BMC Psychology

STUDY PROTOCOL

Open Access

Evaluation of dialectical behavior therapy – skills training for emotional problem solving for adolescents (DBT STEPS-A) in Aotearoa New Zealand: Protocol of a mixed-methods evaluation

Liesje Donkin[1*], Priya Thakral[1], Shelly Hindle[2] and Amy Kercher[1]

Abstract

Background Dialectical Behavior Therapy – Skills Training for Emotional Problem Solving for Adolescents (DBT STEPS-A) is a 30-week program adapted from the comprehensive DBT protocol for adolescents, to be delivered in schools, by school staff. This novel approach takes a preventative position wherein adolescents (aged 11–18) are taught social and emotional skills from DBT to equip them to navigate challenging situations with the premise that this may prevent the development of more severe psychological difficulties. Few studies exist evaluating the "real world delivery" of STEPS-A, and less so outside the United States of America. This protocol outlines the planned evaluation of the effectiveness of the STEPS-A program, as delivered by Marinoto Child and Adolescent Mental Health Service (Health New Zealand|Te Whatu Ora - Waitematā) in Aotearoa New Zealand.

Method This research will use a mixed-methods approach. Specifically, the evaluation of the program will be based on: (i) completed psychometrics pre- and post- program completion, (ii) perceived acceptability as expressed by participants, their families and the schools running the STEPS-A program during semi-structured interviews and focus groups, and (iii) the feasibility of the STEPS-A program in terms of the ability of participating schools to deliver it in an ongoing manner and (iv) any adaptations required to run the program in New Zealand in a culturally responsive manner. The proposed protocol has been peer reviewed by two independent academics and approved by a national health and disability ethics committee. A power analysis has also indicated that the estimated number of program participants will likely yield a sample that will be adequately powered for data analysis.

Discussion This research will evaluate the effectiveness, acceptability and feasibility of the STEPS-A program. Findings will highlight the challenges of implementation in a public health system and the suitability for use with an indigenous population.

*Correspondence:
Liesje Donkin
Liesje.donkin@aut.ac.nz

Full list of author information is available at the end of the article

Keywords Dialectical behavior therapy, DBT, Adolescents, Skills training, Pilot, Protocol, STEPS-A, DBT in schools, Prevention, Self-harm

Introduction

Dialectical behavior therapy (DBT; [1, 2]) is an evidence-based cognitive behavioral therapy program, that has repeatedly been shown to be effective in improving mental health outcomes for adolescents and adults with emotion regulation difficulties, self-harm and suicidal behavior [3–7]. DBT is a gold standard treatment recommended for reducing suicidality and self-harming related to emotional dysregulation and meets the highest threshold for scientific evidence for treatment effect [4, 7, 8]. Generally, DBT is provided in specialist mental health services for the highest risk and most complex presentations.

DBT Skills in Schools: Skills Training for Emotional Problem Solving for Adolescents (DBT STEPS-A; referred to as STEPS-A) is an in-school group program developed by Mazza et al., for adolescents that draws on the skills taught in DBT [9]. STEPS-A is delivered over a 30-week period and was designed to be delivered by school staff using the teaching manual that includes detailed lesson plans, resources and supplementary materials including student learning assessments. As such, STEPS-A is not a therapy program but is a social emotional learning program that has been developed to be either universally delivered to students as part of the standard school curriculum or for targeted delivery in smaller, predetermined groups. The course is presented in a style consistent with a classroom environment, including practice assignments, and is completed at school, during school time. This is a novel approach that takes a preventative position where adolescents are taught DBT skills to equip them better to navigate challenging situations, with the premise that this may prevent the development of more severe psychological morbidity and mortality in the future.

STEPS-A has been shown to be effective in several studies [10] and has been run in the United States of America [11–13], the United Kingdom [14–16], and Spain [17]. Health New Zealand| Te Whatu Ora - Waitematā (a regional branch of the national health service), has been delivering STEPS-A in Auckland since July 2022, with two years of funding for specialist mental health clinicians to support the development, implementation and delivery of the program.

Aim of study

The research project aims to comprehensively evaluate and determine whether the DBT STEPS-A program is an effective, feasible and acceptable intervention for adolescents, families, school stakeholders and program facilitators, with a specific focus on the cultural fit for New Zealand.

Objectives

Effectiveness

Effectiveness was determined by reviewing the psychometrics used in the program and determining if an agreed indication of clinically significant change was available. Where this was not available, consultation with one of the developers of STEPS-A was undertaken and the following measures of effectiveness were decided:

1) Determine if the STEPS-A program is effective as measured by meaningful change in psychometric outcome measures for least 60% of the sample.
2) Determine if the STEPS-A program is effective as measured by a half standard deviation reduction in psychometrics.
3) Determine if the STEPS-A program is effective as measured by change scores in the top 25% and bottom 25% of participants.

Feasibility

4) Explore perceptions of the feasibility of the STEPS-A program based on the views of both schools running the program and schools that declined to participate in or continue with the program, based on qualitative feedback.
5) Understand what is required to successfully deliver a socio-emotional learning program in schools in Aotearoa New Zealand, including any adaptations that may need to be made.

Acceptability

6) Determine if participants and their families found the STEPS-A program to be an acceptable program based on qualitative feedback.
7) Understand the perceptions of the cultural fit of STEPS-A for Aotearoa New Zealand.

Method

Study design

This protocol is for a longitudinal cohort study that evaluates effectiveness, feasibility and acceptability in the school cohorts that have completed up to two group cycles of the STEPS-A program, and those who were invited to run the program but either discontinued the program or declined to deliver the program. Data

collection will occur at multiple time points including before commencement of the program, upon completion of the first group cycle when the group has been delivered by mental health professionals, and when the second group cycle has been completed by teachers at the school.

