Barriers and facilitators to the use of reusable tableware within educational settings: a scoping review protocol

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Abstract

Introduction

Plastic pollution poses significant environmental, economic, and health risks, with single-use tableware and packaging constituting a third of plastic waste. To mitigate this crisis, there is a pressing need to adopt reusable tableware. However, obstacles such as cost, the prevalence of takeaway culture, and the gap between intentions and purchasing behaviors hinder their widespread use. Whilst research identifies these barriers, there is a need for more studies across diverse populations. Notably, there is limited research on the use of reusable tableware by those within educational settings. Understanding the specific barriers and facilitators for this demographic is crucial for adopting enduring and positive practices that could significantly reduce future plastic pollution.

Objective

To describe and analyse the existing literature and examine the extent to which it describes the use of reusable tableware, including the barriers and facilitators to their use, by those within educational settings.

Inclusion Criteria

Research studies published between 2004 and 2023 on the use of reusable tableware within the education setting (including: primary and secondary schools, colleges, higher education institutions such as universities) on students and / or discussions with parents / carers and school staff on their perceived thoughts on their use. Reusable tableware will include plates, bowls, trays, cups, lids and straws, cutlery, and takeout containers. There is no requirement for limiting geographical area.

Methods

The scoping review will be conducted in accordance with the Joanna-Briggs Institute (JBI) methodology for scoping reviews. The databases to be searched include APA PsycInfo (ProQuest), SCOPUS, Web of Science Core Collection, and the Education Database. Studies will be screened against and selected in line with the inclusion criteria. A data extraction tool will be created to tabularise the key data and narrative accounts from included studies, adapted from the JBI extraction tool. Data will be exported, synthesized, and presented, with a behaviour change analysis also being conducted. Ideas and recommendations for future interventions will be made, to increase the use of reusable tableware within the education setting.

Introduction

Single-use plastic tableware has become an integral part of modern society due to its convenience and low cost (Tan, Tiwari & Ramakrishna, 2021). Single-use plastics are those that are used once and then thrown away, most notably as packaging or consumables, such as disposable tableware (Chen et al, 2021). Collective catering (e.g., students at the same school or employees of the same company) is fundamental to those who are required to eat at least one meal away from home (Genovesi et al, 2022), and with this type of catering there has been a huge increase in single-use disposable plastic tableware. Here, tableware includes plates, bowls, trays, cups, bottles, lids and straws, cutlery, and takeout containers. A comprehensive review of biodegradable tableware and packaging materials, manufacturing, and ecological impact by George & George (2023) articulated that the widespread use of these disposable items has led to a significant environmental impact, which demands attention and action. There is a need to create a more circular economy; a broad concept that involves minimising waste and making the most of existing resources, by designing products from the start to be reused, repaired, and recycled into other products rather than disposed of after a single use. Only through cumulative efforts will we be able to tackle this, with individual accountability, corporate intervention, and further changes to government policies (Mittal, Mittal & Aggarwal, 2022).

In recent years, there has been a significant increase in global efforts to reduce plastic waste. On July 3, 2021, for example, the European Commission implemented a ban on single-use plastics, including plastic cutlery, plates, straws, stirrers, and polystyrene food and beverage containers (European Commission, 2018). Major companies like McDonald's, Starbucks, and Tesco have committed to reducing single-use plastics by phasing out plastic straws and decreasing plastic packaging. In April 2022, the UK introduced a plastic packaging tax, requiring businesses that manufacture or import packaging with less than 30% recycled material to pay the tax. Additionally, numerous plastic-free movements and campaigns, such as 'Plastic Free July,' have gained prominence, encouraging the public to participate in addressing plastic pollution by refusing to use single-use plastics such as cups, straws and lids, and takeaway containers, every day at home, work, school, and even in local cafés. Together these efforts are emblematic of a global / European shift towards reducing single-use plastics through regulatory, corporate, and grassroots initiatives, aiming to mitigate environmental impact and promote sustainability.

