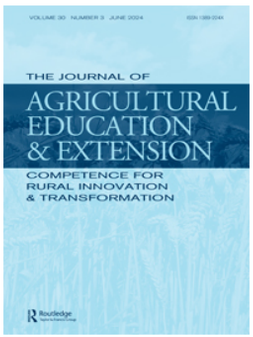

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Wellbeing education increases skills and knowledge among tertiary students in the agricultural sector: insights from a mixed methods study

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ABSTRACT

Purpose: The agricultural sector is facing a myriad of financial, environmental, social, and cultural challenges which affect the mental health of those working on-farm. This study focused on a tertiary education programme designed to increase recognition of mental health issues and convey strategies to address these.

Methodology: To identify the effect of such a programme, and which aspects contribute to that effect, this paper applied a mixed methods approach. Quantitative propensity score matching was used to identify changes in knowledge and skills, and qualitative surveys were conducted to explore the wellbeing of students and to identify aspects of the programme contributing to change.

Findings: Students report an increase in (i) ability recognising signs of poor mental health in self and others; (ii) confidence talking about their own and others' mental health; and (iii) knowing how to access mental health support services. Programme aspects contributing to this effect are peer-to-peer education and building on existing knowledge.

Practical implications: This paper addresses a gap in the literature by providing insights into programme aspects that lead to successful delivery.

Theoretical implications: This study reports on the evaluation of a tertiary education programme and provides valuable insights into whether such programmes can contribute to increased knowledge on wellbeing.

Originality: This research describes and analyses the effectiveness of a mental health promotion programme aimed at young adults which is rare in the literature.

KEYWORDS

Evaluation; higher education; rural; wellbeing; mental health; mixed methods

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Introduction

The global agricultural sector is facing complex challenges. Unpredictable events which threaten stock and crops such as drought, disease or pestilence are common occurrences (IPCC 2022), as is a demanding and hazardous work environment with concomitant difficulty attracting and retaining employees (Deming et al. 2020; Eastwood et al. 2019). Furthermore, land-managers are coping with irregular and uncertain income, financial debt (Cole and Bondy 2020), frequent negative public perception of the sector's social responsibility (Knook, Eastwood, and Pinxterhuis 2022b), overwork, geographical isolation (Goffin 2014), and due to Covid-19, an increase in social isolation (Meredith et al. 2020). These issues have a negative effect on the mental health and wellbeing of those working and living on-farm (Knook et al. 2022a; Yazd, Wheeler, and Zuo 2019) with the impact felt globally (e.g. Henning-Smith et al. 2022; Meredith et al. 2020; Rudolphi and Barnes 2020). The United Kingdom's rural population is currently experiencing increased levels of stress, anxiety, depression and suicidal ideation (Rose et al. 2022), while in the United States farmers are twice as likely as the general population to die by suicide and in France a farmer dies by suicide every two days (Goffin 2014). In the United Kingdom and Australia, farmers have a higher suicide rate than any other occupational group (Goffin 2014). In Aotearoa New Zealand (from here on referred to as NZ), the location of the current study, rural communities have higher suicide rates than urban communities, and higher rural suicide rates than countries with similar agricultural industries (Beautrais 2018). Yet more than other developed countries, NZ's economy depends on the success of the agricultural industry and the rural communities who bear the weight of its complex challenges (Goffin 2014).

To be able to cope with these challenges, it is important to build resilience in mental health and wellbeing in rural communities (Rose et al. 2023). One way of building wellbeing resilience is by introducing those working and living on farm to aspects of wellbeing via extension and education programmes (Knook et al. 2022a). These programmes are a helpful tool that can also be used to teach these concepts to future land-managers, such as university students (Stallman and Shochet 2009). Previous research has shown that university students seek to improve their wellbeing and increase their resilience and it recommends incorporating programmes to increase mental health literacy, create empathy and build campus cultures that address mental health (Wynaden et al. 2014). However, there is limited evaluation of agricultural wellbeing education programmes. A recent study examined agricultural education and wellbeing, but the programme evaluated was focused on established farm owners (Knook et al. 2022a). The focus on established owners in wellbeing education seems to be a continuous trend (Stanley-Clarke 2019).

The contribution of this study is three-fold. Firstly, we report on a novel wellbeing education programme targeted at adolescent rural populations. There are few of these in the literature, fewer of which are robustly evaluated. Secondly, this study reports on the evaluation of this tertiary education programme and provides valuable insights into whether such programmes can contribute to increased knowledge on wellbeing and thirdly, it provides programme designers with valuable information into why this increase, or lack thereof, is observed. This can subsequently be used to feed into future programmes. To make these contributions, we studied a wellbeing programme delivered to agricultural students in NZ.

Agricultural education programmes

Education in the agricultural sector is mostly known as 'extension.' The participatory nature of extension allows for the inclusion of complexity, a farmer's perspective and knowledge in the development of new ideas and practices. The intended outcome of these education and extension programmes includes an increase in practice adoption and knowledge, as well as improved management skills and decision-making abilities, which subsequently are intended to lead to an increase in cultural capital, i.e. the ideas in the extension programme become embedded within the farming culture (Knook and Turner 2020).

