Cocreating eating disorder education solutions: A design thinking approach to dietetics curricula in Australia

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Abstract

Background: As the prevalence of eating disorders continues to increase, there is an urgent need to equip the emerging dietetics workforce to provide care to this growing population. The present study aimed to describe a five-step design thinking process that was applied to brainstorm ideas and develop and test solutions for consideration in the future.

Methods: A pragmatic, five-step design thinking approach was used during a 1-day, in-person design thinking retreat. Purposive sampling was used to identify key stakeholders, including subject matter, learning and teaching, as well as lived experience experts, dietetics students and recent graduates. Reflexive thematic analysis was used to analyse brainstormed and design solution ideas.

Results: Seventeen participants attended the design thinking retreat in April 2023. Four education prototypes were developed and tested by stakeholders including: (1) a change to accreditation requirements for dietetics curricula; (2) a multimodal learning package for penultimate year students; (3) embedding disordered eating and eating disorder content into existing curriculum and upskilling educators; and (4) codesigning an eating disorder module.

Conclusions: The design thinking retreat engaged a variety of stakeholders in curriculum design resulting in an array of prototype approaches that aimed to embed eating disorder content into university curricula. Further research is needed to test the prototypes and understand what impact this has on dietetics students’ feelings of preparedness to provide care to people seeking this support.

KEYWORDS
cocreation, curriculum design, design thinking, dietitian, eating disorders, participatory design

Highlights

• A design thinking retreat engaged a diverse range of stakeholders, involving them in the research process to integrate eating disorder content within dietetics curricula.
• The prototypes focused on collaborating with professional bodies and people with lived experience to design and deliver eating disorder content early within the degree, and upskilling educators to feel confident to deliver this content.
• Including content at university was perceived as important for equipping dietitians with foundational knowledge and skills, as well as to support them to feel comfortable and confident to provide care for people with eating disorders.
INTRODUCTION

Eating disorders (EDs) are becoming increasingly common within society. There is a growing need to equip dietitians with the knowledge and skills required to provide quality care. These complex disorders are the most fatal of any mental health condition and carry significant financial, physical and social burden. People and families impacted by EDs often require ongoing, regular treatment from a skilled multidisciplinary team. Dietitians have an important role in the prevention, early identification and treatment of EDs, working within multidisciplinary teams. They have a diverse role in providing person-centred, evidence-based nutrition care to improve quality of life, ensure adequate intake to support overall health and wellbeing and provide nutrition education and counselling to address eating behaviours and nutrition misconceptions. However, a report by the National Eating Disorder Collaboration (NEDC) in Australia revealed 97% of the health workforce received inadequate training in EDs, leading to a lack of confidence among clinicians to provide treatment. The National Eating Disorder Strategy in Australia recognises the need for a skilled and knowledgeable workforce and focuses on developing a “coordinated system of care for eating disorders.”

A recent scoping review of ED training in tertiary education identified the National Competency Standards for Dietitians in Australia are not targeted towards specific conditions such as EDs and the inclusion of this content was at the discretion of individual dietetic programmes. Because EDs are mental illnesses, traditionally they have been perceived as a specialty area within dietetics, leading to a reduced focus on this area within tertiary education. The limited focus within tertiary education has contributed to a lack of confidence and self-efficacy among dietitians and students in this practice area. Additionally, the high prevalence of disordered eating and EDs within the dietetics profession and a lack of confidence among academics to address EDs in students may influence the inclusion of ED content within curricula. However, a recent participatory design study by Bennett et al. found including disordered eating, ED and body image content in curriculum was positively received by nutrition students. Whereas academics had difficulty identifying potentially triggering content within the existing curriculum and expressed low confidence to address EDs in students. There is a need to identify solutions to integrate this content within curricula to support the needs of dietetic students and educators.

There has been disagreement regarding how and when dietitians should be involved in ED treatment. A Delphi study by McMaster et al. found that ED specialists are less likely to advocate for dietetic involvement from commencement of treatment compared to consumers and carers. There is limited evidence defining the role of dietitians within ED treatment, leading to confusion regarding their scope of practice within multidisciplinary teams. Embedding ED content within dietetics programmes at universities will purportedly provide graduates with clarity regarding their scope of practice and equip them with the knowledge and skills they need to respond to people experiencing EDs safely and effectively.

