



Abstract Development and Testing of a Short Scale to Estimate the Importance of Economic, Social and Environmental Sustainability of Fermented Plant-Based Foods[†]

Jean-Paul C. Garin ^{1,*}, Federico J. A. Perez-Cueto ¹ and Inês Magalhães ²

- ¹ Department of Food, Nutrition and Culinary Sciences, Umeå University, 901 87 Umeå, Sweden; armando.perez@umu.se
- ² Departamento de Geociências, Ambiente e Ordenamento do Território, University of Porto, 4099-002 Porto, Portugal; ines.filipa.magalhaes@hotmail.com
- * Correspondence: jean-paul.garin@umu.se
- ⁺ Presented at the 14th European Nutrition Conference FENS 2023, Belgrade, Serbia, 14–17 November 2023.

Abstract: Background and Objectives: The social and economic attitudinal dimensions of sustainability are difficult to estimate and are often overlooked in consumer research. To date, few scales can be used to assess in a combined manner the importance given by consumers to social, economic and environmental sustainability. In the frame of the EU-funded HealthFerm Project, a scale to estimate the relative importance of three dimensions of sustainability was necessary. Therefore, the objective was to develop and test a short scale that would englobe all the keywords that are present in the definition of sustainable development and that would assess the importance of each dimension in the eyes of consumers. Methods: A test-retest reliability study with a sample of volunteers (n = 15) who agreed to fill out the questionnaires twice. Cronbach's alpha was used to evaluate internal consistency. A paired samples *t*-test was used to evaluate the repeatability of the scale. Results: Of the 15 respondents, seven were women (46.7%); the mean age was 23.5 years (s.d.: 2.4); 66.7% lived in an urban area and 33.3% in a suburban area; 53.3% had a higher education; 46.7% of the sample described their economic situation as neither easy nor difficult. Regarding their diet, 26.7% were flexitarian, 66.7% omnivore and 6.7% pescetarian. There was no difference (paired samples t-test; p-value > 0.05) between the two time points, indicating that the scale is reliable. Furthermore, the scale showed very good internal consistency (Cronbach's alpha of 0.98). Conclusion: The short scale can be used to evaluate how important the different dimensions of sustainability of fermented plant-based foods are to consumers.

Keywords: sustainability dimensions; scale development; consumer studies; fermented foods; plantbased diet

Author Contributions: Conceptualization, F.J.A.P.-C.; methodology, All authors; software, J.-P.C.G. and I.M.; validation, J.-P.C.G. and I.M.; formal analysis, F.J.A.P.-C., J.-P.C.G. and I.M.; investigation, J.-P.C.G. and I.M.; resources, F.J.A.P.-C. data curation, J.-P.C.G., F.J.A.P.-C. and I.M.; writing—original draft preparation, F.J.A.P.-C.; writing—review and editing, F.J.A.P.-C.; supervision, F.J.A.P.-C.; project administration, F.J.A.P.-C. All authors have read and agreed to the published version of the manuscript.

Funding: Funded by the European Union under the Horizon Europe grant agreement No. 101060247 and from the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract No. 22.00210. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union nor the European Research Executive Agency (REA). Neither the European Union nor REA can be held responsible for them.

Institutional Review Board Statement: The study did not require ethical approval as it was exploratory in nature. The participants were volunteers and data was handled in anonymous manner.



Citation: Garin, J.-P.C.; Perez-Cueto, F.J.A.; Magalhães, I. Development and Testing of a Short Scale to Estimate the Importance of Economic, Social and Environmental Sustainability of Fermented Plant-Based Foods. *Proceedings* 2023, 91, 295. https://doi.org/10.3390/ proceedings2023091295

Academic Editors: Sladjana Sobajic and Philip Calder

Published: 7 February 2024



Copyright: © 2024 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/). **Informed Consent Statement:** Informed consent was obtained from all voluntary participants involved in the study.

Data Availability Statement: Data is available upon request to the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

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.