Study procedures

This study consists of a continuous evaluation of the STEPS-A program and will use rolling recruitment to ensure that all participants in the program (adolescents, families, stakeholders) have a chance to participate in the study.

Students complete baseline psychometrics during the first session of the STEPS-A program and again at session 30, provided by the program facilitators. After the program, the STEPS-A coordinator will provide a de-identified dataset of the group's psychometrics to the research team to analyze.

During the final weeks of the program, parents and students are reminded that the program is being evaluated and are sent an information sheet including an invitation to participate in the evaluation by their school. Within one month of the program completion, a focus group will be held with students at school, in the same school session that the STEPS-A program was held. Parents need to provide consent for their child to participate in the session, and the students need to provide their assent to participate. This session will be facilitated by two to three researchers, one of whom will be a child and adolescent psychologist. Focus group sessions include a mix of discussion and small group activities and include the provision of food for the participants during the session. Sessions are audio-recorded and transcribed verbatim. Focus groups will last between 50 and 90 mins consistent with the time allocated for STEPS-A sessions. Family members who wish to be interviewed are asked to contact the researchers directly to arrange a time to participate.

Potential participants who are program facilitators and school stakeholders are sent the study information by the STEPS-A co-ordinator and invited to contact the researchers directly if they wish to participate in a study interview.

Participants

The STEPS-A program is planned to be delivered to 13–15 schools over two years, which will result in approximately 156–240 students participating in the program. This study will gather information from four populations; each person who participated in or supported the STEPS-A program will have the opportunity to participate if they so choose. The study populations will be as follows:

Adolescents Students that the school has selected to participate in the STEPS-A program and have entered into the program with parental consent. The selection process for program participation is undertaken at the school's discretion and is neither regulated by specific criteria set forth by the program nor Health New Zealand|Te Whatu Ora. Students will be aged 11–14 years, depending on the school.

Adolescent inclusion criteria

- Has participated in at least 50% of the STEPS-A program through their school;
- Has guardian consent to participate in the study;
- Has provided assent to participate in the study.

Adolescent exclusion criteria

- Does not have guardian consent to participate in the study; OR
- Has not provided assent to participate in the study.

Families Parents, family members or caregivers of students who were *invited* to participate in the STEPS-A program. Note, that i) the students will not need to have attended the STEPS-A program if the families did not consent to their participation in the program, or ii) the students will not need to have completed the STEPS-A program if agreement to participate in the program was later withdrawn. Therefore, families can participate in this research without their adolescents having completed the program, to allow consideration of their perspectives about why they did not want their adolescent to participate.

Family member inclusion criteria

- Is a parent, family member, or caregiver of the adolescent who participated in the STEPS-A program; or, of an adolescent who was invited to participate in the program but declined for their adolescent to participate;
- Has access to technology that would allow them to participate in an online or telephone-based interview and/or complete an online survey;
- Is over the age of 18 years old;
- Can read, write and speak English sufficiently to consent to and participate in an interview and/or to participate in the online survey if they so choose.

Family member exclusion criteria

- Does not have access to technology that would allow them to participate in an online or telephone-based interview or survey; OR
- Is under the age of 18 years old; OR
- Is unable to read and write English sufficiently to consent; OR
- Is unable to read and write English sufficiently to participate in the online survey if they choose to do so; OR
- Is unable to engage in conversational English to participate if wanting to participate in the online or telephone interview.

School stakeholders Key people who were involved in the implementation of the STEPS-A program for their school. This could include but is not limited to: the school guidance counsellor, the school social worker, the school senior leadership team, and/or the teachers who may continue to facilitate the STEPS-A program. This includes staff from schools that declined to participate in the STEPS-A program, to allow consideration of their perspectives about why the program was not considered to be a good fit for their school.

School stakeholder inclusion criteria

- Is someone who was involved in the implementation or delivery of the STEPS-A program at their school, or was involved in the decision-making process for offering STEPS-A in their school and the decision was made not to offer the STEPS-A program;
- Has access to technology that would allow them to participate in an online or telephone-based interview or online survey;
- Is over the age of 18 years old;
- Can read, write and speak English sufficiently to consent to and participate in an interview.

School stakeholder exclusion criteria

- Does not have access to technology that would allow them to participate in an online or telephone-based interview; OR
- Is not over the age of 18 years old; OR
- Is unable to read and write English sufficiently to consent; OR
- Is unable to read and write English sufficiently to participate in the online survey if they choose to do so; OR
- Is unable to engage in conversational English to participate if wanting to participate in the online or telephone interview.

Program facilitators Staff employed by Health New Zealand| Te Whatu Ora (the national health service) to deliver the STEPS-A program and facilitate training of school staff in program delivery. Program facilitators are registered mental health professionals.

Program facilitator inclusion criteria

- Is a facilitator who has been involved in the delivery of the STEPS-A program through Health New Zealand| Te Whatu Ora Waitematā;
- Has delivered at least 50% of the STEPS-A program;
- Has access to technology that would allow them to participate in an online or telephone-based interview;
- Is over the age of 18 years old;
- Can read, write and speak English sufficiently to consent to and participate in an interview or to participate in the online survey if they choose to do so.

Program facilitator exclusion criteria

- Does not have access to technology that would allow them to participate in an online or telephone-based interview; OR
- Is unable to read and write English sufficiently to consent; OR
- Is unable to read and write English sufficiently to participate in the online survey if they choose to do so; OR
- Is unable to engage in conversational English to participate if wanting to participate in the online or telephone interview.

Intervention

The STEPS-A curriculum is outlined in a manual which is divided into four main modules: Mindfulness, Distress Tolerance, Emotion Regulation and Interpersonal Effectiveness [9]. These skills have been shown to be beneficial to adolescents who struggle emotionally and behaviorally with peer and family relationships, academic pressure, bullying (victimisation and perpetration), alcohol and drug use, self-harming behavior, and anti-social behavior.

