Silver senior meals; applying mealtime functionality to tailor protein-enriched meals to older consumer segments

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Introduction

Older adults represent a rapidly growing and highly heterogeneous part of the World's population (Moschis, 2003; RIVM, 2013). Moreover, older adults do not always seem to meet their recommended protein intake (Bauer et al., 2015), which can negatively impact on lean body mass (e.g. muscle mass), physical functioning, and – eventually – quality of life (Wolfe et al., 2008). Hence, tailoring PE foods and dishes to subgroups of senior consumers is essential to better meet their requirements.

Mealtime functionality (i.e. the cognitive associations with mealtimes, e.g. 'I take lunch for the nutrients' or 'I have dinner because it is cosy') might provide an actionable basis for tailoring protein-enriched (PE) products to senior consumer segments (Köster, 2003; Thomson, Crocker, & Marketo, 2010). We recently described three older consumer clusters based on mealtime functionality: *cosy socialisers* (who eat mainly for the cosiness and the social interaction), *physical nutritioners* (who eat mainly for the nutrients and the physical needs), and thoughtless averages (who do not have clear functional associations with their mealtimes) (den Uijl et al., submitted).

In the current study we explored the extent to which we can apply mealtime functionality to tailor PE dishes to two senior consumer segments; *cosy socialisers* and *physical nutritioners.* We hypothesise a better 'product-cluster' fit (i.e. a more appealing product and more satisfied consumers) when the functional associations with the tailored PE dishes are congruent with the functional mealtime expectations of the consumer clusters (Grunert & van Trijp, 2014).

Methods

We developed three typically Dutch kale dishes (in Dutch "Boerenkoolstamppot"): (1) one basic dish without PE or tailoring, (2) a PE dish tailored to the mealtime functionality of *cosy sociables*, (3) a PE dish tailored to the mealtime functionality of *physical nutritioners*. These dishes were tailored by varying recipe lay-out (both text and pictures) and adding various – protein-rich – ingredients. During a three week home-use test 91 vital community-dwelling older adults (mean age 68.1 (y) ± 5.3 (SD), 42 *cosy socialisers,* 49 *physical nutritioners*) prepared and consumed each of the three meals once. Before preparation and after consumption, the participants filled out a questionnaire on their expectations and experiences regarding the recipe and dish (e.g. functional associations with the recipe/dish, expected liking; attractiveness recipe; actual liking; appearance; taste; smell; texture; satisfaction; and extent to which expectations are met). In the third week, participants also filled out an online questionnaire about their functional associations with their dinners, to double-check their cluster membership.

The data were analysed using mixed model ANOVA procedures, including the outcome variables as depending variables and the cluster/dish as fixed factors. Participants' individual data were indicated as random factors.

Results and Discussion

From the results we observed that the functional associations with the recipes and dishes differed. Both clusters considered the 'cosy recipe' and 'cosy dish' to be more 'traditional' than the physical condition ($p<0.05$). Both groups considered the 'physical condition' to be more 'trendy' ($p<0.05$) and 'healthy' ($p<0.05$) than the cosy condition. The *physical nutritioners* additionally associated the 'physical recipe and dish' with 'energy' (trend, $p<0.09$).

Moreover, the functional mealtime associations differed between the two senior clusters. The *cosy socialisers*, associated their dinner stronger with 'cosiness' than the other cluster ($p<0.05$). In contrast, the *physical nutritioners* stronger associated their dinner with 'hunger', 'energising', 'healthiness', and 'physical needs' ($p<0.05$).

Despite these differences in dish/mealtime associations, congruency between 'functional dish associations' and 'cluster's mealtime functionality' did not result in a better 'product-cluster fit'. The cluster*dish effect did not reach statistical significance for any of the outcome variables, indicating no significant differences between the actual clusters' experience of the congruent and the non-congruent recipe's/dishes.

Future research is necessary to further explore whether – and if so, how – we could apply mealtime functionality to tailor PE meals to older consumer segments. It could be that for the *cosy socialisers* the (social) context is more actionable for tailoring PE products, since for this group the social interaction and inter-person relations seem to be more important during their mealtimes than the food that is consumed. Furthermore, it would be interesting to extend the current work to other – novel – carriers. The currently chosen kale dish is an iconic and frequently consumed Dutch dish, which could make it challenging to 'overrule' the – strong – pre-existing associations of consumers by those of the study intervention. Novel dishes might serve as a solution to this problem, since they probably do not yet have such strong pre-existing associations.

Conclusion

From this study we conclude that for older consumers, congruency between 'functional mealtime expectations' and 'functional recipe/dish associations' does not necessarily result in a better 'product-cluster fit' (i.e. a more appealing product and a more satisfied consumer) after actual consumption of their self-prepared meal.

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