Curriculum design is a complex process and educators are often challenged to design curriculum that (1) meets accreditation and competency standards; (2) caters to the learning needs and preferences of students; and (3) ensures graduates can deliver intended outcomes needed to support people they care for. Finding the balance between delivering learning activities that comprehensively cover a wide variety of health conditions and adequately prepare students with the interpersonal skills to address them in practice is a continual improvement process. Ross et al. used a design-based approach to enhance dietetics students confidence prior to professional placement and found it was an effective framework for redesigning curricula through iterative processes.

Participatory design (PD) is a human-centred approach to research that involves participants in a cooperative design, implementation and/or evaluation process. PD approaches engage those affected by a given problem at the grass-roots level and aim to ensure that solutions are generated by people with lived experience of the problem who are empowered to suggest change. These collaborative approaches to research have the potential to increase participants’ engagement, retention and overall satisfaction. A range of PD tools exist including (but not limited to) codesign, Living Lab and design thinking. Design thinking is one PD approach that deliberatively engages a variety of stakeholders from a range of backgrounds to think outside the box. Design thinking has been used in curriculum design to develop courses and redesign medical professional development. Although these studies offer unique insights into the design thinking methodology, the approaches used to engage participants in empathy building and person-centred design are likely to influence the inclusion of ED content within curricula.
training of health professionals. The review found design thinking was beneficial for including multiple stakeholders and interdisciplinary collaboration, and was a useful tool for developing and refining health professional curricula and educational programmes. Treatment for EDs often involves a variety of stakeholders such as consumers, carers, clinicians and the wider multidisciplinary team. A design thinking approach encourages the participation of a diverse range of stakeholders to contribute to the design of educational programmes targeted towards dietetics students. Given the stigma and misconceptions associated with EDs, human-centred, collaborative approaches are needed. Design thinking helps to place the needs of people living with EDs at the heart of curriculum design. The current study aimed to detail the process and included the following stages: (1) empathise; (2) define; (3) ideate; (4) prototype; and (5) test. The study followed this process and included activities that have previously been mentioned by Willmott et al. Ethical approval was obtained from the Griffith University Research Ethics Committee (ref: 2022/408). Results are reported in line with the Consolidated criteria for reporting qualitative research (COREQ) checklist.

METHODS

This project used a pragmatic, PD approach during a 1-day, in-person retreat. The design thinking approach was based on the Stanford d.school five-stage design thinking process and included the following stages: (1) empathise; (2) define; (3) ideate; (4) prototype; and (5) test. The study followed this process and included activities that have previously been mentioned by Willmott et al. Ethical approval was obtained from the Griffith University Research Ethics Committee (ref: 2022/408). Results are reported in line with the Consolidated criteria for reporting qualitative research (COREQ) checklist.

Recruitment

Potential participants with relevant knowledge, skills and expertise were identified from the research team's networks using purposive sampling. Eligible design thinking participants were: ≥ 18 years and identified as one of the following: (i) lived experience expert; (ii) ED dietitians – who self-identified as specialised or regularly providing care for people living with an ED; (iii) learning and teaching expert; and (iv) dietetics student and/or recent graduate dietitian (within the last 12 months). As a result of the retreat being in person, participation was limited to those within the local area.

Prospective participants were invited directly by the research team via email to attend the design thinking retreat. An information sheet and a link to an online expression of interest and consent form that collected basic demographic data to assess eligibility for the study were included in the email. The invitation was extended to colleagues of participants who were identified as potentially interested in the research topic. Overall, the research team aimed for a maximum of 25 participants for the optimal number of small groups and to ensure there was ample time for all participants to contribute and their views captured. Food and beverages were available to participants during the retreat, and an incentive of AUD $100 eGift voucher was offered for participation in the retreat.

Reflexivity

Three of the investigators were present at the retreat, two as cofacilitators (AH and SRT) and one as a participant (LJM). At the beginning of the retreat, the research team identified themselves and briefly described their experience, the reason for the research and their roles during the retreat. The research team all identify as female. Three are dietitians, and the lead investigator (AH) graduated from the dietetics programme that this research is based on and is a doctoral candidate exploring the role of dietitians in the treatment of EDs. AH used the lens of a researcher, cofacilitating the design thinking process with SRT. LJM and LB both have extensive experience in curriculum design as dietetics educators and researchers. SRT is a social marketing researcher, educator, and behavioural change practitioner with extensive experience in utilising PD approaches including design thinking, codesign and workshop facilitation. Both AH and SRT restricted their input to facilitation of the retreat and therefore they were not involved in content generation at the retreat.