STEPS-A is both proactive and preventative and offers schools the capacity to identify students who may be at risk of developing or are already experiencing mental health problems. This program takes a 'Tier 2' targeted approach, meaning schools identify 10–15 students who are invited to enrol in the STEPS-A class once a week for approximately 90 mins during school time. The program can also be delivered as a 'Tier 1' level approach, which is a whole school approach, meaning all students receive the STEPS-A training.

The course runs for 30 weeks; thus, the program, when combined with school information meetings, preliminary sessions focused on group relationship building and administration of questionnaires, runs for the whole school year. The baseline measures are completed again at the end of the program, along with graduation celebrations. Each lesson begins with a mindfulness exercise, followed by a review of the homework from the previous session. This allows students to discuss how they have used their STEPS-A skills in the previous week. Each session then focuses on teaching a specific skill before homework is set for the week. For a more detailed description of DBT STEPS-A see Mazza et al. (2016) [9].

Previous research has shown that teachers and school staff find the STEPS-A content to be highly psychologically focused and outside of the general scope for school teachers. This has contributed to staff feeling less equipped to deliver the program and was a barrier to uptake from schools [14]. A solution for the current delivery was to adopt a 'train-the-trainer model' whereby trained youth DBT-trained mental health clinicians work with schools from adoption to implementation and support staff to learn to teach the skills curriculum. DBT-trained clinicians deliver sessions while teachers observe and co-teach. This allows teachers to watch, learn from, and consult with trained mental health clinicians experienced in DBT in order to gain the confidence and develop the expertise/familiarity to run the program independently with background support from the mental health team in subsequent years.

Program facilitator training and treatment integrity

All program facilitators had prior DBT training and were employed specifically to work on the STEPS-A program, having come from other community mental health teams. They were oriented to the manual by an expert DBT therapist and trainer (SH) who led the planning for the STEPS-A program and had weekly meetings to ensure adherence to the program protocols. In addition, facilitators have individual supervision and separate monthly supervision with one of the STEPS-A program developers.

Measures

The primary outcome measure assesses the effectiveness of the STEPS-A program based on the change in psychometrics from baseline (before starting the STEPS-A program) and post-intervention (at the end of the STEPS-A program). Psychometrics were chosen by the Health New Zealand| Te Whatu Ora team in consultation with one of the developers of STEPS-A and based on accessibility in the NZ context and appropriateness for the students participating in the program. Psychometrics collected during the study are held and stored by Health New Zealand| Te Whatu Ora – Waitematā and consist of:

1) *Strengths and Difficulties Questionnaire (SDQ)*: a brief 25-item behavioral screening questionnaire for 3–16 year-olds. The child-report version of the SDQ will be used to assess internalising and externalising symptoms including scales for Emotional Problems, Conduct Problems, Hyperactivity, Peer Problems and a positive Prosocial scale. Five items for each scale are rated on a Likert scale from 0 (not true) to 2 (certainly true). Total difficulties can be calculated as the sum of the four problem scales (0–40); Internalising scores reflect the sum of the Emotional and Peer Problem scales (0–20) and Externalising scores sum the Conduct and Hyperactivity scales (0–20). Additional items measure the impact (distress and interference) associated with the child's difficulties (from 0 to 10). The SDQ has strong psychometric properties and has commonly been used in NZ and is sensitive in discriminating between clinical and non-clinical populations [18, 19]. Clinically meaningful change will be measured using difference scores and added valued scores [20], and if students had a 3-point reduction in SDQ subscale scores.
2) *Difficulties in Emotion Regulation Scale (DERS-16)*: a 16-item self-report scale that assesses emotion regulation difficulties [21]. The DERS-16 has five subscales assessing non-acceptance of emotional response, difficulty engaging in goal-directed behavior, impulse control difficulties, access to emotion regulation strategies, and emotional clarity. The DERS-16 has good internal consistency [21] and correlates strongly to the longer, original DERS-36 scale [22].
3) *Child & Adolescent Mindfulness Measure (CAMM)*: a 10-item screener for children and adolescents aged 10–17 years old that measures mindfulness skills [23] and has been validated in clinical and non-clinical populations [24, 25] aged 10 years and older. The items include statements such as "I get upset with myself for having feelings that don't make sense" and are scored on a 5-point scale from 'Never true' to 'Always true'. Several items are reverse-scored and then all items are summed, with higher scores corresponding to higher levels of mindfulness and less emotional avoidance.
4) *DBT Ways of Coping Checklist (DBT-WCCL)*: a 59-item self-report measure measuring the frequency of DBT skills used in the last month and non-DBT, dysfunctional coping strategies used in the last month [26]. The items include statements such as "Talked to someone about how I've been

feeling" and are scored on a 4-point scale of 'Never used' through to 'Regularly used'. Three subscales can be calculated: Skills Used subscale, General Dysfunctional Coping subscale and Blaming Others subscale using the average score for items related to that scale. The scale has been validated in psychiatric populations [26, 27] and used consistently in STEPS-A research (e.g. [13, 14]).

5) *Student Life Satisfaction Scale (SLSS)*: a 7-item measure designed for students 8 to 18 years old that measures satisfaction with life [28]. The scale has been validated [29] with sound psychometric properties when used in the target population. The scale items include statements such as "I would like to change many things in my life" and are scored on a 6-point scale of 1 (strongly disagree) to 6 (strongly agree). Two items are reverse-scored and item scores are summed, with higher scores corresponding to better life satisfaction.

