

STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills		
	25	
2. Knowledge and Understanding Skills		
	25	
3. Cognitive and Intellectual Skills		
	30	
4. Practical Application Skills		
	10	
5. Transferable Skills for Life and Professional Practice		
	10	

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	Late Submission Penalties (tick if appropriate)		%
	Up to 1 week late (40% Max)		
	Over 1 week late (0%)		

University of Wales Trinity Saint David

BSc. Health, Nutrition and Lifestyle

BMSS6007 – Independent Project

Project Proposal

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The association between food production with the increased incidences of non-communicable diseases and how this rise can be reduced.

Introduction

Non-communicable diseases (NCDs) are a major health concern globally (Lago-Penas et al., 2021). Some of the leading NCDs according to Ramesh and Kosalram (2023) include various cancers, cardiovascular diseases such as strokes and heart attacks, chronic respiratory disease, and diabetes. The increase in incidences has been attributed to various factors over the years including air pollution, increased alcohol consumption, lack of physical activity (Hazazi and Chandramohan, 2017), and high levels of sodium intake (World Health Organization (WHO), 2018). WHO (2018) indicated that NCDs are responsible for killing 41 million people annually and equates to approximately 4% of deaths worldwide. They also stated that 77% of these deaths occur in low to middle-income countries. However, Islam et al. (2014) have suggested that “socioeconomic growth and fast urbanization” are contributing to the rising trend seen in non-communicable diseases. Peters et al. (2019) support this statement as their systematic overview reflected that the rise in NCDs is not only observed in lower-income countries but in high-income countries as well. Studies in recent years have been suggestive that the uptake in ultra-processed food (UPF) (Hall et al., 2019) and other food production methods such as non-organic farming may be to blame (Singh and Verma, 2021). The study by Hall et al. (2019) found a strong relationship between the intake of UPF with obesity and diabetes. They proposed that the increased access to these UPFs as the years progressed is a contributor to the upward trend of NCD incidence and prevalence.

Most foods are generally processed, but ultra-processed foods normally have 5 or more ingredients with most not being commonly found in cooking such as hydrolyzed protein, interesterified oils, and many other additives such as colorants, emulsifiers, firming, glazing, and

anticaking agents (Martinez Steele et al., 2016). The ingredients used are often to disguise undesirable qualities of the final product by improving palatability (Monteiro et al., 2016). They also have a longer shelf life and are generally cheaper and aesthetically appealing. A cohort study by Sellem et al. (2023) shows a statistical significance in the association of trisodium phosphate (E339) with coronary heart disease. Many other studies have associated UPFs with cancer (Fiolet et al., 2018), hypertension (Mendonca et al., 2017), irritable bowel syndrome (Schnabel et al., 2018), and more.

As for organically grown food, they can generally be described as food that is cultivated without exposure to chemical interventions such as pesticides, antibiotics, and growth hormones (Singh and Verma, 2017). Some researchers such as Smith-Spangler et al. (2012) indicated that there is no significant difference between organic and non-organic food. However, Baranski et al. (2017) discussed studies that reflected the superiority of organic produce in antioxidants, and polyphenols that may aid in the risk reduction of chronic disease of a neurodegenerative and cardiovascular nature. The report on pesticide residue monitoring produced by the Department of Environment, Food and Rural Affairs (2020) shows that there are still traces of pesticides being found above the set guidelines. This report has expressed uncertainty of the pesticide level on health that leaves room for question.

De Araujo et al. (2021) stated that a lot of research has been conducted on UPF and different health outcomes on an individual level and have suggested further research to be conducted on UPF and the possible association with NCD incidence, prevalence, and mortality when it comes to cancer, cardiovascular disease, and diabetes. Vineis et al. (2021) have shared the same outlook. They explained that as important as individual interventions are such as advice by general practitioners, they have shown to be insufficient due to inequality factors. This research will be focused on describing and discussing the association between ultra-processed foods and other food production methods such as non-organic farming on NCD incidence. It will also compare countries of different NCD levels considering other confounding factors. Peters et al. (2019) have voiced that it is important to understand the overlap between risk factors of NCDs as there is not enough evidence to assess their relationship strength.

The information from this study would be beneficial to the general public to obtain a better understanding of how food choices affect their health and to be able to make more informed decisions. According to Sarmiento-Santos et al. (2022) and Saulias, Corcuff and, Boonefaes (2023) there is still a gap in knowledge and understanding of ultra-processed food among consumers. This research can also be of used by policymakers. By assessing what other countries have implemented in the past, or interventions currently in place that works or does not they may be able to make more effective choices and produce more precise cost-benefit analysis. In the absence of hindsight, they may also be able to assess whether previous interventions could be designed and focused differently to achieve better results.