Design thinking process

The retreat was held in April 2023 at a university in Gold Coast, Queensland, Australia, where participants were asked to work in small groups to complete a sequence of design thinking activities (Figure 1). Participants were allocated to sit at a specific table to ensure each group included a variety of perspectives. It was acknowledged that some power imbalances may exist as a result of heterogeneity in the life and career experiences of participants, and this was taken into consideration when allocating the table groups and throughout each step of the design thinking process. For example, dietetic educators were not placed with students and all activities provided an opportunity for individual responses before inviting group input to ensure each person had the opportunity to share their perspective. Throughout the retreat, data were obtained from worksheets, design thinking activities and videos, which all participants verbally consented to. Following the design thinking approach reported in Willmott et al., Figure 1 details the five stages of the design thinking process and activities participants engaged in throughout the retreat, with photographic examples.
Empathise

The *empathise* stage of the design thinking process focused on familiarising participants with the people they were designing for, understanding their unique needs, what they value and what is important to them. At the beginning of the retreat, participants heard from a variety of speakers.

The first speaker at the retreat was an experienced ED dietitian who shared their industry perspective regarding contemporary experiences providing dietetic care for people living with EDs and opportunities for dietitians to increase knowledge and confidence to work in this area. This speaker provided ED context to design workshop participants who do not have an ED background (e.g., graphic designer, educational designer, public health and dietetics students). Next, a dietetics educator shared their university perspective of what is currently offered in one dietetics programme and the results of an online survey exploring current dietetics students' and recent graduates' learning needs regarding EDs from one university. The online survey revealed students and recent graduates felt unprepared to provide care to people experiencing EDs and wanted more content included throughout their degree. Students wanted to learn more about the psychology behind EDs, aetiology, communication and counselling skills and evidence-based nutrition interventions to treat EDs. The results were shared with design thinking participants to ensure the student and recent graduate voice was included in the design thinking process. Further results and details of the survey have been published elsewhere.

To facilitate empathy building, participants were next asked to complete an empathy map (Figure 1) at the same time as listening to recreated audio recordings of consumers’ and carers’ lived experiences of dietetic care collected from depth interviews completed in a previous study. The empathy map is an observational technique that included four prompts asking each participant to record what people with lived/living experience of EDs “said, did, thought and felt.”

Define

The *define* stage helped participants to focus and gain clarity by making sense of the information obtained during the empathise stage. The aim of the define stage is for participants to develop an actionable problem statement, also known as a point of view statement.

These statements were used to frame participants’ insights of who they were designing for, considering their needs and outlining why their needs are important. Following this, participants completed the “five whys”
activity. Using the point of view statements, participants asked why, five consecutive times to identify the root cause of the problem they were trying to address. This helps to ensure solutions generated through the design thinking process target the root cause rather than a “symptom” of the problem. Next, “how might we” questions were used to explore potential solutions (Figure 1). Each member was asked to draft up to five “how might we” questions to prepare for the ideate stage.

**Ideate**

The ideate stage is focused on generating many broad and unique ideas, rather than identifying one “best” solution. During this phase, creativity and possibilities are prioritised over what might be feasible. Using their solution. During this phase, creativity and possibilities help to ensure solutions generated through the design thinking process are the iterative part of the design thinking process are also provided.

**Prototype and test**

Prototyping allows participants to use creative thinking and problem-solving skills to develop their solution, test it quickly and fail cheaply. The prototype and test stages of design thinking are the iterative part of the design thinking process. As a result of time constraints, participants completed one iterative cycle: prototype, test (initial pitch), prototype refinement and test (pitch and invest). During this stage, participants were challenged to develop an ED education prototype for dietetics students. After the initial prototyping session, groups were allocated 2 min to pitch their prototype to another group to obtain feedback via a feedback grid that included “likes, criticisms, questions and ideas” quadrants to organise and guide feedback. During prototype refinement, participants used the feedback they had received to further refine their prototypes. During the final session of the retreat, participants engaged in the “pitch and invest” activity. All individual participants received fictitious money they could “invest” in the prototypes they would like to see tested with a cohort of dietetics students (see pitch and invest photograph in Figure 1).