Intrinsic to these policy changes and initiatives, is the need for behaviour change (Ruepert et al, 2016; Geyer, Jambeck & Law, 2017; Cheang et al, 2019). Pro-environmental behaviours are those that cause as little harm to the environment as possible, or even benefit it (Ruepert et al, 2016) and can result in a substantial reduction in environmental problems. Environmental problems are issues that arise when the natural environment is adversely affected by human activities, natural processes, or a combination of both. These problems can lead to negative impacts on ecosystems, human health, and the overall quality of life, such as pollution and climate change. If we are to be successful in making positive environmental changes individuals will have a greater responsibility to provide and use tableware that can be reused and recycled, as well as change their attitudes towards using them. Undeniably, popularising the notion of a more conscientious approach toward the environment is also crucial (Moiseeva et al, 2021). A popular way to increase pro-environmental behaviours is by introducing behaviour change interventions that make pro-environmental social norms saliant.

The changes to policy and a greater need for pro-environmental behaviours has since led to an increase in the development of reusable alternatives. Reusable plastics, hailed as a sustainable alternative to single-use plastics, have gained traction in recent years due to growing environmental concerns. With the aim of reducing plastic waste and its detrimental impact on ecosystems, reusable plastics offer a promising solution by providing durable, long-lasting alternatives to single-use plastics for various applications, from food containers to household items. Reusable tableware is widely acknowledged as a more environmentally friendly option compared its disposable counterpart. Not only does using reusable tableware offer environmental benefits, but it also proves to be more cost-effective in terms of reducing carbon emissions (Gu et al., 2022). Thus, it is a sustainable choice which needs greater implementation across the world.

While the identified barriers and facilitators to pro-environmental behaviours per se (e.g., habit formation, attitudes, values, social influence, knowledge and education (Graves & Roelich, 2021; Grilli & Curtis, 2021; Verplanken, & Orbell, 2022; Verplanken & Whitmarsh, 2021; Nguyen et al, 2019; Sandhu et al, 2021; Severo et al, 2018)) provide valuable insights into the existing literature on reusable tableware, it's essential to exercise caution when generalising them to the specific population and specific behavioural domain of interest in this scoping review— the use and provision of reusable tableware within an educational setting. Typically, the existing literature also discuss pro-environmental behaviours as a whole, rather than specifically the use of reusable tableware. Since research directly addressing this demographic is scarce, a scoping review was deemed the best approach. We aim to uncover the primary barriers and facilitators to the adoption of reusable tableware within this group.

Once barriers and facilitators are identified, we can look to underpin which intervention types may be best suited for increasing this behaviour within the education setting.

A preliminary search of MEDLINE, the Cochrane Database of Systematic Reviews and JBI Evidence Synthesis was conducted and no current or underway systematic reviews or scoping reviews on the topic were identified.

The objective of this scoping review is to describe and analyse the quality of the existing literature and examine the extent to which it describes the use of reusable tableware, including the barriers and facilitators to their use, within educational settings. Study findings will be amalgamated and recommendations for future research may be made.

To accomplish these aims, the following review questions have been developed.

Review Questions

RQ1 - What types of reusable tableware have received attention in the literature for their use within educational settings?

RQ2 - What, if any, interventions (aimed at increasing the use of reusable tableware within educational settings) have been detailed in the literature?

RQ3 - How, if at all, have theory or theoretical frameworks been used in research into reusable tableware and their use and provision within educational settings?

RQ4 - How many research studies have reported discernible barriers and facilitators to using reusable tableware within educational settings?

Key Words: Reusable tableware, educational settings, behaviour change, scoping review

Eligibility Criteria

This proposed scoping review will be completed in accordance with the Joanna Briggs' Institute (JBI) methodology for scoping reviews, using the 'Participant, Concept, Context' (PCC) framework (Peters et al., 2020). For the full eligibility criteria table, refer to Appendix A, and see below for a narrative account of the inclusion and exclusion criteria.

Population

   Inclusion – In this review, the focal population is those within the educational setting of primary and secondary schools, colleges, and higher educational institutions, including universities. Both primary and secondary schools were chosen to be included as during an initial literature search, there was a limited number of studies on either primary age or secondary age children alone. The review will include studies discussing the barriers and facilitators to using reusable tableware by students, their parents and / or caregivers, teachers, school staff (e.g., lunch workers, cleaning staff), and the school board or trustees.

   Exclusion - Studies that look at the use of reusable tableware but focus on populations outside of the educational setting will be excluded (this includes studies conducted on the general public). In the case of a mixed population study, this paper will be included, and the relevant data will be independently extracted.

