



Abstract

Dutch Consumers' Attitude toward (Ultra) Processing of Food [†]

Sylvie Huybers ^{1,*}, Dieuwerke P. Bolhuis ²  and Annet J. C. Roodenburg ¹ 

¹ Department of Food & Industry, HAS University of Applied Sciences, 5223 DE 's-Hertogenbosch, The Netherlands; a.roodenburg@has.nl

² Department of Food Quality and Design, Wageningen University & Research, 6708 PB Wageningen, The Netherlands; dieuwerke.bolhuis@wur.nl

* Correspondence: s.huybers@has.nl

[†] Presented at the 14th European Nutrition Conference FENS 2023, Belgrade, Serbia, 14–17 November 2023.

Abstract: Recently, industrial (ultra) processing of foods and its possible adverse effects on health have been widely debated in scientific literature and media. There is not much known about consumers' attitudes toward the (ultra) processing of foods. Therefore, a survey was distributed ($n = 463$) and interviews ($n = 11$) were conducted with Dutch adult consumers to evaluate consumers' attitudes and associations towards industrial food processing and to assess opinions about communications on food processing and health. The results showed that 51% of the consumers had a neutral attitude, 23% had a positive attitude, and 26% had a negative attitude towards food processing. Most respondents (75%) were not familiar with the term ultra-processed foods, especially those with a neutral attitude compared to those with a positive or negative attitude ($p < 0.001$). The survey showed that 69% of the respondents thought food processing had a (slightly) negative health effect, 17% did not know, and 9% indicated (slightly) positive health effects. Associations with industrial processing were as follows: additives, artificial, not fresh, low nutritional value, and unnatural, but also food safety, and convenience. All three attitude groups (negative, neutral, and positive) indicated both positive and negative associations. Respondents of the survey who were indicated to be (slightly) related to food/nutrition by profession ($n = 159$) more frequently had a positive attitude towards food processing ($p = 0.008$). Furthermore, many interviewees indicated that communication on food is scattered and chaotic. There is a need for clear and understandable information from a central source, especially for those with negative attitudes. In addition, 77% of the survey respondents with a negative attitude towards food processing indicated that they would like to have more information about nutrition and food (processing). In conclusion, most Dutch consumers in this study population have a neutral and nuanced attitude towards industrial food processing. Those with a background or connection with food via profession showed a more positive attitude, which may indicate a need for clear communication and education about nutrition, ingredients, and food processing.

Keywords: food processing; consumer; communication



Citation: Huybers, S.; Bolhuis, D.P.; Roodenburg, A.J.C. Dutch Consumers' Attitude toward (Ultra) Processing of Food. *Proceedings* **2023**, *91*, 69. <https://doi.org/10.3390/proceedings2023091069>

Academic Editors: Sladjana Sobajic and Philip Calder

Published: 22 November 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Author Contributions: Conceptualization, S.H., D.P.B. and A.J.C.R.; methodology, S.H., D.P.B. and A.J.C.R.; software, S.H. and D.P.B.; validation, S.H. and D.P.B.; formal analysis, S.H. and D.P.B.; investigation, S.H. and D.P.B.; resources, S.H. and D.P.B.; data curation, S.H. and D.P.B.; writing—original draft preparation, S.H. and D.P.B.; writing—review and editing, S.H., D.P.B. and A.J.C.R.; visualization, S.H. and D.P.B.; supervision, S.H. and D.P.B.; project administration, S.H. and D.P.B.; funding acquisition, S.H. and D.P.B. and A.J.C.R. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by TKI Agri & Food (LWV20.221, LWV22.150) and the Taskforce for Applied Research SIA (HBOPD.2018.05.042).

Institutional Review Board Statement: This study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of HAS University of Applied Sciences (protocol code P2022-23 and date of approval 12 April 2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets generated for this study are available on request to the corresponding author.

Conflicts of Interest: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.