**Data collection and analysis**

Qualitative data were obtained from all activities completed by participants throughout the retreat including worksheets, notes, brainstorming solutions, prototyping, pitches and audio and video recordings. Video recordings (range: 2–11 min) were taken during the initial and final pitch presentations delivered by design teams during the design thinking retreat. Transcribed pitches, which provide a rich and detailed description of prototype ideas, were transcribed verbatim using otter.ai. Transcripts were updated as required for accuracy. All data were entered into Excel, Version 2310 (03.10.2023) (Microsoft Corp.) for analysis. Data were analysed using reflexive thematic analysis. The voices of all participants, from all groups were given equal consideration throughout analysis. The lead investigator maintained a reflective journal to enhance the trustworthiness of the findings. Line by line coding was conducted by the lead author in Excel until no further codes were identified. Through an iterative process, the research team condensed and refined the codes, developed categories and preliminary themes were produced through discussion. The final themes were produced in collaboration with all research team members to enhance reflexivity and trustworthiness and have been published elsewhere. The final results reported below focus on the outcomes of the design thinking process. The categorised brainstorming data and four tested prototype solutions that were generated by participants at the retreat are described. Details of the ideas participants produced at each stage of the design thinking process are also provided.

**RESULTS**

Prior to the design thinking retreat, 21 expressions of interest were received. Although all of those interested were invited to attend, two potential participants withdrew prior to the retreat for personal reasons. A further two were unable to attend on the day. Seventeen people attended the 1-day design thinking retreat. Participants included ED dietitians (n = 5), dietetics students and recent graduates (n = 4), learning and education experts (n = 4), a graphic designer with 3 years experience delivering design for behaviour change projects (n = 1), a high school teacher and public health graduate (n = 1), a dietetics educator (n = 1), and a lived experience advocate (n = 1). Participants brought a diverse range of skills and experience, with most having some level of dietetics knowledge, education, design and/or clinical experience. There were varying levels of experience with EDs, with some participants having very limited knowledge prior to the retreat.
Perceived needs and problem identification

Participants spent the morning session building empathy for the people they were designing solutions for. After completing empathy maps at the same time as listening to audio recordings of lived experiences of seeking dietetic care for EDs, participants were asked to complete point of view statements (Figure 1). The following perceived needs were identified by participants during the ideate stage of design thinking and have been summarised by the authors from worksheets completed at the retreat. Participants identified the needs of five groups including people with lived living experience of EDs, carers, dietetics students, dietitians, and dietetics educators. The perceived needs identified for those with lived experience of EDs included access to trained dietitians who made them feel “heard and validated”. Empathy, patience, accountability, and a non-judgmental approach were perceived as important by participants to support people in their recovery journey. Similarly, carers' perceived needs included support, patience, and validation. Being included in care and receiving practical advice and guidance from dietitians were also highlighted. There was an emphasis on the need for dietitians to work collaboratively with other health professionals, consumers, families, and support people to provide empathetic and client-centred care. Participants felt dietitians needed ongoing training and resources for communicating and supporting clients throughout recovery. Interestingly, educators were included as a group who needed more knowledge regarding disordered eating and EDs to be able to incorporate this content throughout dietetics curricula and to openly discuss EDs to reduce stigma.

Generating solutions

During the ideate stage, groups generated 153 potential solutions. These have been categorised and summarised in Table 1 to demonstrate the breadth of ideas identified by participants during the brainstorming session. Solutions regarding specific ED content and how to embed this in coursework were the most common, followed by redesigning and realigning curriculum to reflect conditions prevalent within the community. Some potential solutions currently do exist such as a workshop for dietitians hosted by professional bodies, assigning an ED advocate role within professional bodies, a referral pathway for multidisciplinary and ED specialists, online modules, and a dietitian toolkit for EDs. It was acknowledged that some solutions are needed beyond dietetics curricula to ensure needs of the existing workforce are considered along with systemic issues requiring consideration to better meet the needs of people with EDs.