Qualitative outcomes

Using the semi-structured interview or focus group schedule, participant views of the STEPS-A program will be explored with regards to:

1) What impact does the STEPS-A program have on participants, families, or the school (effectiveness)?
2) How well does the STEPS-A program fit the needs of participants, families or the school (acceptability)?
3) How well does the STEPS-A program fit with families or school culture (acceptability)?
4) What impact has the STEPS-A program had on school resourcing both in terms of running the program and when the program was facilitated by the program facilitators (feasibility)?
5) How likely is it that participants would support the STEPS-A program being run in the future and what additional support might be required (feasibility)?
6) What adaptations could be made to help the STEPS-A program be a better cultural fit for Aotearoa New Zealand (acceptability)?

Data analysis plan

Effectiveness of STEPS-A program

Effectiveness of the STEPS-A program will be explored using three metrics: (i) meaningful change for at least 60% of the participants; (ii) a half standard deviation reduction in psychometric scores across the sample; (iii) exploration of the change scores in the top and bottom quartiles of participants. To assess against these three effectiveness criteria (the evaluation benchmark), the proportion of clinically meaningful changes will be calculated for each psychometric – the Strengths and Difficulties Questionnaire; the Difficulties with Emotion Regulation Scale; the Child and Adolescent Mindfulness Measure; the DBT Ways of Coping Checklist; and the Student Life Satisfaction Scale.

Pre- and post-analyses of psychometric measures will be used. Specifically, we will explore changes in scores, initially using paired samples t-tests or non-parametric tests (depending on the data distribution).

Exploration of who benefits most from the STEPS-A program.

To identify factors associated with the change in psychometric measures, multilevel linear mixed models will be used for the normally distributed evaluation outcomes adjusted for school and demographic factors as covariates, and school could be modelled as a random effect. Multilevel mixed logistic regressions will also be used for the binary indicators (with meaningful changes or not) adjusted for school and demographic factors as covariates, and school could be modelled as a random effect. The school factors include an equity index, and student demographic factors include age, sex, ethnicity.

Data analysis will be completed by a biostatistician.

Power analysis

As this is an evaluation of an intervention program that is being delivered in the community, the full sample will be included in the evaluation and the researchers will not be able to control the sample size for the quantitative data as this is based on school participation as coordinated by the intervention team.

However, to determine if adequate power would likely be achieved, a power analysis using G*Power was completed. Based on the hypothesis that participants would improve on the psychometrics, a one-tailed paired samples t-test calculation of the difference between two dependent means was used. Effect sizes for the various psychometrics used in this study that were included in previous STEPS-A studies vary from 0.24 [30] to 0.92 [14]. To be conservative, the effect size from the psychometric with the lowest score (CAMM; 0.24) from Ramage et al. (2019) was used. Based on the standard deviation of differences between two timepoints with a hypothesized correlation of 0.5 being 5.62 [9], a power level of 0.8, and a significance level of 0.05, the estimated sample size was 138 participants. If using the psychometric with the highest effect size (SDQ; $d = 0.66$) and a standard deviation of differences of 4.97, power set at 0.8, and significance at 0.05, the estimated required sample size was 20 participants. Thus, the estimated required sample size for sufficient power ranged from 20 to 138 participants and within the expected participant numbers of 130–225 students.

Qualitative data

Transcripts from the interviews and the online surveys will be analyzed using Braun and Clarke's thematic analysis approach. Specifically, reflexive thematic analysis will be used to analyse the participant interview transcripts and to identify themes and patterns within the qualitative dataset [31]. Analysis will be completed within participant groups, facilitators, stakeholders, rangatahi, and whānau.

Thematic analysis has been used in past research that has explored the experiences of DBT programs for various DBT populations, such as DBT for adolescents [32], for people with intellectual disabilities [33], and eating disorders [34, 35], and has been used to evaluate schools-based programs [36]. As a methodological approach, interpretative description will be used as it captures the subjective experience of a population [37] and is considered suitable for research that aims to address complex experiential questions in which the knowledge is acquired [38, 39].

Braun and Clarke's (2006) six step process for reflexive thematic analysis will be used. Firstly, we will engage in familiarisation with the data. The two members of the research team (referred to as coders) with differing backgrounds (e.g., lived experience researcher vs. academic, from different cultural backgrounds) will be primarily responsible for the coding and will spend time reading and re-reading the data to ensure that they are familiar with the data set. During this process, they will write memos on their reflections, impressions, and any ideas that might emerge [40].

Then, initial codes will be generated using an inductive approach using open coding to identify key themes in the dataset. Both coders will code their dataset independently looking for features of the data that indicate the effectiveness, feasibility and acceptability of STEPS-A. This coding will be completed without a coding frame or existing framework [41], with each coder coding the dataset twice. Following independent coding, the two coders and a member of the research team that has not been involved in coding will meet to compare codes and explore where there is agreement or not. Initial themes will be developed by examining the open codes for patterns of meaning across the collated coded dataset. These themes will then be refined against the coded data and the full dataset to ensure that they capture a cohesive narrative of the data. Themes will be refined as needed and may become subthemes of broader themes [31]. The refined themes will then undergo analysis and review by the wider research team to build consensus to name and define the themes that will be illustrated with quotes from the data.

Transparency and reflexivity during the thematic analysis

In addition to the above steps, and in order to maintain transparency and rigour in the qualitative analysis, a number of steps will be taken by the research team. Specifically:

- Field notes will be kept throughout and referred to, to provide context and reflections related to the data.
- Each step of data analysis will be saved as a new file so that code transformation can be linked throughout the analysis process.
- All decisions about codes, categories and themes will be documented and saved in a separate file [41].
- Coders will undergo a presupposition interview about their expectations of outcomes, their experiences with STEPS-A and DBT, and any biases that they may have about the population, intervention, or mode of delivery.
- Each member of the research team that will be involved in coding, analysis or writing of the qualitative papers will provide a reflexive statement to accompany the analysis.
- The inclusion of the researchers independent of the coders allows for analyst triangulation whilst collecting data from multiple sources allows for triangulation from multiple data sources.
- The research team includes people with multiple perspectives to ensure a diverse perspective on the data.

