

Unravelling the determinants of snacking and food craving

A within- and between-person exploration of snacking, food craving, movement behaviours and emotions using ecological momentary assessment

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Curriculum Vitae

Flore De Vylder (1995°) is a registered dietitian with an MSc in Sports Nutrition. She combined her passion for eating behaviour and movement sciences into a PhD at the Department of Movement and Sports Sciences at Ghent University. Alongside her PhD, she continued working as a dietitian, motivated by a desire to make a meaningful impact on her patients' lives. Many of them struggled with food cravings, inspiring her research into the complexities of eating behaviour.

"When I began my PhD journey, I was concurrently managing my practice as a dietitian, driven by a desire to make a meaningful impact on the lives of my patients. Many of them grappled with food cravings. This research is dedicated to those individuals, many of whom participated in my studies, as I sought to deepen my understanding of the complexities surrounding their challenges with food."

Background

Snacking and food craving play a crucial role in dietary behaviours and can significantly impact health outcomes. Understanding the factors that influence these behaviours is essential for developing effective interventions that promote healthier eating habits. Despite extensive research on dietary patterns, gaps remain in understanding the nuanced factors and real-life dynamics affecting snacking and food craving, particularly in older adults and in high-trait food cravers. This doctoral thesis seeks to address these gaps by investigating the determinants of snacking and food craving through multiple studies. It adopts an ecological approach, examining how daily variations in determinants influence snacking and food craving in a real-world setting.

Snacking in older adults

Existing research on snack consumption has largely focused on younger populations, leaving a gap in knowledge regarding the unique determinants of snacking in those aged 60 and above. Study 1 specifically focused on older adults and explored the role of emotions, intention, social modelling (of both healthy and unhealthy behaviour) and visibility of the food in influencing snacking behaviours in older adults. Given the ageing population, understanding these dynamics is crucial for developing targeted health interventions. In this thesis, older adults were identified as a subgroup requiring tailored snacking interventions, as they seem to differ from younger adults in key behavioural aspects. They may be less susceptible to social modelling effects, possibly due to long-established eating habits that reduce the influence of others' snacking behaviours. While food visibility affected portion size in this group, it did not seem to impact the nutritional quality of chosen snacks, indicating a distinct response to visual food cues. Emotional triggers also appeared to play a smaller role, with older adults

demonstrating greater emotional regulation and reporting lower levels of negative affect. Consequently, interventions targeting this population should prioritise habitual routines and environmental factors over social or emotional influences.

Food craving in high-trait cravers

In contrast, Studies 2, 3, and 4 focused on the general adult population rather than older adults. This broader focus was chosen to examine food craving behaviour across a wider age range, in line with the growing interest in research on multiple behaviour change. Study 2, the thesis identified high-trait food cravers as a particularly vulnerable subgroup. Then, by employing a repeated-measures design using ecological momentary assessment in Studies 3 and 4, this thesis allowed for a deeper understanding of the day-to-day fluctuations in dietary habits and provided a more dynamic perspective on how movement behaviours and emotions shape food craving both within and between individuals. Investigating these within-person dynamics is crucial for designing personalised interventions that account for individual variability in dietary behaviours. In individuals with high-trait food cravings, higher levels of moderate-to-vigorous physical activity in the hour preceding a craving were linked to a reduced likelihood of craving energy-dense foods, suggesting a potential protective effect. In contrast, increases in light physical activity were associated with a higher probability and intensity of cravings. Interestingly, increased sedentary behaviour prior to a craving was related to a lower chance of experiencing a craving and reduced craving intensity, although the type of sedentary activity may influence this relationship. However, when accounting for emotions and other eating behaviours (i.e. hunger, time since last food intake) in a network analysis, no significant associations were observed between food craving intensity and movement behaviours in the hour preceding a craving, suggesting these effects may be overshadowed by stronger psychological

influences in real-world settings. Interestingly, cravings were found to predict later behaviour, with higher craving intensity associated with increased sedentary behaviour and reduced moderate-to-vigorous physical activity later on. Moreover, specific emotions such as loneliness, satisfaction, and insecurity were identified as significant predictors of craving intensity. Yet, network analyses did not indicate any emotion acting as a mediator or confounder between movement behaviours and food cravings, though emotional states tended to cluster by valence. Taken together, these findings highlight the complexity of snacking and craving behaviour, shaped by a dynamic interplay of behavioural, social, emotional, and environmental influences.

Conclusion

While the findings of this doctoral thesis provide valuable insights, one should also acknowledge the need for further research incorporating additional determinants, such as stress. Given that these studies are among the first to examine food craving within individuals' everyday environments while considering movement behaviours, they are exploratory in nature. Future research should seek to confirm or refine these findings. Several recommendations for further investigation are provided to deepen the understanding of these complex interactions.

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