Designing and refining prototypes

During prototyping, groups used storyboards, written outlines and role play to pitch their solutions to other groups and obtain feedback. Participants were often challenged by the 2-min time limit to present their ideas; however, this did allow for more time to seek further feedback from other groups. The feedback offered throughout this stage included broadening the focus of education solutions to include disordered eating behaviours in addition to EDs, considering the impact this change may have on educators, and how to include content within all dietetics programmes offered by Australian universities.

Testing education prototypes

During the final prototype stage of the retreat, participants identified and tested four ED education prototypes. Table 2 provides an overview of each prototype, listed in order from receiving the highest investment to lowest investment during the pitch and invest activity. Participants invested the most in the change to accreditation prototype because they felt it was important that ED content was included in all dietetics programmes in Australia. The next prototype was a learning package solution that could be integrated into the existing curricular for penultimate year dietetics students. The final two prototypes received the same fictional investment. One encourages the inclusion of content related to disordered eating and EDs from first year, whereas the other targets content towards final year students using a consumer and multidisciplinary codeigned ED module.

DISCUSSION

The present study provides a detailed account of a design thinking approach to dietetics curricula in Australia. The 1-day retreat was an efficient and effective way to engage a diverse range of stakeholders in curriculum design. The design thinking process supported participants to feel empowered to work collaboratively to design person-centred solutions that aimed to enhance dietetics students’ confidence and competence to provide care for EDs. It was evident that most participants were passionate about including disordered eating and EDs within curricula, seeking a national change to accreditation and competency standards.

Accreditation standards are designed to ensure dietetic programmes adequately prepare graduates with the knowledge and skills they require to competently provide nutrition care for a wide variety of health conditions. National Competency Standards for Dietitians in Australia include demonstrable and measurable
TABLE 1  A summary of the potential solutions generated by participants as part of the brainstorming session during the ideate stage of design thinking.

<table>
<thead>
<tr>
<th>Potential solution category</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED content ideas and how to integrate them in coursework</td>
<td>(n = 40)</td>
<td>Types of EDs, aetiology, prevalence, high-risk populations, co-occurring conditions, signs and symptoms</td>
</tr>
<tr>
<td>Redesigning and realigning curriculum to include ED content</td>
<td>(n = 22)</td>
<td>Revising dietetics degree/programmes to ensure topics covered align with prevalence of conditions in the community</td>
</tr>
<tr>
<td>Developing effective communication and counselling skills</td>
<td>(n = 15)</td>
<td>• How to engage in conversations with people experiencing EDs • Building rapport and trust with clients • Maintaining professional boundaries • Understanding different behaviour change models for EDs</td>
</tr>
<tr>
<td>Increase interprofessional collaboration</td>
<td>(n = 11)</td>
<td>Increased interprofessional focus for curriculum design and learning experiences</td>
</tr>
<tr>
<td>Connecting with industry experts to understand the role of dietitians</td>
<td>(n = 9)</td>
<td>• Workshops from experts in the field • Q&amp;A sessions with students</td>
</tr>
<tr>
<td>Increased exposure to EDs through placement experiences</td>
<td>(n = 9)</td>
<td>Targeted placement opportunities to consolidate learning and obtain experience</td>
</tr>
<tr>
<td>Increasing empathy and understanding by learning from lived experience</td>
<td>(n = 6)</td>
<td>Listening to a lived experience expert to understand what helped them in their recovery journey</td>
</tr>
<tr>
<td>Collaborating with Dietitians Australia for change</td>
<td>(n = 6)</td>
<td>Liaising with Dietitians Australia (professional body), to instigate change within professional development and competency standards</td>
</tr>
<tr>
<td>Designing a learning module for dietetics students</td>
<td>(n = 6)</td>
<td>Various modules including online, eating behaviour focus, and bridging courses</td>
</tr>
<tr>
<td>Upskilling academics to confidently deliver disordered eating and ED content</td>
<td>(n = 5)</td>
<td>Increase the learning opportunities for academics to enhance disordered eating and ED knowledge</td>
</tr>
<tr>
<td>Introducing ED content early within the curriculum</td>
<td>(n = 5)</td>
<td>Including disordered eating and ED content within the first year of degree</td>
</tr>
<tr>
<td>Reducing stigma by engaging in open conversations</td>
<td>(n = 5)</td>
<td>Creating a safe space for students to discuss their personal experiences</td>
</tr>
<tr>
<td>Accessible ED resources</td>
<td>(n = 5)</td>
<td>Consolidating educational resources for students, new graduates and faculty members</td>
</tr>
<tr>
<td>Changing perceptions of EDs within dietetics</td>
<td>(n = 3)</td>
<td>Attitudinal change from a specialist area to ‘core business’</td>
</tr>
</tbody>
</table>

Abbreviation: ED, eating disorders.

