



## Not to be overlooked: persistent chronic kidney disease burden in low-income groups despite global trends

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As the largest epidemiological effort to estimate the global disease burden, the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) provides up-to-date assessments of disease outcomes for more than 200 countries and territories worldwide [1]. In the following article by Deng et al. [2], the global burden and risk factors of chronic kidney disease (CKD) in adolescents and young adults (AYAs; aged 15 to 39 years) were examined from 1990 to 2019. The authors highlight that during this period, age-standardized incidence rates (ASIR) for CKD among AYAs increased significantly, while related mortality rates decreased [2].

What could explain this trend? While CKD predominantly affects older populations, it is concerning to see how AYAs are now increasingly impacted by this disease, particularly in greater increments among populations with middle to high sociodemographic indexes (SDI) [2]. Considering that diagnosis results in considerable decreases in quality of life [3], as well as deficits in educational outcomes such as academic skills, executive functioning, and

visual/verbal memory among younger populations [4], it is crucial to explore the underlying factors contributing to this shift in prevalence. According to the existing body of literature, risk factors for CKD are prevalent in populations exposed to both undernutrition and overnutrition [5]. While Deng et al. [2] emphasize that the largest increases in CKD burden were observed in high SDI groups, it should not be overlooked that limited access to healthcare and nutrition are also drivers of in the overall CKD burden, especially in low-resource settings where early detection and management are difficult (Fig. 1).

Regarding nutrition, low-income populations may also often face limited access to healthcare resources and nutrient-dense foods, which result in greater prevalence of CKDs in certain population groups [5]. In studies of Black and White Americans, we see significant disparities in CKD outcomes among Black Americans of lower socioeconomic status; predominantly because they have difficulties in accessing resources that maintain health (i.e. nutrient-dense foods, places to exercise, health insurance, proximity to healthcare centers, etc.) [6]. Management of hypertension, a key driver of rapid CKD progression, is deemed more difficult in younger Black Americans, than younger White

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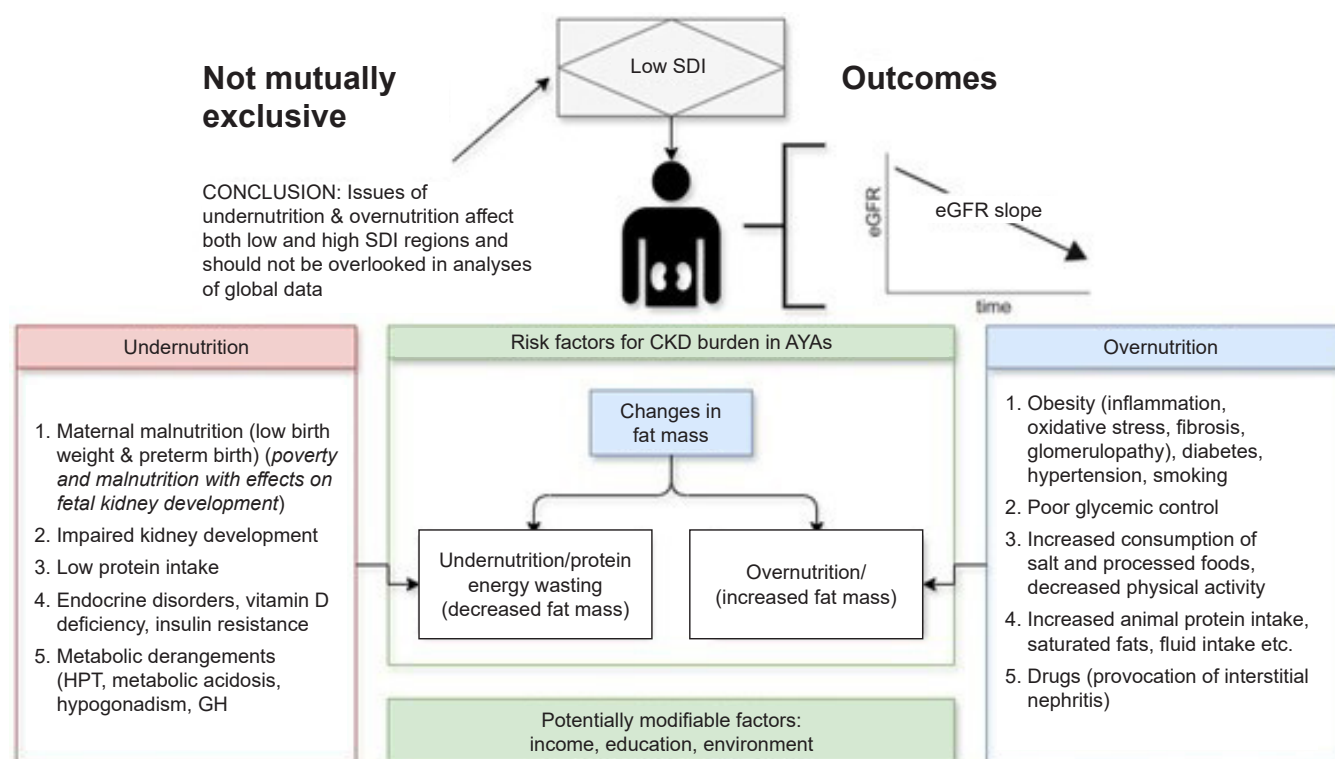
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**Figure 1. Risk factors for CKD Burden in AYAs associated with both undernutrition and overnutrition.**

AYAs, adolescents and young adults; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; GH, growth hormone; HPT, hypertension; SDI, sociodemographic index.

Americans [2], as well as the management of obesity (48% in Black vs. 33% in White Americans) [7]. This may be why, although statistically insignificant, the authors see increases in estimated annual percentage changes in age-standardized disability-adjusted life-year rate (ASDR), not only among countries with high SDI (0.52; 95% confidence interval [CI], 0.45–0.58), but also among countries with low-middle SDI (0.08; 95% CI, –0.09 to 0.26) in the GBD data.

In Figure 2 of Deng et al.'s study [2], we see that temporal trends of CKDs in the GBD are strongly driven by the low-middle income group. It is recommended that readers of this paper, while acknowledging the subtle “downward trends” in the burden of CKD in AYAs in high-middle SDI regions for ASMRs and ASDRs, are able to decipher between decreased rates of age-standardized burden due to the improvement of medical technologies for diagnoses, treatment, and prevention in general, and the continuation of significant CKD-related burden that is prevalent among countries with low- and middle-SDIs in terms of

ASIRs due to both undernutrition and overnutrition alike.

## Conflicts of interest

The authors have no conflicts of interest to declare.

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## Data sharing statement

The data presented in this study are available from the corresponding author upon reasonable request from the corresponding author.

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