Study organisation and funding

AUT is funding the researchers' salaries, with no further funding for this research having been obtained. The Well Foundation—with support from Rotary Club of Downtown Auckland, The Trusts, Lottery Community Grants, ProCare and Henderson Rotary—fundraised NZD$275,000 of funding for the salaries of Marinoto Child and Adolescent Mental Health Service (Health New Zealand| Te Whatu Ora - Waitematā) staff to deliver STEPS-A.

Ethical considerations

This research will be conducted in accordance with the Declaration of Helsinki. Ethical approval and key ethical issues are outlined as follows.

Equity

A recent report has identified declining mental health outcomes and increasing distress among Māori (the Indigenous population) adolescents [42]. Health inequities between Māori and non-Māori in terms of mental health are also increasing [43, 44]. Adolescent Māori are also more likely to have attempted suicide and the proportion of those attempting suicide has been increasing

[44]. Dialectical behavior therapy is considered the gold standard therapy for suicidal and self-harming behavior but is often inaccessible to many due to waiting times and limited services with sufficient training and resources to deliver comprehensive DBT. STEPS-A has the potential to be an early intervention educational program that can better equip adolescents with skills to cope with difficult emotional situations and aims to reduce risks of engagement in antisocial and/or harmful actions. Delivery in the school system also has the potential to provide access to these skills for adolescents who are often poorly serviced by traditional mental health services due to systemic and structural factors (wherein Māori are disproportionately affected). Therefore, the delivery of the STEPS-A program has the potential to provide more equitable access to services and to address some of the healthcare inequities commonly seen. However, the program needs to be well evaluated to determine whether Māori do find the program useful and acceptable. Given this, we are prioritizing the recruitment of Māori families in the evaluation. We will also separately evaluate Māori data where possible, to ensure that the program's usefulness for Māori is explored and highlighted in the results. It is hoped that by evaluating the program, we can also determine how to modify and better run STEPS-A in Aotearoa. Specifically, we hope to understand how the program may need to be better adapted for Māori to ensure equitable outcomes.

Disabilities

No disabled perspectives were included in the design of this study given that the population for the study was pre-selected and that the program is pre-designed to run in schools. It is noted that the program does potentially disadvantage people who have learning disabilities (due to reading and writing tasks), hearing impairment (largely spoken delivery), and people with expressive communication disorders (verbal participation). We will seek feedback about the program design through the study to better adapt the program for future participants of all abilities.

Informed consent

All participants are required to give informed consent to participate. To ensure participants are informed, participant information sheets (PIS) will be included in the emails and online research platform, before registration. Understanding and agreement will also be confirmed in the booking of interviews and the oral consent process. As above, adolescents will be required to have parent/caregiver consent to participate in the study and will need to give their assent. Families will also be encouraged to discuss the study with their child before giving consent. This includes the potential for discussion of their child's psychological difficulties with the research team and ensuring that their child is aware of this and has agreed to this possibility before participating.

Risk to participants

We believe that this is a low-risk-of-distress study. A protocol for responding to distressed participants has been developed, in case risk is overtly disclosed or researchers become concerned about a participant due to the participant becoming distressed or indicating a risk that needs a response (see Multimedia Appendix I for this protocol). The following potential risks are highlighted for adolescent and family participant groups:

Adolescents The adolescents cohort will have already spent the duration of the STEPS-A program together, including sharing how they used the skills learned to help make skilful decisions and manage distressing things in everyday life. There is a possibility that adolescent participants may find talking about the program uncomfortable, but they will not be required to share their experiences and can opt out of attending the discussion group if they choose. The questions will focus on the experience of the program rather than the reasons for attending the program or how they applied skills to their specific problems.

Families Families may experience some discomfort or embarrassment if they choose to talk about the challenges that their adolescents experienced which led to the invitation to participate in the STEPS-A program. Families will be able to access help through AUT counselling for any distress related to the project, or through their local health professional support networks.

Risk of creating or exacerbating existing stigma

We do not believe that the study will stigmatize individuals or population groups. As this is the evaluation of the program, the research focuses on who the program will benefit, and we will take a strengths-based approach to reporting who may benefit from the program.

Confidentiality

The privacy and confidentiality of research participants will be respected. This will be done specifically through:

- AUT researchers not knowing the identity of potential participants until the participants contact the researchers;
- AUT researchers not sharing who has chosen to participate with people outside of the research team;
- All identifying information being removed from transcripts as soon as possible;
- Original recordings are deleted as soon as transcripts are complete;

- Focus group members are reminded about confidentiality in the context of the group;
- Data will be stored securely consistent with the study data management plan.

Māori data sovereignty

The Te Mana Raraunga Brief advocates for the realization of Māori rights and interests in data, and for the ethical use of data to enhance the well-being of tāngata whenua (Indigenous people), language and culture. Information about the provenance of the data, the purposes for its collection, the context of its collection, and the parties involved have been considered. Free, prior and informed consent underpins the collection and use of all data. The project team acknowledges that we are responsible for the creation, collection, analysis, management, access, security and dissemination of Māori data and are accountable to the communities, groups and individuals from whom the data have been derived. Māori researchers will lead data analysis and interpretation of data given to the research team by Māori participants.

Ethical approval

Ethical Approval was obtained through the Health and Disabilities Ethics Committee (2023 Full 18534) on 19/10/2023 for a period of three years.

Peer Review Process

The STEPS-A program was reviewed by senior management of Health New Zealand| Te Whatu Ora - Waitematā before being given approval to proceed with the program and seek funding. The Well Foundation Board reviewed the STEPS-A program and considered the evidence base and need for the program before approving fundraising and allocation of funds for the program delivery. The research protocol and analysis plan were peer reviewed prior to seeking ethical approval by two senior academics who were independent to the research team.