Skills and knowledge used to ensure competent practice among dietitians. These standards do not relate to individual health conditions such as EDs. Rather, they are purposely broad to be inclusive of the knowledge, skills and behaviours all dietitians require to provide nutrition care for a range of health conditions in a variety of treatment settings. Nevertheless, knowledge and skills directly relevant to ED care are present in elements 1.2, 2.2, 4.2 and 4.3 of the National Competency Standards. It is acknowledged that many participants may have a limited understanding of the accreditation and competency standards for the dietetics profession. It would have been ideal to have more than one dietetic educator present at the retreat who understands the competencies and current education requirements of dietitians. However, the strong desire for a national change to accreditation demonstrates the perceived importance of including this content within all tertiary programmes in Australia. Although graduates are not expected to autonomously manage complex health conditions, the National Eating Disorder Strategy in Australia and clinical training and practice standards support all dietitians having a role in the prevention, early identification and appropriate referral of EDs. This reinforces the need to integrate ED-related content within dietetics curricula.

The inclusion of diverse participants are a core feature of design thinking and supported rich learning and discussion throughout the retreat, resulting in a broad range of solutions being generated. Audio-recordings of people’s lived experiences gave participants insight into aspects of care they found helpful and challenging throughout ED recovery. Dietitians working in the ED field shared the knowledge and skills perceived as important for enhancing dietetics students’ confidence and competence in ED care. Participants outside the field of dietetics provided unique perspectives and ensured the education prototypes reflected multiple stakeholder perspectives. Skywark et al. found it beneficial to include a variety of stakeholders when designing an interdisciplinary course for graduate students. They recommend the inclusion of interdisciplinary professionals whenever possible to enhance collaboration across institutions and avoid creating silos. Because ED care
<table>
<thead>
<tr>
<th>Prototype objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Change to accreditation for dietetics curricula</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aim</strong></td>
<td>To instigate a change to university accreditation requiring ED content be included in all dietetics programmes</td>
</tr>
<tr>
<td><strong>Proposal</strong></td>
<td>Collaborate with Dietitians Australia (professional body), present evidence re: prevalence of EDs, and include ED education as core content in dietetic curriculum</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td>Capable, confident dietitians and enhanced outcomes for consumers</td>
</tr>
<tr>
<td><strong>Long-term goal</strong></td>
<td>Increased rates of prevention, early detection, and recovery rates</td>
</tr>
<tr>
<td><strong>2. A multimodal learning package for penultimate year dietetics students</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aim</strong></td>
<td>To support dietitians to feel confident and competent in providing care for people with disordered eating and EDs</td>
</tr>
<tr>
<td><strong>Proposal</strong></td>
<td>To develop and implement a pilot learning package for penultimate year dietetics students to enhance the existing curriculum in communications and counselling course, targeted to ED care</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Online module: reading content, videos including ED dietitians, lived experience, discussion board</td>
</tr>
<tr>
<td><strong>Next steps</strong></td>
<td>Workshop: role plays/simulation, yarning circle, safe space, relationship with food, assessment</td>
</tr>
<tr>
<td><strong>Next steps</strong></td>
<td>Evaluate, disseminate, scaffold within degree, roll out to other universities</td>
</tr>
<tr>
<td><strong>3. Embed disordered eating and ED into curriculum and upskill lecturers</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pitch</strong></td>
<td>Dietitians are expected to be experts in eating behaviours. Because disordered eating is so prevalent in our population, why is this not currently core business and embedded in the dietetics curriculum?</td>
</tr>
<tr>
<td><strong>Student perspective</strong></td>
<td>ED content is not currently included within the degree</td>
</tr>
<tr>
<td><strong>Clinical perspective</strong></td>
<td>There are not currently enough dietitians who feel confident working in the ED arena to provide care to the growing number of people with EDs. Increased confidence requires (1) Clinical knowledge, (2) Resources/tools and (3) Support to integrate these into clinical practice.</td>
</tr>
<tr>
<td><strong>Educator perspective</strong></td>
<td>Embedding foundational knowledge and skills within the curriculum to develop confident, career-ready graduates</td>
</tr>
<tr>
<td><strong>Proposal</strong></td>
<td>Introduce the disordered eating continuum into existing curriculum, upskill lecturers and encourage to embed disordered eating/ED content from year 1. Have an additional module as an optional extra UNTIL it can be fitted into curriculum.</td>
</tr>
<tr>
<td><strong>Long-term goal</strong></td>
<td>Working with Dietitians Australia for a curriculum change and use DE/ED prevalence data to support need for change</td>
</tr>
<tr>
<td><strong>4. Consumer and multidisciplinary codesigned ED module for penultimate year dietetics students</strong></td>
<td></td>
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<tr>
<td><strong>Prerequisite</strong></td>
<td>Communication skills</td>
</tr>
<tr>
<td><strong>Learning objectives</strong></td>
<td>Anatomy and physiology</td>
</tr>
<tr>
<td><strong>Learning objectives</strong></td>
<td>Baseline clinical knowledge for EDs</td>
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<tr>
<td><strong>Learning objectives</strong></td>
<td>To build empathy and understanding using ED case study</td>
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<tr>
<td><strong>Learning objectives</strong></td>
<td>To prepare dietetics students to work at consumers' pace</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Understanding symptoms and ED screening</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Awareness of stigma and stereotypes</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Behavioural change model, adapted to ED – progress versus results</td>
</tr>
</tbody>
</table>
TABLE 2 (Continued)

