Letter to the Editor

RESPONSE TO THE LETTER “MEDICATION EXPOSURE MAY CONFOUND THE ASSOCIATION BETWEEN DIETARY INTAKE AND FRAILTY”

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We appreciate the comments to our recent article in the Journal of Gerontology about the relation between dietary quality and frailty in community-dwelling older adults (1) regarding the effects of medication use on frailty and dietary intake.

We completely agree with the authors of the letter that medication may affect physical performance and frailty as well as nutrition and dietary intake, and, thus, may confound the association between dietary intake and frailty. We, therefore, considered medication as potential confounder in our analyses and found a significant correlation between number of medications and number of frailty criteria (Spearman’s $p = 0.312$, $p = .000$) but not between number of medication and the Mediterranean score, which was used to describe dietary quality in our study (Spearman’s $p = -0.103$, $p = .152$). Consequently, the number of medications was neglected for adjustment in the logistic regression model. Accordingly, additional adjustment would not change the results essentially (no adjustment for number of medication: $p$ for trend = .011; adjusted for $>3$ medications: $p$ for trend = .011; adjusted for $\geq 5$ medications: $p$ for trend = .020). In contrast, co-morbidity, which can be regarded as the cause of medication use, was identified as confounder and included in the statistical model (1).

About half of our study participants (48.1%) reported to use more than three medications per day, which was the reason for choosing this cutoff, and the proportion of participants using more than three medications significantly increased with increasing frailty status (35.7% in nonfrail, 51.9% in prefrail, and 69.0% in frail participants; $p = .005$ [1]). Using five or more medications as cutoff for polypharmacy, as suggested by the authors of the letter, resulted in a prevalence of 37.9%, which was also clearly related to frailty (22.8% of nonfrail, 46.3% of prefrail, 59.4% of frail; $p < .001$). In only 2% of the participants—one frail and three prefrail persons—hyperpolypharmacy ($\geq 10$ medicines) was found. As supported by recent analyses (2) we would agree using five or more medications as cutoff for polypharmacy in future studies in order to promote a uniform definition and improve comparability of study results.

Regarding nutrition, polypharmacy is a well-known risk factor for malnutrition, which may be explained by adverse drug effects, for example, anorexia, nausea, taste alterations, or xerostomia, causing reduced dietary intake, and there is some recent evidence underpinning this relation (3,4). In our study sample, nutritional status was rather good despite the high prevalence of polypharmacy: Mean body mass index was $27.5 \pm 4\text{kg/m}^2$, and according to the Mini-Nutritional Assessment, no participant was malnourished and only 15% were at risk of malnutrition (5). Energy intake did not significantly differ between frailty groups (median = 8.8 [range 4.4–12.6] kJ/d in nonfrail, 8.5 [4.6–14.9] kJ/d in prefrail, and 7.9 [3.4–13.7] kJ/d in frail participants; $p = .32$), and we did not find a correlation between energy intake and number of medications (Spearman’s $p = -0.113$, $p = .117$).

The effects of medication use on dietary pattern or dietary quality, which was the subject of our analyses (1), are presently largely unknown. As described earlier, we did not observe a relation between the number of medications and the adherence to a Mediterranean diet pattern.

Similarly, knowledge about the effects of different types of medicines on nutrition is presently lacking in substance (6). Unfortunately, we were not able, to consider the type of medicines in our study for time and personal reasons, but we agree that detailed examination of medication effects on dietary intake and nutritional status of older persons is clearly needed and would largely improve our understanding of these complex interrelations, which are of considerable importance for health and well-being of the older population.
REFERENCES