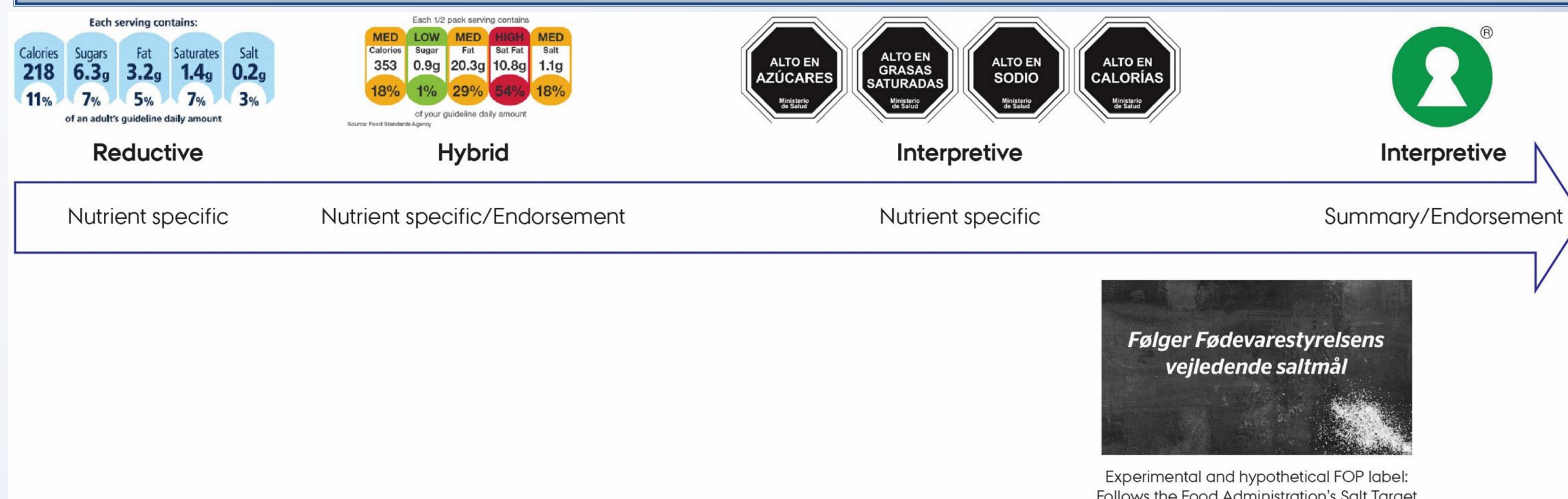


# The effect of labeling on purchase probability of salt-reduced food products and the roles of guilt, taste expectations, and sense of conflict in choice

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## Abstract

The food industry is facing calls to reduce the amount of salt in its products; it can do so by reformulating products or by differentiating them according to salt content and informing consumers accordingly. It is not clear whether producers should use FOP labels to communicate salt-content reformulations to consumers. If FOP labels add value to salt-reduced products by increasing perceptions of healthiness, food authorities can bolster their arguments for reformulation. However, if consumers react negatively and reject the products because of negative taste expectations or lack of trust, the industry should be careful about using FOP labels to communicate salt-content reformulations. The objective of this paper is to investigate whether differing versions of FOP salt-content labels increase or decrease consumers' likelihood of choosing salt-reduced products. We conducted three studies; a **choice experiment** to determine the effects of two different salt-content labels, an **in-store experiment** to investigate whether the label that was most effective in the choice experiment is similarly effective in real life, we also test whether goal priming of consumers increases the effectiveness of the label, finally, we test in a **web survey**, the effects of two different salt-content labels on choice in four product categories, to determine whether FOP labels that reference salt affect psychographic measures such as guilt, sense of conflict, and taste expectations.



Typology of reductive labels and interpretive labels. The category of interpretive labels can be further divided into two types, depending on the level of evaluating/aggregation of information. This typology places our hypothetical label in the current typology.

## Theoretical Background

- Theory on Hedonic/Utilitarian consumption** where hedonic food products are fun, enjoyable, and pleasurable; utilitarian food products are functional, practical, and plain might explain differences in choice. When consumers purchase hedonic products, they may be less willing to choose salt-reduced products if they expect diminished taste (Batra and Ahtola, 1991; Kahn, 2004).
- Justification theory** might explain consumers' higher likelihood of choosing salt-reduced products in the utilitarian category: Because hedonic (utilitarian) products tend to be perceived as relatively more discretionary, it is more difficult (easier) to justify the purchase of hedonic (utilitarian) products. Possible reasons for this justification difficulty are that (1) consumers have a sense of guilt associated with purchasing hedonic products, and (2) it is more difficult to argue for discretionary purchases in the hedonic category (Okada, 2005)
- Goal priming** is an approach that can be used to activate people's latent goals; it can lead consumers to choose products consistent with their goals. Priming consumers to activate latent goals is an effective way of making them evaluate food products in relation to health goals (Bargh, 2002)
- Decision theory** is being applied in an increasing number of publications that examine the predictors of decision-making within the food domain (Symmank et al., 2017). Within the food decision-making discipline, there is a consensus that food choices are mostly the consequence of heuristics, which only involves limited processing of the available information (Bettman et al., 1998; Cohen & Babey, 2012; Gigerenzer & Gaissmaier, 2011)