Discussion

In recent years, mental health services in Aotearoa have reported marked increases in demand and need among adolescents [45, 46]. Aotearoa has very high youth suicide rates, and high rates of adolescent depression, anxiety and substance use. Adolescent Māori are particularly vulnerable [46]. Limited early intervention is available, with CAMHS services restricted for those with the most acute or severe needs, and community mental health rates increasing since the pandemic [44, 45, 47]. STEPS-A is both proactive and preventive and offers schools the capacity to identify students who may be at risk of developing mental health problems, or already experiencing emotional and behavioral problems and to offer early intervention. Given this and the potential implication for improving mental health outcomes, STEPS-A has significant potential. This real-world evaluation of the STEPS-A program will contribute to the literature in several ways.

1. To date, no studies have comprehensively explored the acceptability of STEPS-A across multiple participants including students, school staff, program facilitators and parents. This approach will likely yield insights about the program that have not been previously known, including strengths and potential changes for its improvement.
2. The evaluation will explore the fit of the program for Māori, the Indigenous people of New Zealand. Given the increasing distress and risk for adolescent Māori, interventions must prioritize the provision of equitable, effective and culturally appropriate support. DBT and DBT STEPS-A is an American manualized program that has not been designed to be responsive to the needs of Māori, nor yet evaluated for adolescent Māori. Whilst the delivery in the school system has the potential to provide access to these skills for adolescent Māori, the ongoing use of a program that does not consider the needs of Māori nor is adapted for these needs may further increase inequities. Given this, we are prioritizing the recruitment of Māori families first and foremost. We will also separately evaluate Māori data to ensure that the usefulness of the program for Māori is not only explored but is highlighted in the results.
3. Our analysis goes beyond the program being run by mental health professionals but also explores ongoing effectiveness and feasibility when the school staff continue to run the program. Feedback from school staff will inform whether the 'train-the-trainer' model by mental health clinicians achieved the goal of increasing staff confidence and efficacy in running the program – an identified contributing factor for program uptake sustainability. This also provides additional, real-world data outside of a trial environment where adherence to manuals and treatment is often higher.
4. Exploring the views of schools and families that did not want to participate in the program will provide information about the perceived issues with the program, and what further support needs to be provided to assist these schools or to adapt the program.

Limitations

Whilst there are a number of strengths to this evaluation, there are also limitations. Firstly, the design of the evaluation protocol is limited by the STEPS-A program having already been developed and being delivered to schools

before the research team was contacted to provide an objective evaluation. Thus, the protocol has been developed based on the program that is being run at the time of writing the protocol and the available data, rather than the research team making choices about all of the metrics. The research team has been able to make decisions about the qualitative data collection, but the psychometrics included in the analysis were decided before the research team was involved. Similarly, the psychometrics used are self-report and may not be suitable for some students if they have learning disabilities. Ideally, a metric of school intervention would have been included to determine the impact of STEPS-A on observable behavior, however, this was not available from the outset and there is currently no way to determine this.

Practical limitations will include time between completion of the some of the program participant groups and when the focus groups will occur, possibly being unable to contact schools that declined to participate, staff turnover, and the lack of ability to provide a control condition such as a stepped-wedge design. The quality of data collection is also contingent on the data collected by Health New Zealand| Te Whatu Ora. To mitigate this, the research team will maintain regular email contact with the Health New Zealand| Te Whatu Ora team to determine when groups are finishing and to facilitate recruitment.

Analysis of cultural responsiveness will be restricted to what is available in this sample, although an analysis of the responsivity of STEPS-A to the complexities and realities of Māori is planned for future studies. Analysis of data from Māori participants will be prioritized in order to determine how effective the STEPS-A program is for Māori participants. In addition to this, where possible, qualitative data that can be identified as belonging to Māori participants will be considered separately as part of the analysis, ensuring the voices of Māori are privileged. The research team will also seek consultation in terms of interpreting data belonging to Māori participants and the interpretation of this.

Finally, we note that this evaluation will be grounded in the complexities and realities of the STEPS-A delivery in Aotearoa New Zealand. Whilst Aotearoa New Zealand has a unique cultural make-up, we believe that the findings from this study will be interesting to international audiences. Specifically, the in-depth exploration of students, families, stakeholders and facilitators has not been completed before and will provide insight to the acceptability of STEPS-A across these groups. The adaptations that may be made by schools will be captured in the interviews and will be shared as well as being coded in the outcome data to determine their effectiveness. This will provide a unique contribution to the literature as the majority of studies are based on single cohorts or standardized delivery.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s40359-025-02694-0.

Supplementary Material 1

Acknowledgements
The authors wish to thank Jim Mazza for his consultation on determining a benchmark for effectiveness, Irene Suilan Zeng for consultation on statistical analysis, and the support received from the Health and Disabilities Ethics Committee.

Author contributions
LD developed the research protocol in conjunction with SH and AK, wrote the ethics application and drafted the manuscript. PT contributed to the ethics application and the writing of the manuscript. AK contributed to the development of the research protocol, ethics application and the writing of the manuscript. SH led the implementation of STEPS-A, which is being evaluated, and contributed to the writing of the manuscript.

Funding
The Health New Zealand|Te Whatu Ora - Waitemata STEPS-A project was supported by fundraising by the Well Foundation (NZD $275,000) with support from Rotary Club of Down Town Auckland, The Trusts, Lottery Community Grants, ProCare and Henderson Rotary. Funding (NZD$7,500) was received for PT position from AUT. Funders did not have influence over the STEPS-A design, the research design, or publication.

Data availability
No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
Ethical Approval was obtained through the Health and Disabilities Ethics Committee (2023 Full 18534) on 19/10/2023 for a period of three years. This approval included an informed consent process that required participants to given consent and opt-in to the research.

