discussion

The purpose of this study was to determine the status of inpatient and outpatient health-care utilization in the

**Table 3: Univariate logistic regression analyses between the utilization of inpatient and outpatient services and demographic characteristics**

Variables	Inpatient health services utilization			Outpatient health services utilization		
	OR	P	CI	OR	P	CI
Age of head of household	1.78	0.037	1.74-2.21	1.02	0.2	1.02-2.41
Household size	1.23	0.01	0.98-2.41	2.41	0.01	1.17-2.41
Duration of household residency in slums	0.73	0.278	0.48-1.47	1.17	0.21	0.48-1.24
Gender of the head of household						
Male	1	0.024		1	0<001	
Female (reference)	1.27		1.64-2.41	1.41		0.59-1.01
Marital status of head of household						
Married	1.51	0<001	0.21-0.99	1.7	0<001	1.47-1.91
Never married, or separated or divorced (reference)	1			1		
Education of head of household						
Illiterate	2.34	0.24	0.51-1.18	1.94	0.21	0.6-3.3
Lower than diploma	3.01		0.39-1.11	4.01		0.9-2.24
Diploma	1.43		0.81-1.99	2.33		1.4-2.54
University (reference)	1			1		
Monthly income (US dollar) of the head of household						
<200	3.78	0.32	0.33-1.08	2.39	0.1	0.85-1.94
≥200 (reference)	1			1		
Insurance						
Yes	4.2	0<001	1.7-2.9	1.4	0.03	0.64-1.27
No	1			1		

OR=Odd ratio, CI=Confidence interval

**Table 4: Multivariate logistic regression analyses between the utilization of inpatient and outpatient services and demographic characteristics**

Variables	Inpatient health services utilization			Outpatient health services utilization		
	OR	P	CI	OR	P	CI
Age of head of household	1.7	0.02	0.47-0.88			
Household size	1.2	0.11	1.1-2.24	1.1	0.54	0.68-2.64
Duration of household residency in slums						
Gender of the head of household						
Male	1.4	0.54	0.37-1.21	1.6	0.01	1.02-1.84
Female	1			1		
Marital status of head of household						
Married	2.78	0<001	1.64-2.1	3.2	0<001	1.87-2.41
Never married, or separated or divorced	1			1		
Education of head of household						
Illiterate						
Lower than diploma						
Diploma						
University						
Monthly income (US dollar) of the head of household						
<200						
≥200						
Insurance						
Yes	3.27	0<054	1.99-2.54	1.74	0.061	1.54-2.09
No	1			1		

OR=Odd ratio, CI=Confidence interval

slum residents of Kerman city. A review of previous studies suggests that the utilization of health services is influenced by other factors, including the household's economic and social status. The previous related studies in Iran and other countries although have been conducted in different environments and dimensions

led to similar results. In general, some variables, including income, education, employment status, insurance, and household size, have been identified to be effective in the utilization of health services. The effect of these factors was confirmed in studied group in the present study.

In accordance with Lee *et al.*<sup>[18]</sup> in Taiwan, less than half of the people utilized outpatient and inpatient services after feeling ill. This is a while, in other studies, more than half of the people utilized outpatient services.<sup>[19,20]</sup> These conflicting results can be due to cultural differences such as believing in self-medication and the natural increase in diseases, especially among elderly people, access to health centers and more importantly, poverty among slum residents, which can be the reasons for neglecting their health needs.

In addition, among those who received outpatient and inpatient services, more than half had attended a health center at least once in the past month to receive outpatient services, which is in line with the findings of other studies.<sup>[21,22]</sup>

Furthermore, most of the visits to health centers to receive outpatient services were done through GP referral. This finding is in line with the results of Fernández-Olano *et al.*,<sup>[23]</sup> which can be explained by easy access and affordability of services in public hospitals. Meanwhile, in another study,<sup>[10]</sup> majority of the visits to health centers to receive outpatient services have been done through a specialist. This can be due to cultural differences and access to specialists.

A large number of people in this study did not go to health center despite the need to health services, which could be due to various factors such as financial issues, ignoring illness, mildness of the disease, and self-treatment. Results of a study by Sepehri *et al.*<sup>[24]</sup> In Vietnam showed that, despite high rates of insurance coverage, large number of people were still self-medicating.