## Methodology

### Study 1

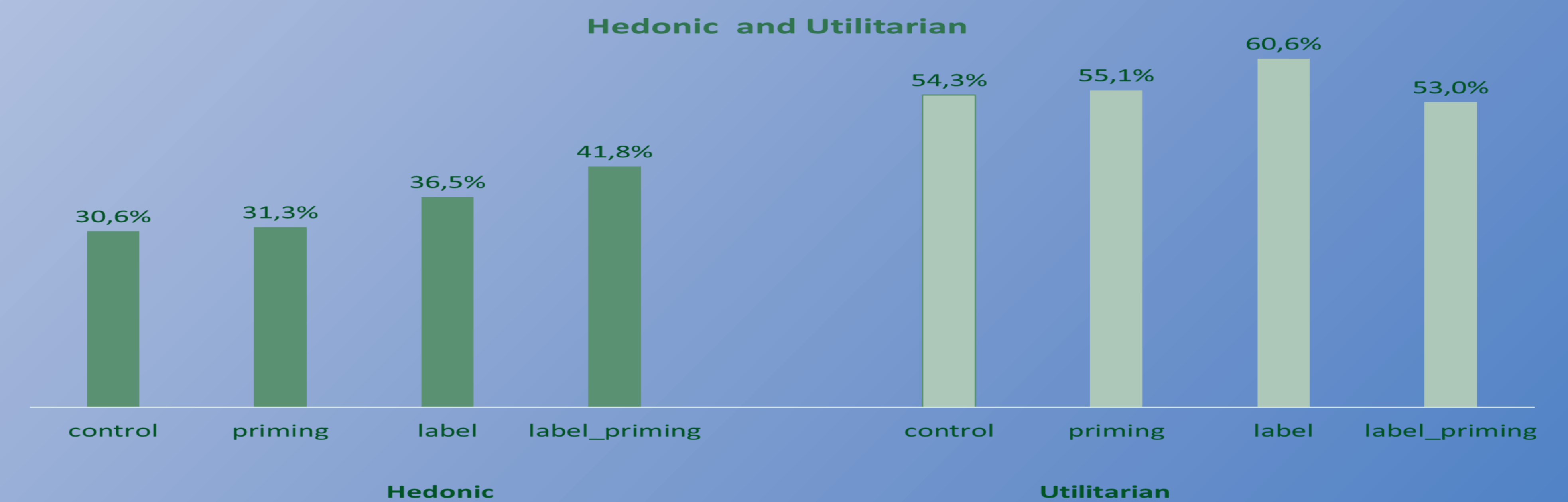
Online choice experiment conducted in Denmark (N=1030)  
Independent: Label, Socio demographics, Psycho demographics  
Dependent: Choice of salt reduced food products between two kinds of salt labels and no label  
Multinomial logit models in Latent GOLD. To reduce the complexity we estimated a three-class solution for each product category. We derived clusters by classifying respondents into one of the three latent classes.

### Study 2

In-store field experiment in Denmark (N=190)  
Independent: Label, Priming, Socio demographics, Psycho demographics  
Dependent: Choice of salt reduced food products  
Experimental design: Between subject. Control, Label, Priming and Label/Priming group  
Analyses in SPSS 24. Effect of the experimental manipulations of salt-reduced product purchases on the participants recruited for the experiment. We also examined the effect on overall sales, according to scanner data.

### Study 3

Between-subjects web choice experiment for four product categories (N=740)  
Independent: Label, Priming, Socio demographics, Psycho demographics  
Dependent: Choice of salt reduced food products, Guilt, Taste expectations  
Analyses in SPSS 24. Logistic regressions. Effect of the experimental manipulations of salt-reduced product choices and a univariate analysis of variance to test the between-subjects effects of labeling and priming on guilt, acceptance, and sense of conflict.



Study 2. We found that the purchase probability of a salt reduced product from the utilitarian category was significantly higher than from the hedonic category. The results are thus in line with the theory of hedonic and utilitarian foods. Difference between control and label\_priming in the hedonic category is significant at  $p=.05$

## Results

**Study 1** The label "Complies with the Danish Food Administration's recommendations on maximum salt content" has a positive impact on choice probability  
The label "Reduced salt content" has a negative effect on choice probability

**Study 2** "Follows the Food Administration's Recommended Salt Targets" slightly shifted some of the sales toward salt-reduced products.  
The trend was significant in the hedonic category and only when both salt content labeling and priming were present.

**Study 3** Choice probability for salt-reduced products increases significantly when there is FOP salt-content labeling on cake and cheese products. The salt-reduced label induced more guilt in respondents than the authority-endorsed label. We find no difference in taste expectations among the three manipulation groups, except for rye bread. Such increased guilt does not result in more healthy choices.

## Discussion

Across three studies, the authority-endorsed FOP salt-content label increased the purchase probability of salt-reduced products when consumers' health goals were primed. This finding is somewhat in line with that of Ikonen et al. (2019), whose meta-analysis shows that interpretive nutrient-specific FOP labels increase purchase probability for utilitarian products, but there is no type of label (warning, "traffic light," or reduction) that lowers consumers' interest in hedonic products.

Ikonen et al. (2019) find that FOP nutrition labels that highlight product healthiness result in lower taste-expectation scores. Their findings contradict the findings of our study 3, where we found no change in taste expectation, except for the case of rye bread. These three studies have shown that although we have seen that consumers do choose more salt reduced food products when they are primed and products carry a FOP salt label, it is not true for all type of products or for all type of consumers

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Read more: Mørk, Lähteenmäki and Grunert (2019). Determinants of intention to reduce salt intake and willingness to purchase salt-reduced food products: Evidence from a web survey. *Appetite* (139/110-118)