Consent for publication
Ethical approval and consent indicated that results from this study would be published.

Competing interests
The authors declare no competing interests.

Author details
[1]Department of Psychology and Neuroscience, School of Clinical Sciences, Auckland University of Technology, Auckland, New Zealand
[2]Independent researcher, Auckland, New Zealand

Received: 10 April 2024 / Accepted: 3 April 2025
Published online: 06 November 2025

References

1. Linehan M. DBT Skills training manual. Guilford Publications; 2014.
2. Linehan MM, et al. Dialectical behavior therapy for borderline personality disorder. New York: Guilford Publications; 1993.
3. Amner K. The effect of DBT provision in reducing the cost of adults displaying the symptoms of BPD. Br J Psychother. 2012;28(3):336–52. https://doi.org/10.1111/j.1752-0118.2012.01286.x

4. DeCou CR, Comtois KA, Landes SJ. Dialectical behavior therapy is effective for the treatment of suicidal behavior: A Meta-Analysis. Behav Ther. 2019;50(1):60–72. https://doi.org/10.1016/j.beth.2018.03.009
5. Haktanir A, Callender KA. Meta-analysis of dialectical behavior therapy (DBT) for treating substance use. Res Educ Psychol. 2020;4(Special Issue):74–87.
6. O'Sullivan M, Murphy A, Bourke J. The cost of dialectic behav therapy (DBT) for people diagnosed with borderline personality disorder (BPD): a review of the literature. Value Health. 2017;20(9):A714. https://doi.org/10.1016/j.jval.2017.08.1895
7. Panos PT, et al. Meta-Analysis and systematic review assessing the efficacy of dialectical behavior therapy (DBT). Res Social Work Pract. 2014;24(2):213–23. https://doi.org/10.1177/1049731513503047
8. Kothgassner OD, et al. Efficacy of dialectical behavior therapy for adolescent self-harm and suicidal ideation: a systematic review and meta-analysis. Psychol Med. 2021;51(7):1057–67.
9. Mazza JJ, et al. DBT skills in schools: skills training for emotional problem solving for adolescents D BT STEPS-A. Guilford Publications; 2016.
10. Hastings SE, et al. Universal delivery of a dialectical behav therapy skills program (DBT STEPS-A) for adolescents in a mainstream school: feasibility study. Discover Psychol. 2022;2(1):21. https://doi.org/10.1007/s44202-022-00021-x
11. Geirsdóttir K, Þrastardóttir GJ. *Dialectical behavior therapy skills training in school settings: A systematic review-DBT STEPS-A.* 2020. http://hdl.handle.net/1946/35920
12. Martinez RR, et al. Effects of dialectical behavioral therapy skills training for emotional problem solving for adolescents (DBT STEPS-A) program of rural Ninth-Grade students. School Mental Health. 2022;14(1):165–78. https://doi.org/10.1007/s12310-021-09463-5
13. Chugani CD, et al. Implementing dialectical behavior therapy skills training for emotional problem solving for adolescents (DBT STEPS-A) in a Low-Income school. School Mental Health. 2022;14(2):391–401. https://doi.org/10.1007/s12310-021-09472-4
14. Panish DS. Dialectical behavior therapy skills training for emotional problem solving for adolescents (DBT STEPS-A) in urban school contexts: a mixed methods study. Rutgers University-Graduate School of Applied and Professional Psychology; 2022. https://www.proquest.com/openview/a1736fc5e4c8effeecb6c3bba301a171/1?cbl=18750%26diss=y%26pq-origsite=gscholar
15. Flynn D, et al. Innovations in practice: dialectical behavior therapy–skills training for emotional problem solving for adolescents (DBT STEPS-A): evaluation of a pilot implementation in Irish post-primary schools. Child and Adolescent Mental Health. 2018;23(4):376–80. https://doi.org/10.1111/camh.12284
16. Evans R, et al. Adolescent self-harm prevention and intervention in secondary schools: a survey of staff in England and Wales. Child Adolesc Mental Health. 2019;24(3):230–8. https://doi.org/10.1111/camh.12308
17. Gasol X, et al. Preventing emotional dysregulation: acceptability and preliminary effectiveness of a DBT skills training program for adolescents in the Spanish school system. Int J Environ Res Public Health. 2022;19(1):494. https://doi.org/10.3390/ijerph19010494
18. Grasso M, et al. The strengths and difficulties questionnaire as a valuable screening tool for identifying core symptoms and and emotional problems in children with neuropsychiatric disorders. Int J Environ Res Public Health. 2022;19(13):7731. https://doi.org/10.3390/ijerph19137731
19. Goodman A, Goodman R. Strengths and difficulties questionnaire as a dimensional measure of child mental health. J Am Acad Child Adolesc Psychiatry. 2009;48(4):400–3. https://doi.org/10.1097/CHI.0b013e3181985068
20. Wolpert M, et al. Comparison of indices of clinically meaningful change in child and adolescent mental health services: difference scores, reliable change, crossing clinical thresholds and 'added value'– an exploration using parent rated scores on the SDQ. Child Adolesc Mental Health. 2015;20(2):94–101. https://doi.org/10.1111/camh.12080
21. Bjureberg J, et al. Development and validation of a brief version of the difficulties in emotion regulation scale: the DERS-16. J Psychopathol Behav Assess. 2016;38(2):284–96. https://doi.org/10.1007/s10862-015-9514-x
22. Gratz KL, Roemer L. Multidimensional assessment of emotion regulation and dysregulation: development, factor structure, and initial validation of the difficulties in emotion regulation scale. J Psychopathol Behav Assess. 2004;26(1):41–54.
23. Greco LA, Baer RA, Smith GT. Assessing mindfulness in children and adolescents: development and validation of the child and adolescent mindfulness measure (CAMM). Psychol Assess. 2011;23(3):606. https://doi.org/10.1037/a0022819