Aims

This review aims to discuss the impact of food production on the increasing upward trend of NCD incidences and prevalence while exploring ways in which this rise can be reduced.

Objectives

This will be carried out by completing the following:

1. Describing the association of ultra-processed and non-organic foods with NCDs.
2. Analysing and explaining statistical and qualitative data from countries with low and high NCD incidence and prevalence.
3. Making recommendations based on findings for possible interventions

Method

This research will be conducted as an ecological narrative review. A narrative review was chosen as it allows for a more in-depth understanding of a given topic (Greenhalgh et al., 2018). Whereas, an ecological approach will also allow the researcher to compare countries with low and high NCD incidence to understand what each country may be lacking or the other can adapt to aid in the reduction of the present NCD crisis. Ecological studies are generally used when

comparing data on disease and exposure at a population level rather than an individual level (Yoon, 2021).

Search strategy

Studies will be searched for using databases such as the Cochrane Library, ProQuest Central, PubMed, JStor, Google Scholar, the World Bank, Office of National Statistics, WHO along with the LWW Health Library using the following keywords and combination thereof:

“Ultra-processed food”, “Organic food OR Organic farming”, “Conventional farming”, “Preservatives OR Additives”, “Hormones”, “Antibiotics”, “Population Attributable Risk OR PAR” AND (“NCD OR Diabetes OR Cardiovascular disease OR Hypertension). Other references would be sorted if relevant from the bibliography of the selected articles.

Eligibility criteria

For the descriptive aspect of this research, studies eligible for inclusion must (1) be in English; (2) have full text available to allow proper data critique; (3) investigate any food production aspect and impact on overall health or association with NCDs (4) be peer reviewed. Studies were excluded if they are: (1)abstracts, (2)not peer reviewed. A date limit will not be placed on the search to allow a historical discussion on the development of the subject.

Study selection and data extraction

The titles and abstract of research that meets the eligibility criteria will be screened for relevance to the aim of this review. The selected articles will then be broken down into the following for analysis and discussion: the region the study was conducted in, the design used, Method of data collection, what was investigated, results, limitations, and strengths identified and recommendations made. PAR data will be separated by confounding factors and various time periods.

Data Analysis

To summarize the current issues on food production and preparation when it comes to NCDs, deductive coding will be used. The articles would be broken down into year groups, the aspect of

food production they spoke about, their stance on the issue; research design or data collection method used, study strength and study limitation if mentioned, general recommendations, and suggestion for future research.

The statistical data collected will be presented descriptively with the use of excel to produce charts, graphs, and tables for ease of interpretation. Aggarwal and Ranganathan (2019) have indicated that descriptive analysis aids in portraying the development of various factors over time which helps to generate hypotheses when it comes to the cause of disease.

Comparative analysis interpretation will also be used to scrutinize data between countries over different time periods along with the confounding factors to limit fallacy in any hypotheses that might be derived from the review. Walls et al. (2017) stated that comparative analysis helps to identify themes in health issues that may assist policy-making.

Ethical consideration

There are no ethical concerns for this research. However, the researcher intends to be objective when it comes to evaluating any previous or potential interventions from the research.

Research Timetable

Time Period	Task
➤ Nov –Dec	* Work on background and literature review - Database search to be completed - Articles filtered and coded - Begin analysis
➤ Jan- Feb	* Literature review to be completed * Search for statistical data collected * Begin results and Discussion

- **Mar**
 - * Recommendations
 - * 1st draft

- **Apr**
 - * Adjustments and final submission
 - * Preparation of presentation

Word count - 1458

References

Aggarwal, R. and Ranganathan, P. (2019) ‘Study designs: Part 2 - Descriptive studies’, *Perspect Clin Res*, 10(1), pp. 34-36.

Barański, M. et al. (2017) ‘Effects of organic food consumption on human health; the jury is still out!’, *Food Nutr Res*, 61(1).

de Araújo, T.P. et al. (2021) ‘ Ultra-Processed Food Availability and Noncommunicable Diseases: A Systematic Review’, *Int. J. Environ. Res. Public Health*, 18, 7382.

Department for Environment, Food and Rural Affairs (2020), *Report on the pesticide monitoring programme: Quarterly 3 2019*.

