Protocol for a meta-analytical review of intervention experiments to reduce food waste

1. Title

A meta-analytical review of intervention strategies to reduce food waste.

2. Stage of Review at Completion of the Protocol

1. Reading and Rationale Writing
2. Scoping Searching and Keywords Selection
3. Study Inclusion/Exclusion Criteria Design
4. Screening
5. Data Extraction
6. Modelling and Analysis
7. Project Write-Up

3. Rationale

Food waste is an important issue facing humanity today, which is not only related to basic living but also leads to a large amount of unnecessary greenhouse gas emissions (Schanes et al., 2018). Many interventions have been studied by scholars in order to change people's food waste behaviour (Wharton et al., 2021). However, a current synthesis of the findings is lacking (Principato et al., 2021). Therefore, a meta-analysis of food waste interventions is strongly needed.

Principato, L., Mattia, G., Di Leo, A., Pratesi, C.A., 2021. The household wasteful behaviour framework: A systematic review of consumer food waste. Ind. Mark. Manag. 93, 641–649. https://doi.org/10.1016/j.indmarman.2020.07.010

Schanes, K., Dobernig, K., Gözet, B., 2018. Food waste matters - A systematic review of household food waste practices and their policy implications. J. Clean. Prod. 182, 978–991. https://doi.org/10.1016/j.jclepro.2018.02.030

Wharton, C., Vizcaino, M., Berardy, A., Opejin, A., 2021. Waste watchers: A food waste reduction intervention among households in Arizona. Resour. Conserv. Recycl. 164, 105109. https://doi.org/10.1016/j.resconrec.2020.105109

4. Research Question

Question 1: To what extent do experimental (or intervention) methods change food waste behaviour?

Question 2: Which intervention method is most effective in changing food waste behaviour?

Question 3: How other factors influence the intervention effectiveness?

Question 4: What are the limitations and future direction for food waste intervention research?

5. Sources to Search

Web of Science; PsycINFO; ScienceDirect.

6. URL Search Strategy

34 **Web of Science**

35 TS=((intervention OR experiment* OR manip* OR field trial) AND ("Food Waste") OR (

36 "Food Conservation"))

37 WoS / Resulting 997 items

38 (TS=((intervention OR experiment* OR manip* OR "field trial") AND ("Food Waste" OR
39 "Food conservation")) AND (DT==("ARTICLE") AND DT==("ARTICLE"))) AND
40 (TASCA==("ENVIRONMENTAL SCIENCES" OR "AGRICULTURAL ENGINEERING"
41 OR "ENVIRONMENTAL STUDIES" OR "MULTIDISCIPLINARY SCIENCES" OR
42 "BUSINESS" OR "PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH" OR
43 "AGRICULTURAL ECONOMICS POLICY" OR "ECONOMICS" OR "BEHAVIORAL
44 SCIENCES" OR "PSYCHOLOGY MULTIDISCIPLINARY" OR "MANAGEMENT"))

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46 **ScienceDirect** 300

47 (intervention OR experiment OR manipulate OR "field trial") AND ("Food Waste" OR "Food
48 conservation")

49

50 **PsycINFO** 73

51 (TX+intervention+OR+TX+experiment*+OR+TX+manip*+OR+TX+"field+trial")+AND+(T
52 X+"Food+Waste"+OR++TX+"Food+conservation")

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54 **7. Inclusion /Exclusion Criteria for Studies**

55 Table 1 Coding Exclusion Criteria

Condition	Decision	
Intervention study with explicit control and treatment group ?	Y-Next	No-Excluded
The control group didn't receive any other treatment prior to formal manipulation.	Y-Next	No-Excluded
Needed Statistic Coefficients* are provided, and the value is in reasonable range.	Y-Included	No-Excluded

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57 *Note: if coefficients are extracted from regression, t-statistics and sample size are needed; if
58 coefficients are extracted from ANOVA, f-statistics, treatment group size, and control group size are
59 needed; if coefficients are extracted from SMD, mean of the result, treatment group size, control
60 group size and their responding standardized deviation are needed.

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62 For pre-post test study, we decided to include these studies with an extra moderate analysis in Meta-
63 regression. This procedure will follow the former research when handling these studies.

64 If a study is directly targeting reducing food waste or its behaviour, we will code its proxy as 0; if it is
65 targeting intention or altitude, we will code its proxy as 1.

66 **8. Codebooks**

67   Table 2 Codesheet Variable Explanation

Variables	Explanation
Paper_ID	ID of the Paper in sequence
Study_ID	ID of the study in a paper
Authors	First Author's name
Title	Title of the paper
Year	Publication year
DOI	DOI
EoQ	Experiment OR Quasi Experiment (1,0)
Measure	Not Specific 0, Self-report 1, Objective,2
Interventiontype	Type of the intervention and its detail (e.g. Info-Knowledge)
Duration_intervention_days	Short: 0~7 days, Moderate: 7~30 days, Long: 30+ day
Region	Region of the subjects
large	If the number of subjects greater than 500, fill it with 1, otherwise 0
focus	If the study focuses on some specific type of food?
proxy1,0	If the study uses attitude or intention as the proxy of waste, fill the blank with 1, otherwise 0
type	Type of the method: Regression(reg), ANOVA(aov), Standardized Mean Differences(smd) or others(specify in the blank).
test	The statistic test used in study, (t, f, or others).
tstat	t statistics
mt	Mean of the Treatment group
sdt	Standardized Deviation of Treatment Group
mc	Mean of the Control group
sdc	Standardized Deviation of Control Group
nt	Numbers of the subjects in Treatment Group
nc	Numbers of the subjects in Treatment Group
fstat	f statistics
N	Total number of the subjects
directing	The direction of measured result
Study	Total study number in single research

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70   **9. Review team members**

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