Concept

   Inclusion – Studies that engage specifically with the use of reusable tableware (dishware and utensils that are used for setting a table, serving food, and dining) within educational settings, and the barriers and/or facilitators to their implementation (i.e., use and provision). Reusable tableware mentioned can include: plates, bowls, trays, cups, lids and straws, cutlery, and takeout containers. Although the scoping review will solely be focused on reusable plastics, any studies that discuss the direct comparison of barriers and facilitators to using reusable tableware (e.g., metal/wood) vs single-use will also be included.

   Exclusion - As the focus on the review is the use of reusable tableware, any studies that solely focus on the use of single-use plastics will not be included.

Context

   Inclusion - The context of the scoping review will focus on educational settings, inclusive of state and private primary and secondary schools as typically named in the U.K, or the equivalent educational system for the specific country of research (i.e., elementary, or high school in the U.S), colleges, and higher education institutions such as universities. Studies included will be conducted between 2004 and 2023, as since this date it has become a major topic of interest and the use of plastics has grown exponentially. There is no requirement for limiting geographical area

Exclusion - Literature published prior to 2004, here considered the rise in the use of plastic and interest in plastic research. Studies conducted outwith the education setting, such as in coffee shops, will be excluded.

Types of Sources

Inclusion – This scoping review will include published peer reviewed journal articles. All study designs will be included, both qualitative and quantitative, as long as discernible barriers and facilitators can be noted.

Exclusion – Grey literature, preprints, and other resources, such as university theses / dissertations, conference papers, posters, leaflets, and blogs will be excluded. As the focus of this review is looking at the barriers and facilitators to the use of reusable tableware, the brief account of these barriers and facilitators that would be provided in these types of materials will not be sufficient for the analysis of this review, therefore the original data is needed rather than a summary.

Methodology

The proposed scoping review will be conducted in accordance with the Joanna-Briggs Institute (JBI) methodology for scoping reviews (Peters et al, 2020).

Search Strategy

The search strategy will aim to locate published studies. An initial search of SCOPUS and Web of Science was conducted in January 2024 to identify literature related to the topic and shaped the development of the PCC framework.

The PCC framework will be utilised to structure the search, particularly in establishing inclusion and exclusion criteria. Each aspect of the framework will help develop search terms, with each holding equal weight in generating relevant research.

A preliminary search of SCOPUS and APA PsycInfo was conducted using the key words 'plastic', 'reusable tableware' and 'education' to identify broadly relevant papers. Next, an analysis of the keywords in the titles and abstracts of the papers, as well as the index terms used to describe the articles, was conducted. This formed the foundation for developing the search strategy published here, incorporating all relevant search terms related to the review's population, concept, and context, along with search limiters such as date range (2004-2023)

and language (English). The search strategy was then further tailored for each database, accounting for differences in field entry labels. The databases included in the search were SCOPUS, APA PsycInfo, Web of Science Core Collection, and the Education Database (see Appendix A for full search example).

Included study language will be those published in English only, due to a lack of funding and capacity for translation within the supervisory team. Although plastic research has been around since the 1960s, this type of research became a major topic of interest for scientists in 2004 (Dris, Agarwal & Laforsch, 2020) therefore, to get the most relevant and up-to-date research, inclusive studies will be dated between 2004 and 2023.

Study/Source of Evidence selection

Following the search, all identified citations will be collated and uploaded into Rayyan (Ouzzani et al, 2016), with duplicates removed. Titles and abstracts will then be screened (100% by GE, and 10% by a second reviewer, RL) for assessment against the inclusion criteria for the scoping review, outlined above and in Appendix B.

Following this screening, the full text of selected citations will be assessed in detail against the inclusion criteria (100% by GE and 5% by RL). Reasons for exclusion of sources that do not meet the inclusion criteria at each stage will be recorded and reported in the scoping review. Any discrepancies that arise between the reviewers at each stage of the selection process will be resolved through discussion, or with an additional independent reviewer (JMcL/PF).

The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram (Tricco et al, 2018).

Data Extraction

Data from the final set of included papers will be extracted to Excel using an adaptation of the extraction tool from the JBI Manual for Evidence charting table for data extraction synthesis (Peters et al., 2020) The data extracted will include specific details about the participants, concept, context, study designs and key findings relevant to the review questions (e.g., barriers and facilitators to implementing reusable tableware in an educational setting). If appropriate, authors of papers will be contacted to request missing or additional data, where required.

