The Prevalence of Chronic Kidney Disease Risk Factors and their Population Attributable Risks in Yazd City, Iran: A Letter-to-Editor

Sir,

Chronic kidney disease (CKD) is a progressive disease that is characterized by an irreversible renal dysfunction and consequent dialysis or kidney transplant.[1] In 1990, CKD ranked as the 27th cause of death and reached the 13th by 2010.[2] Also, CKD imposes significant burden and costs on patients and health delivery systems.[1]

The disease has a different prevalence in different regions of the world as well as in different ethnic and racial groups. In Iran, about 6.6% of adults living in urban areas suffer from CKD.[2]

Risk factors such as diabetes mellitus, hypertension, cardiovascular diseases (CVDs), smoking, obesity, aging, and family history of kidney disease are also perceived as the main risk factors for CKD.[4] In this regard, population attributed risk (PAR), as a health-related index, is known to be utilized by health policy makers to determine health priorities and promote public health. The PAR formula is presented below:

$$AF_{pop}\ or\ \%AR_{pop} = \frac{Pe(OR-1)}{1+Pe(OR-1)}$$

AF_{pop}: Population attributable fraction

$\%AR_{pop}$: Population attributable risk percent

Pe: Prevalence of exposure in population

OR: Odds ratio

Based on a population-based study in Yazd city, Iran, abnormal WHR (waist-to-hip ratio), overweight, hypertension, obesity, diabetes, history of smoking, and history of heart disease were recognized as the main risk factors for CKD, respectively.[2] The above-mentioned risk factors could be attributed to the growing number of elderly individuals and unhealthy life style among populations.

Accordingly, the risk of CKD in individuals having diabetic patients compared with non-diabetic patients was reported as 14.3% and 4.7%, respectively. Also people with hypertension had a higher chance of developing CKD compared with those without hypertension (11.8% vs. 3.3%).[2]

The prevalence of CKD risk factors and their PAR in Yazd city as well as the number of individuals who might be affected by the above-mentioned risk factors based on a population-based census conducted in 2016 (aged 20–69)[5] are presented in Table 1.

The present letter estimated the PAR of different risk factors of the CKD and thereby suggested the most important health policy priorities for CKD primary prevention at the population level in Yazd province. With respect to 6.6% prevalence of CKD in Iran, and hypothetically speaking, control of a prevalent risk factor such as hypertension might prevent 13669.64 potential CKD cases in Yazd province. This interpretation could be applied to other risk factors mentioned in Table 1. Moreover the highest PAR and number of people with CKD belonged to the hypertension risk factor. Therefore, it appears important that policymakers prioritize aforementioned risk factors and take preventive measures into consideration for better control of the CKD.

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Conflicts of interest

There are no conflicts of interest.

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Table 1: The prevalence of CKD risk factors and their population attributable risks in Yazd city					
Risk factors	Number of people	Prevalence (%)	OR (95% CI)	AF_{pop} or % AR_{pop} (%)	Estimated CKD
Abnormal WHR	287,875.45	74.5	2.26 (1.55-3.29)	48.4	12343.48
Overweight	150,699.9	39	2.02 (1.37-2.97)	28.45	7255.62
Hypertension	150,313.49	38.9	3.97 (2.3-5.27)	53.6	13669.64
Obese	115,923	30	3 (2.05-4.40)	37.5	9563.64
Diabetes	77,668.41	20.1	3.41 (2.61-4.46)	32.63	8321.64
History of smoking	39,413.82	10.2	1.28 (.86-1.93)	2.77	706.43
History of CVD/stroke	28,207.93	7.3	3.89 (2.77-5.46)	17.4	4437.53

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