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Prevalence of chronic kidney disease among cigarette and hookah users and their association, in middle-aged and elderly Iranian population, a cross-sectional study.

(Findings of Bandare-Kong cohort study)

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Background

- The progression of chronic kidney disease (CKD) remains one of the main challenges in clinical nephrology.

Our aim

- This study aimed to determine whether smoking is associated with CKD among 35-70-year-olds in Bandare-Kong city.

Methods

- A cross-sectional survey
- 3713 middle-aged and elderly adults (35–70 years old)
- Bandare-Kong Cohort

Data as part of the Prospective Epidemiological Research Studies in IrAN (PERSIAN) Cohort study.

- Sociodemographic variables and cigarette and hookah smoking information gathered through a questionnaire.
- An expert examiner measured the anthropometric indices.

Methods

- Definition of CKD based on eGFR.

$\text{eGFR} < 60 \text{ mL/min/1.73 m}^2$

- The odds ratio of smoking or hookah using for predicting CKD were estimated by multivariate logistic regression using SPSS 25 ®.

Results

- This study involved **3,713** participants.
- The mean age of the subjects was **48.2 ± 9.4** Years.
- 1614 were **men** (43.5%), and 2099 were **women** (56.5%).
- The prevalence of CKD (eGFR of < 60 ml/min/1.73 m²) equal to 9.0 %

Table 1: Frequency distribution of demographic variables of the study subjects based on chronic kidney disease status

Variable	CKD (GFR< 60 ml/min/1.73 m²)				P-value
	No (3378)		Yes (335)		
	Frequency	Percent	Frequency	Percent	
Cigarette Smoking					0.121
Yes	489	89.4	58	10.6	0.121
No	2889	91.3	277	8.7	
Hookah use					
Yes	566	88.4	74	11.6	0.014
No	2812	91.5	261	8.5	
Cigarette smoking duration (years)*	28.74 ± 11.05		29.62 ± 10.95		
Number of cigarettes smoked (pack/year) *	20.41 ± 19.49		28.92 ± 28.59		0.015
Body Mass Index (kg/m2) *	26.90 ±4.97		27.49 ±4.89		0.036
Gender					0.122
Male	1455	90.1	159	9.9	
Female	1923	91.6	176	8.4	
Age					0.003
< 50 Years	2010	92.2	171	7.8	0.003
≥ 50 Years	1368	89.3	164	10.7	

* Mean ± Standard Deviation

Variable		CKD (GFR< 60 ml/min/1.73 m²)				P-value
		No (3738)		Yes (335)		
		Frequency	Percent	Frequency	Percent	
Residential type						0.001
Urban	★	2875	90.4	307	9.6	
Rural		503	94.7	28	5.3	
Education Years						<0.001
<6	★	2248	89.2	273	10.8	
6-12		835	94.2	51	5.8	
> 12		295	96.4	11	3.6	
Occupation						<0.001
Yes	★	1534	92.6	123	7.4	
No		1844	89.7	212	10.3	
Marital Status						0.017
Single		44	89.8	5	10.2	
Married	★	3071	91.4	289	8.6	
Widowed&Divorce		263	86.5	41	13.5	
Physical Activity Score (METs/ daily)						<0.001
24 – 36.5	★	821	88.3	130	13.7	
36.6 – 44.9		2001	92.1	172	7.9	
> 45		509	94.8	28	5.2	

Table 2: The logistic regression analysis of cigarette smoking and chronic kidney disease

Variable	Crude					Adjusted				
	B	OR	95 % CI		P-value	B	OR	95 % CI		P-value
			Upper	Lower				Upper	Lower	
Cigarette smoking										
Yes	0.213	1.23	0.91	1.66	0.163	0.15	1.16	0.82	1.63	0.378
No	-	1	-	-	-	-	1	-	-	-
Gender										
Male	0.17	1.19	0.95	1.49	0.122	0.20	1.22	0.94	1.58	0.134
Female	-	1	-	-	-	-	1	-	-	-
Age	0.02	1.02	1.01	1.03	<0.001	0.02	1.02	1.01	1.03	<0.001
Body Mass Index(kg/m2)	0.02	1.02	1.01	1.04	0.036	0.03	1.03	1.01	1.05	0.009

Table 3: The logistic regression analysis of hookah uses and chronic kidney disease

Variable	Crude					Adjusted				
	B	OR	95 % CI		P-value	B	OR	95 % CI		P-value
			Upper	Lower				Upper	Lower	
Hookah use										
Yes	0.34	1.40	1.07	1.85	0.014	0.31	<u>1.36</u>	1.03	1.79	0.028
No	-	1	-	-	-	-	1	-	-	-
Gender										
Male	0.17	1.19	0.95	1.49	0.122	0.22	<u>1.25</u>	0.99	1.57	0.061
Female	-	1	-	-	-	-	1	-	-	-
Age	0.02	1.02	1.01	1.03	<0.001	0.02	<u>1.02</u>	1.01	1.03	<0.001
Body Mass Index(kg/m2)	0.02	1.02	1.01	1.04	0.036	0.03	<u>1.03</u>	1.01	1.05	0.008

Results

FR

- **Over-50-year-olds**
- **Urban dwellers**
- **People with less than 6 years of education**
- **Divorced and widowed people**
- **People without a job**

Results

- The prevalence of CKD was 10.6% and 11.6% among cigarette and hookah users, respectively.
- There were approximately equal proportions of women (8.4%) and men (9.9%) affected by CKD.
- In addition, we observed a significantly greater mean BMI in the CKD group compared with the other group.
- Individuals with CKD had a significantly higher number of packed years they smoked .

Conclusion



The study found that hookah despite cigarette smoking, was independently associated with CKD.

A longitudinal study is suggested to examine the cause-and-effect association between smoking and CKD incidence. .



Thank you for your attention