Available at: <https://assets.publishing.service.gov.uk/media/5e95996fe90e071a158134ee/prif-monitoring-2019-quarter3.pdf>

(Accessed: 13 October 2023).

Fiolet, T. et al. (2018) ‘Consumption of ultra-processed foods and cancer risk: Results from NutriNet-Santé prospective cohort’, *BMJ*, 360, pp. 322.

Greenhalgh, T., Thorne, S. and Malterud, K. (2018) ‘Time to challenge the spurious hierarchy of systematic over narrative reviews?’, *European journal of clinical investigation*, 48(6).

Gundala, R.R. and Singh, A. (2021) ‘What motivates consumers to buy organic foods? Results of an empirical study in the United States’, *PLoS One*, 16(9).

Hall, K.D. et al. (2019) ‘Ultra-Processed Diets Cause Excess Calorie Intake and Weight Gain: An Inpatient Randomized Controlled Trial of Ad Libitum Food Intake’, *Cell metabolism*, 30(1), pp. 67–77.

Hazazi, A.M. and Chandramohan, S. (2017) 'Strengthening the Health Care System to Address the New Challenge of Non-Communicable Diseases in the Kingdom of Saudi Arabia: A Systematic Review', *Intl. Journal of Scientific Study*, 5(7), pp. 114-120.

Islam, S.M.S. et al. (2014), 'Non Communicable Diseases (NCDs) in developing countries: A symposium report', *Glob. Health*, 10, pp. 81.

Lago - Peñas S, et al. (2021) 'The impact of socioeconomic position on non-communicable diseases: what do we know about it?', *Perspectives in Public Health*, 141(3), pp.158-176.

Martínez Steele, E. et al. (2016) 'Ultra-processed foods and added sugars in the US diet: evidence from a nationally representative cross-sectional study', *BMJ Open*, 6(3).

Mendonça, R. et al. (2017) 'Ultra-Processed Food Consumption and the Incidence of Hypertension in a Mediterranean Cohort: The Seguimiento Universidad de Navarra Project', *Am. J. Hypertens.* 30, pp. 358–366.

Monteiro, C.A. et al. (2016) 'Food classification', *World Nutr*, 7, pp. 28–38.

Peters, R. et al. (2019) 'Common risk factors for major noncommunicable disease, a systematic overview of reviews and commentary: the implied potential for targeted risk reduction', *Ther Adv Chronic Dis*, 10.

Ramesh, S. and Kosalram, K. (2023) 'The burden of non-communicable diseases: A scoping review focus on the context of India', *J Educ Health Promot*, 12:41.

Sarmiento-Santos, J. et al. (2022) 'Consumers' Understanding of Ultra-Processed Foods', *Foods (Basel, Switzerland)*, 11(9), pp. 1359.

Saulais, L., Corcuff, R. and Boonefaes, E. (2023) 'Natural and healthy? Consumers knowledge, understanding and preferences regarding naturalness and healthiness of processed foods', *International Journal of Gastronomy and Food Science*, 31.

Schnabel, L. et al. (2018) ‘Association Between Ultra-Processed Food Consumption and Functional Gastrointestinal Disorders: Results From the French NutriNet-Santé Cohort’, *Am. J. Gastroenterol*, 113, pp. 1217–1228.

Sellem, L. et al. (2023) ‘Food additive emulsifiers and risk of cardiovascular disease in the NutriNet-Santé cohort: prospective cohort study’, *BMJ (Clinical research ed.)*, 382.

Singh, A. and Verma, P. (2017) ‘Factors influencing Indian consumers’ actual buying behavior toward organic food products’, *J of Clean Prod.*, 167, pp. 473–483.

Smith-Spangler, C. et al. (2012) ‘Are organic foods safer or healthier than conventional alternatives? A systematic review’, *Annals of internal medicine*, 157(5), pp.348-366.

Vineis, P. et al. (2021) ‘Strategy for primary prevention of non-communicable diseases (NCD) and mitigation of climate change in Italy’, *J Epidemiol Community Health*. 75(9), pp. 917-924.

Walls, H. *et al.* (2017) ‘The many meanings of evidence: a comparative analysis of the forms and roles of evidence within three health policy processes in Cambodia’, *Health Res Policy Sys*, 15, pp. 95.

World Health Organization [WHO] (2023) Fact Sheet - *Noncommunicable diseases*

Available at: <https://www.who.int/en/news-room/fact-sheets/detail/noncommunicable-diseases>

(Accessed: 02 October 2023).

Yoon, U. (2021) *The Practical Guide to Clinical Research and Publication*. Academic press, pp. 69-101.