A draft extraction tool can be found in Appendix C. This will be revised as necessary during the data extraction process from each included evidence source. Modifications will be detailed in the scoping review. Any disagreements that arise between the reviewers will be resolved through discussion, or with an additional reviewer/s. If appropriate, authors of papers will be contacted to request missing or additional data, where required.

Data Analysis and Presentation

Frequency analysis of study and publication details will be provided in tabular format to provide an overview of the evidence scoping the use of reusable tableware within educational settings. Each review question (RQ) will be addressed, by collating the data into a table and narratively summarising the findings. For RQ3, barriers and facilitators to using reusable tableware within educational settings will be extracted verbatim and transformed into statements that capture the core of the barrier / facilitator (e.g., actor finds it hard / easy to use reusable tableware within an educational setting because [to be established]).

Conflicts of Interest

There is no conflict of interest in this project.

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Appendices

Appendix A

Search strategy example

Search String	Search Terms
Reusable	Reusabl* OR Recycl* OR plastic OR wood OR metal
Tableware	tableware OR bottle* OR cup* OR cutlery OR utensil* OR plate* OR bowl* OR tray* OR straw*
Education	college* OR universit* OR "higher education" OR student* OR school OR education OR "school children"
Limiters	Source type: scholarly article / academic journals Document type: articles Language: English Date: since 2004

Appendix B

Scoping review eligibility criteria table

Population	
Inclusion	- Included studies will focus on those attending either primary, secondary, college, a higher education institution (i.e., university). They must be within education at the time of the study. - Studies pertaining to discussions with parents and/or caregivers, school staff and government officials (including but not limited to teachers, lunch time workers, cleaning staff, trustee members, council members, local governments) to understand their perceived barriers and facilitators to an individual's use of reusable tableware and / or how they could be implemented within the education setting.
Exclusion	- Individuals outside of the educational setting (members of the general public), as they do not meet the review needs. - Any mention of perceived barriers and / or facilitators from parents / carers or school staff but out with the education setting will be excluded. ** In the case of a mixed population study, this paper will be included, and the relevant data will be independently extracted where possible.
Concept	
Inclusion	- Focus is on the use of reusable tableware within educational settings. This can include but not be limited to: plates, bowls, trays, cups, lids and straws, cutlery, bottles, and takeout containers. - Any mention of barriers and/or facilitators to their use; interventions for their implementation / promotion
Exclusion	- Any studies that focus on single-use plastics will not be included unless they discuss the direct comparison of barriers and facilitators to using reusable tableware vs single-use.
Context	
Inclusion	- No requirement for limiting geographical area - Educational institutions, including state and private school, primary and secondary education, or the equivalent (e.g., elementary school in the US) and higher education settings (college, university).
Exclusion	- Studies conducted outside of an educational setting (including but not limited to coffee shops, cafes, bars, hotels, at home).
Types of Sources of Evidence	
Inclusion	- Published in the English language. - Inclusive studies will be dated between 2004 and 2024. - Published, peer reviewed journal articles.
Exclusion	- Those not published in the English language due to the limited resources to accurately translate the papers. - Excluding published research prior to 2004. - Other resources, such as posters, blogs, conference papers, leaflets and university dissertations / theses will be excluded.

Appendix C

Draft data extraction tool

Component	Data to be extracted
Publication details	• Study author • Study year • Journal • Aim / Objective / Research Question
Study details	• Area of research • Theories / Frameworks used • Research design • Data collection • Sample size • Recruitment Strategy
Participants	• Age range • School year: primary, secondary, college, university, or specific year of education • Role (pupil, teacher, cleaner, dinner staff, trustee)
Concept	• Type of reusable plastic used (cups, trays, plates, cutlery, straws, bottles) • The focus of each study, e.g., engagement with the reusables; perceptions / opinions of use; barriers / challenges; facilitators / benefits; effectiveness of use • Key findings (if barriers and facilitators are mentioned they will be precisely extracted) • Intervention used, if applicable
Context	• The country data collection occurred • Year of data collection
Other	• Any other findings / conclusion of the study, out with barriers and facilitators