24. de Bruin EI, Zijlstra BJ, Bögels SM. The meaning of mindfulness in children and adolescents: further validation of the child and adolescent mindfulness measure (CAMM) in two independent samples from the Netherlands. Mindfulness. 2014;5:422–30.
25. Kuby AK, McLean N, Allen K. Validation of the child and adolescent mindfulness measure (CAMM) with non-clinical adolescents. Mindfulness. 2015;6:1448–55. https://doi.org/10.1007/S12671-015-0418-3
26. Neacsiu AD, et al. The dialectical behavior therapy ways of coping checklist: development and psychometric properties. J Clin Psychol. 2010;66(6):563–82. https://doi.org/10.1002/jclp.20685
27. Stein AT, et al. Properties of the dialectical behavior therapy ways of coping checklist in a diagnostically diverse partial hospital sample. J Clin Psychol. 2016;72(1):49–57. https://doi.org/10.1002/jclp.22226
28. Huebner ES. Initial development of the student's life satisfaction scale. School Psychol Int. 1991;12(3):231–40. https://doi.org/10.1177/0143034391123010
29. Huebner ES, et al. Further validation of the multidimensional students' life satisfaction scale. J Psychoeducational Assess. 1998;16(2):118–34. https://doi.org/10.1177/073428299801600202
30. Ramage G. Evaluation of the DBT-Steps A (DBT-SA) program when delivered by school-based counsellors to a targeted population. Bangor University (United Kingdom); 2019.
31. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Res Psychol. 2006;3(2):77–101. https://doi.org/10.1191/1478088706qp063oa
32. Hewitt O, et al. What happens next? A 2-year follow-up study into the outcomes and experiences of an adapted dialectical behav therapy skills training group for people with intellectual disabilities. Br J Learn Disabil. 2019;47(2):126–33. https://doi.org/10.1111/bld.12267
33. Baudinet J, et al. Adolescent experience of radically open dialectical behav therapy: a qualitative study. BMC Psychiatry. 2022;22(1):466. https://doi.org/10.1186/s12888-022-04114-8
34. Isaksson M, et al. Sharing and connecting with others - patient experiences of radically open dialectical behavior therapy for anorexia nervosa and overcontrol: a qualitative study. J Eat Disord. 2021;9(1):29.
35. Rozakou-Soumalia N, Dârvariu Ş, Sjögren JM. Dialectical behav therapy improves emotion dysregulation mainly in binge eating disorder and bulimia nervosa: A systematic review and Meta-Analysis. J Pers Med, 2021. 11(9).
36. Gee B, et al. Delivering mental health support within schools and colleges–a thematic synthesis of barriers and facilitators to implementation of indicated psychological interventions for adolescents. Child Adolesc Mental Health. 2021;26(1):34–46. https://doi.org/10.1111/camh.12381
37. Thompson Burdine J, Thorne S, Sandhu G. Interpretive description: A flexible qualitative methodology for medical education research. Med Educ. 2021;55(3):336–43. https://doi.org/10.1111/medu.14380
38. Hunt MR. Strengths and challenges in the use of interpretive description: reflections arising from a study of the moral experience of health professionals in humanitarian work. Qual Health Res. 2009;19(9):1284–92. https://doi.org/10.1177/1049732309344612
39. Braun V, Clarke V. Reflecting on reflexive thematic analysis. Qualitative Res Sport Exerc Health. 2019;11(4):589–97. https://doi.org/10.1080/2159676X.2019.1628806
40. Byrne D. A worked example of Braun and Clarke's approach to reflexive thematic analysis. Qual Quant. 2022;56(3):1391–412. https://doi.org/10.1007/s11135-021-01182-y
41. Nowell LS, et al. Thematic analysis: striving to Meet the trustworthiness criteria. Int J Qualitative Methods. 2017;16(1):1609406917733847. https://doi.org/10.1177/1609406917733847
42. Te Hiringa Mahara - the Mental Health and, Commission W. Young people speak out about wellbeing: an insights report into the wellbeing of Rangatahi Māori and other young people in Aotearoa. Wellington: New Zealand; 2022. https://www.mhwc.govt.nz/assets/Reports/Youth-wellbeing-insights-report/Youth-Wellbeing-Insights-Report-Full.pdf
43. Fleming T et al. *Mixed progress in adolescent health and wellbeing in Aotearoa New Zealand 2001–2019: a population overview from the Youth2000 survey series.* Journal of the Royal Society of New Zealand, 2022. 52(4): pp. 426–449. https://doi.org/10.1080/03036758.2022.2072349
44. Fleming T, et al. *Youth19 rangatahi smart survey, initial findings: Hauora hinengaro/emotional and mental health.* The Youth19 Research Group. New Zealand: The University of Auckland and Victoria University of Wellington; 2020. https://static1.squarespace.com/static/5bdbb75ccef37259122e59aa/t/5f338e4cfb539d2246e9e5ce/1597214306382/Youth19+Mental+Health+Report.pdf
45. Every-Palmer S, Grant ML, Thabrew H. Young people don't tend to ask for help more than once: child and adolescent psychiatrists' views on ailing

mental health services for young new Zealanders. Australasian Psychiatry. 2022;30(6):684–8. https://doi.org/10.1177/10398562221115624
46. Baxter J, et al. Prevalence of mental disorders among Māori in Te Rau Hinengaro: the new Zealand mental health survey. Australian New Z J Psychiatry. 2006;40(10):914–23. https://doi.org/10.1080/j.1440-1614.2006.01911.x
47. Every-Palmer S, et al. Psychological distress, anxiety, family violence, suicidality, and wellbeing in new Zealand during the COVID-19 lockdown: A cross-sectional study. PLoS ONE. 2020;15(11):e0241658. https://doi.org/10.1371/journal.pone.0241658

Publisher's note