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Editorial commentary

What weight changes really happened during COVID-19 among older adults?

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Worldwide, the coronavirus disease 19 (COVID-19) pandemic disrupted life for individuals of all ages, but it had a particularly negative impact on older adults aged 65 and older. As a result of the illness, older adults faced a higher degree of medical complications, hospitalizations, cognitive dysfunction, and weakness. Socio-environmental factors including physical distancing, quarantines, and stay-at-home orders prevented individuals in their ability to conduct usual daily activities [1]. These all further exacerbated the development of existing and new mental health manifestations.

Yet, major restrictions and constraints in health promoting activities resulted that exacerbated health and healthcare disparities. These disproportionately affected older adults. For instance, food insecurity worsened with rates rising to 20.4%, there was a tendency for adults of all ages to consume less fresh and more processed food despite a reduced ability to eat out, home-based delivery of meals was suspended, and all senior centers and community-based activities either ceased or were transitioned to a virtual-based format [2]. Physical activity levels diminished, and in areas where physical distancing was not possible, individuals were confined to their home setting, while other enjoyable activities were markedly restricted. The ability to socialize in person was limited, itself a key predictor of long-term physical and cognitive function. In fact, many studies demonstrated marked increases in body weight among general adult populations during the pandemic itself, because of the challenges faced by adult populations during COVID-19 [3].

In this issue, Vetter et al. looked at the consequences of COVID-19 on weight change [4]. The authors used data from multiple waves of the prospective Berlin Aging Study II by evaluating weight status before, during, and after the COVID-19 lockdown. Their results are noteworthy in many respects. First, despite a mean age of 74.8 years at the pre-pandemic survey evaluation, participants had lost a slight degree of weight (−0.17% for men, and −0.04% for women). Yet, it is the loss of 0.5% and 0.87% in men and females, respectively, during the first part of the pandemic that is of interest during the first year of COVID-19. Second, there were statistically significant changes in weight in men only in their compound annual growth rate but not in women in those that altered their physical activity levels. Last, their exploratory analysis was even more striking — that this weight loss resulted from lower physical activity, affect, and premature epigenetic age, and metabolic syndrome.

The results have considerable clinical utility — weight is measured ubiquitously in clinical practice and can provide clinicians an opportunity to intervene where appropriate. Trajectories of weight change have been previously shown to be strongly associated with risk of frailty, sarcopenia, and death [5–7]. While older adults are known to be afflicted by multiple chronic conditions and are at higher risk of morbidity and mortality from COVID-19, this population also has varying degrees of resiliency. Hence, the observation of reductions in weight loss with concomitant increases in post-pandemic weight is notable as well. Not all older adults were able to cope well, suggesting a potentially higher group at risk. Importantly, identifying groups who gain/lose weight have marked implications on the role of weight cycling in this group and how future risk of disability may arise as its result.

The study does provide clinicians and researchers alike with a reason to pause. Yet, while the results are counterintuitive to what was observed in a general population, as a scientific community, we still need to think carefully as to why these findings were observed. The authors raise the issue of an obesity paradox. While this has been debated extensively [8], the trajectories of weight change differ from other cohort studies where weight continues to be gained throughout the life-course until a chronological age of 80–85 years. Thus, the demonstrated loss of weight in both sexes during the first six-months of the pandemic, is in fact, much higher than what would be expected. In addition, the rates of pre-frailty and frailty were ~60% and ~13%, respectively, suggesting a biologically older population. Whether intentionality of weight loss plays a role is also unclear. As the general population led to an increase in weight, the minimal change observed in this older adult cohort study suggests, irrespective of how the data is interpreted, that this high-risk population indeed was adversely affected by the consequences of COVID-19 due to the predictors outlined above.

While this data provides clinicians and researchers a further opportunity to delve into the causative reasons with other, real-world datasets, there are cautions in the interpretation of these findings. As with any cohort study, there may be selection bias. The limited sample size may dampen our enthusiasm for the clinical significance of these findings. The loss of weight is minimal and could very well be within statistical error. Interestingly, the exploratory analysis using epigenetic markers is suggestive of advanced biological age — that aligns well, in part, with the higher rates of pre-frailty and frailty in the cohort — potentially

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suggesting that this cohort may be at the end of the weight trajectory where loss of weight occurs. Most importantly, though, is to question whether weight should be an appropriate biomarker in an older adult population? Changes in weight (or body mass index) do not provide sufficient discriminatory ability to differentiate between fat and muscle. In individuals who often develop poor nutritional habits and lack physical activity, there is a propensity to develop sarcopenic obesity and weight may not be fully reflective of the underlying physiology [9].

The current findings provide considerable hypothesis generating questions. The baseline characteristics that predict weight loss are all those that are markedly impacted by the pandemic itself. These are attributes that should be addressed in non-COVID times as well. We believe that this type of analysis should be confirmed in other cohorts. Differentiating between self-reported and objective weight measures has always been a challenge in the design and interpretation of cohort studies and with novel measures, should society fall into another pandemic, we should have the capabilities to objectively measure this data. Additional evaluation and comparisons are needed to better understand economic-based measures such as compound annual growth rate in healthcare based, non-economic analyses. Public health strategies and well-powered studies are critically needed to ensure we address the exploratory determinants laid out by these authors.

Disclosures

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Conflicts of interests

There are no potential conflicts of interest to disclose.

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