<table>
<thead>
<tr>
<th>Prototype objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>Use of video/audio</td>
</tr>
<tr>
<td></td>
<td>Use of branching scenarios</td>
</tr>
<tr>
<td></td>
<td>Use of simulations – family case studies</td>
</tr>
<tr>
<td>Assessment</td>
<td>Case study assignments</td>
</tr>
</tbody>
</table>

Abbreviations: DE, disordered eating; ED, eating disorder.

has a strong interprofessional focus, it would have been beneficial to expand recruitment to a wider range of health professions. The inclusion of a broad range of health disciplines may have led to different education prototypes being identified and warrants further consideration from educators using a similar process in the future.

The presentations from different professionals at the beginning of the retreat provided context for all participants. Empathy is an essential component of person-centred care and highly valued by consumers and carers when receiving dietetic care for EDs. Alternative suggestions to facilitate empathy building include interviewing people, using diaries and records from people's experiences or having a panel to discuss and share their experiences with participants. Chorley et al. conducted a needs assessment prior to their design thinking retreat and asked participants to interview three colleagues using three questions prior to attending the retreat. Despite sending invites via email to include participants with lived experience at the retreat, only one openly declared person with lived experience was present on the day. Although it is acknowledged individual experiences of EDs will differ, the five different audio recordings included at the retreat were an engaging way for participants to build empathy for and learn about lived experiences of seeking dietetic care for EDs. In future projects, it would be ideal for the lived experience voice to be present and included throughout the entire design thinking process and integrated into dietetics curricula. This design thinking process focused on people with lived experience of EDs and carers of people with EDs. A process that also included dietetic students in the empathy mapping phase may have resulted in different prototype outcomes, which provides rich opportunities for future research.

Stakeholders brainstormed a wide range of ideas such as aligning curriculum to reflect “real world” prevalence of conditions, increased collaboration between universities, professional bodies and industry to enhance student preparedness for the future workforce. This supports the recommendation by Denman et al. for increased collaboration between universities and dietitian advocacy groups to develop training activities that can enhance dietetics students' confidence in this area of practice. A recent qualitative study exploring the ED curricula of Australian and New Zealand dietetic programmes noted existing resources from professional bodies that can be used to include ED content in university curricula. Increased awareness of such resources amongst universities could prevent educators from “reinventing the wheel” and make the inclusion of ED content within dietetics curricula more accessible. This supports one of three key initiatives endorsed by NEDC and professional body representatives; to have tertiary-specific resources readily accessible to facilitate the embedding of ED content within tertiary curricula.