Among the reasons for not using outpatient and inpatient services, financial problems were more important than other factors. This finding is consistent with the study of Khdivi *et al.*<sup>[25]</sup> in Isfahan. However, another study identified the distance from health center as the main reason for not using health services.<sup>[26]</sup>

There was no statistically significant difference in the utilization of outpatient services by age groups. In the outpatient group, the results indicated that the age of the head of household did not determine health services utilization, which is consistent with Fernández-Olano *et al.*<sup>[23]</sup> and Bähler *et al.*<sup>[22]</sup> However, in the inpatient group, increasing age of the head of household led to an increase in the likelihood of utilization of inpatient services, which could be due to the older age of the household members and their subsequent need for hospital services. Thumé *et al.*<sup>[27]</sup> and a Canadian study<sup>[28]</sup> showed that the rate of inpatient care utilization among elderlies and those with chronic illness or mobility limitation is greater than others, which is consistent

with our findings. Since, a large number of studied head of households were elderlies, planning and providing primary care to prevent diseases associated with aging, and providing more financial resources seems to be good measures that can be taken in this regard. In this study, most of the homemakers were young, and as a young age is very sensitive period for women in regard to pregnancy and fertility, primary care should be available for them. This age group also has specific health needs, which require special care for both themselves and their children.

Insurance coverage had a positive impact on the use of inpatient and outpatient services among slum residents, as it increased the access to health services. Trujillo *et al.*,<sup>[29]</sup> Harmonand Nolan,<sup>[30]</sup> and Guindon,<sup>[31]</sup> have shown that health insurance increases health services utilization and access to specialized care.

In the present study, unlike the study of Fernández-Olano *et al.*,<sup>[23]</sup> there was a statistically significant difference in the use of outpatient and inpatient services between married and single people with the married people utilized more health services. This can be explained by the family system, social support system, and paying more attention to health status, which is consistent with the results Borhaninejad *et al.*<sup>[10]</sup>

The gender of the head of household influenced health services utilization both inpatient and outpatient. The female headed-households used inpatient services less than others, which could be related to the weaker social status of these households. In addition, since inpatient services are more urgent and less replaceable than outpatient services, the female headed-households had less need for inpatient services and received more outpatient services, which indicated that households with female head were paying more attention to minor health problems and were seeking help quicker, so they needed less inpatient services, which is consistent with the results Borhaninejad *et al.*<sup>[10]</sup> Although the result of the study by Khdivi *et al.*<sup>[25]</sup> is not consistent with the present study results. Crystal *et al.*<sup>[32]</sup> in a study found that women spend more money on outpatient services than men. This difference can be due to the lower level of women's health problem or their higher sensitivity toward their health compared to their male counterparts. Saxena *et al.*<sup>[33]</sup> in a study in Gujarat, India, showed that women in well-off families with higher education living in the city used prenatal care services more than poorer women who were less likely to receive prenatal care.

Household size had a positive effect on utilization of inpatient and outpatient health services. An increase in the number of household's member increases the use of health services by the household, perhaps due

to increasing household's needs for health services, the specific health need of different members, poorer living condition and quality, and higher diseases prevalence.

This study showed that people with lower income were more likely to receive health services, and the level of income does not have any impact on the use of health services, which could be due to poorer health status of slum dwellers who are most deprived. This is while, various studies have indicated that income is one of the most important variables that affects people's health care-seeking behavior, which is inconsistent with the findings of the present study. The study of Woods *et al.*<sup>[34]</sup> in North Carolina showed that household income is one of the main factors affecting the use of health services, and reduced poverty has a direct impact on health.

There was no significant difference between receiving outpatient and inpatient services and educational level. The households with university-educated head used less health services, which could be due to higher knowledge of them and taking preventive and effective measures. Furthermore, households with university-educated head were more likely to seek health services from private health sector. This finding is consistent with the results of previous studies in Greece and Nepal.<sup>[35,36]</sup> Anand,<sup>[19]</sup> and Rossier *et al.*<sup>[37]</sup> indicated that the level of education did not have any effect on the use of outpatient and inpatient services. However, Srakar and Rupel,<sup>[38]</sup> and McRae *et al.*<sup>[39]</sup> found that people with no education or elementary education used outpatient and inpatient services more than those with a secondary or higher education.

Large percentage of studied households had been forced to loan or sell their assets to pay for expensive health services (treatment, medicine, surgery, and hospital stay). This finding is consistent with Khdivi *et al.*<sup>[25]</sup> Skordis-Worrall *et al.*<sup>[40]</sup> suggested people more often used their savings to pay for health services, which is inconsistent with the results of the present study.

Examining the status of health-care utilization among slum dwellers of Iran was determined for the first time, and this was the strength of this study. The present study had some limitations, including the lack of a complete list of variables that affect the use of services. In addition, some factors related to the use of health services, such as household's culture, have not been addressed in this study.

## Conclusion

This study, however, provides good information on the use of health services among the slum residents of Kerman. Thus, taking into account, the results of

this study, the health policymakers, by identifying the households in low-income slum regions and households with over 60 and under 5 years old members or with chronic diseases, can take necessary measures to improve the financial ability of these households to access the health-care services they need.

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## Conflicts of interest

There are no conflicts of interest.

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