It is acknowledged that the present study only included participants from one dietetics programme in Australia and design thinking participation was limited to the local area where the research was conducted. Therefore, the findings may not be transferable to the specific needs of other dietetics programmes. Significant power imbalances may have been present at the retreat. For example, dietetics students may have perceived an ED dietitian participant as more “qualified” or “knowledgeable”, and this may impact how they interacted and contributed to group discussions. Additionally, there is a risk that participants focused on ideas or solutions that aligned with their existing beliefs. However, the ideate, prototype and test stages of design thinking can reduce confirmation bias through the generation of a broad range of ideas, designing within diverse groups and seeking external feedback on prototypes. The term “user” was included on one of the design thinking resources, although this is consistent with design thinking terminology, person-centred language is recommended in future. Because this study was part of a larger doctoral project, time and resource limitations meant participants could only engage in one iterative cycle of test and design. Establishment of a working group would have been ideal to support the implementation and evaluation of the education prototypes and their impact on dietetics students' confidence and competence in ED care. Asking participants if they would be interested in continued involvement in the project to provide further input, would be one way to achieve this.
CONCLUSIONS

Design thinking provided an opportunity for stakeholders to be involved in the research process that aimed to deliver tested prototype solutions. The tested prototypes aim to enhance students' confidence and competence by developing foundational ED knowledge and skills, during their time at university. The prototypes focused on working collaboratively with professional bodies and people with lived experience of EDs to codesign and deliver content such as online modules and workshops. Participants also identified the need to upskill educators to feel confident to embed and deliver disordered eating and ED content in curriculum. Further research is needed to understand whether the identified education prototypes can improve dietetics students' preparedness to provide care to people seeking support for EDs.

RELEVANCE TO CLINICAL PRACTICE

Design thinking allowed stakeholders to identify innovative solutions to address curriculum design in dietetics education. The educational prototypes identified by participants highlight the knowledge and skills perceived as important for dietetics students to learn about disordered eating and EDs during their time at university. The findings of the present study can be used to inform future curriculum design and professional development.

AUTHOR CONTRIBUTIONS

Alana Heafala completed this research in line with the requirements of her PhD, with supervisor involvement. Alana Heafala, Sharyn Rundle-Thiele and Lana J. Mitchell contributed to the conception and design of the study. Alana Heafala, Sharyn Rundle-Thiele and Lana J. Mitchell contributed to data collection. Alana Heafala was primarily responsible for analysis and interpretation of the data and was supported by other authors. Alana Heafala drafted the original manuscript. Sharyn Rundle-Thiele, Lauren Ball and Lana J. Mitchell critically reviewed and contributed to the manuscript. All authors are in agreement with the final manuscript submitted for publication and declare that the content has not been published elsewhere.

ACKNOWLEDGEMENTS

We thank the stakeholders who gave their time and expertise to contribute to this research. Alana Heafala was supported by a PhD scholarship awarded by Griffith University, with operational funds provided by the School of Health Sciences and Social Work. Lauren Ball’s salary is supported by a National Health and Medical Research Council fellowship (APP 1173496). No external funding was received for this study. Open access publishing facilitated by Griffith University, as part of the Wiley - Griffith University agreement via the Council of Australian University Librarians.

CONFLICT OF INTEREST STATEMENT

LB is the Editor of the Journal of Human Nutrition and Dietetics. The remaining authors declare that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICAL STATEMENT

Ethical approval was obtained from the Griffith University Research Ethics Committee (ref: 2022/408).

TRANSPARENCY DECLARATION

The lead author affirms that this manuscript is an honest, accurate and transparent account of the study being reported. The reporting of this work is compliant with COREQ guidelines. The lead author affirms that no important aspects of the study have been omitted and that any discrepancies from the study as planned have been explained.

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**How to cite this article**: Heafala A, Rundle-Thiele S, Ball L, Mitchell LJ. Cocreating eating disorder education solutions: a design thinking approach to dietetics curricula in Australia. J Hum Nutr Diet. 2024;1–12. [https://doi.org/10.1111/jhn.13333](https://doi.org/10.1111/jhn.13333)