Qualitative and quantitative methods have been used for the evaluation of agricultural education programmes (Knook et al. 2018). For example Knook et al. (2020) found that practice change is more likely to happen in an equalitarian environment where open communication can occur. Other key aspects in agricultural sector wellbeing programmes that lead to change are peer to peer learning (Franz et al. 2010; Sewell et al. 2014) and connecting new learnings to 'familiar' topics that people are comfortable talking about (Knook et al. 2022a). In addition, sustained support to allow familiarisation with a new topic such as wellbeing and a 'safe' environment is essential to allow open communication. This safe environment can be created by having peer-to-peer education, or a trusted advisor (Hammersley et al. 2022). However, Hammersley et al. (2022) focused on established farmers, leaving a gap as to how to develop agricultural education around wellbeing amongst young entrants to the sector.

Wellbeing education

Mental health literacy developed through wellbeing education involves the knowledge and skills to identify when a person is becoming unwell and where to direct them for further support and assistance (Morgaine et al. 2017). This includes supporting young people to recognise when a peer may be becoming unwell as well as seeking help for themselves (Bulanda et al. 2014; Reavley et al. 2014). Supporting young people to develop wellbeing skills can have long term benefits for the individual including the development of resilience into adulthood and improving mental health literacy (Ashwood et al. 2015; Ferris et al. 2019; Winzer et al. 2018; Young et al. 2020). The skills learned from wellbeing education programmes can also be translated into improved educational achievement and the development of healthy social behaviours (Ashwood et al. 2015; Ferris et al. 2019).

Universities have a duty of care for their students and tertiary study occurs at a challenging time in a young person's life as they enter adulthood and deal with the pressures of academic study (Barrable, Papadatou-Pastou, and Tzotzoli 2018). Tertiary education (including university) settings are therefore ideal for the delivery of mental health education programmes (Young et al. 2020). Wellbeing education can take several forms such as one-off programmes, embedded components of courses, mindfulness, psychological psychoeducation, recreation, as well as general strategies to reduce or manage stress (Worsley, Pennington, and Corcoran 2022).

While there is a growing body of literature around the benefits of delivering wellbeing programmes for tertiary students there have been varying degrees of success (Ashwood

et al. 2015; Ferris et al. 2019; O'Reilly et al. 2018; Winzer et al. 2018; Young et al. 2020). For example, a qualitative assessment of a mental health literacy programme targeted at adolescent males in Australia found an increase in knowledge around mental health literacy after programme participation. However, this increase was not seen among all students, who indicated that this was linked to the connection between educators and participants, the context of programme delivery, and practical activities (Wynters et al. 2021). Young et al. (2020) found that those with low levels of wellbeing were most likely to benefit from wellbeing education programmes. Ashwood et al. (2015) also reported stigma as a significant barrier to engagement in mental health promotion and emphasised the importance of breaking down this barrier as critical to successful knowledge acquisition and application.

The WellMates programme

A wellbeing programme in Aotearoa New Zealand was selected as a case study. Of the 185 people who died by suicide on farms in NZ between 2007 and 2015, 25% were farm labourers younger than 25 years old (Beautrais 2018). Concerningly, few of these young people had contact with a doctor in the period prior to their death, suggesting that interventions need to be delivered in settings other than primary care (Stanley-Clarke 2019). Hence, there is a strong need to build wellbeing resilience amongst this future rural population.

The WellMates programme was developed in response to the limited availability of specific interventions targeted at the vulnerable sub-group of young farmworkers, who form a significant cohort of the students who pass through NZs land-based universities. WellMates was designed in 2020 through a collaboration between agricultural academic staff, wellbeing staff and students at one of the universities in this study, in reaction to suicide deaths of rurally based alumni. WellMates was designed using a programme logic model (Funnell and Rogers 2011) to address this underlying need to reduce suicide in rural populations. The programme consists of a two-hour workshop delivered to first year agriculture students, facilitated by students in their second or third year of study. The focus is on peer-to-peer discussions, where students are informed about wellbeing challenges, literacy and signs of poor mental health in themselves and others. See Figure 1 for an outline of the programme logic model framework which shows the long-term outcome of community wellbeing and resilience, the medium-term outcome of individual wellbeing and resilience, and the short-term outcome of individuals strengthening and maintaining their mental health. Logic model interventions required students to engage in group activities to develop their wellbeing literacy and enhance their ability to recognise and respond to signs of mental distress in themselves and in others. Further, students engage with support strategies such as the Five Ways to Wellbeing model (New Economics Foundation 2008) which arose from evidence which suggests that a small improvement in wellbeing can help to decrease some mental health problems and help people to flourish. This evidence sets out five actions to improve personal wellbeing: connect, be active, take notice, keep learning, give. While these are prioritised in the WellMates workshop, students also explore the range of public support services that they can use in future instances of mental distress. Students are introduced to WellMates in the first year of their university career.

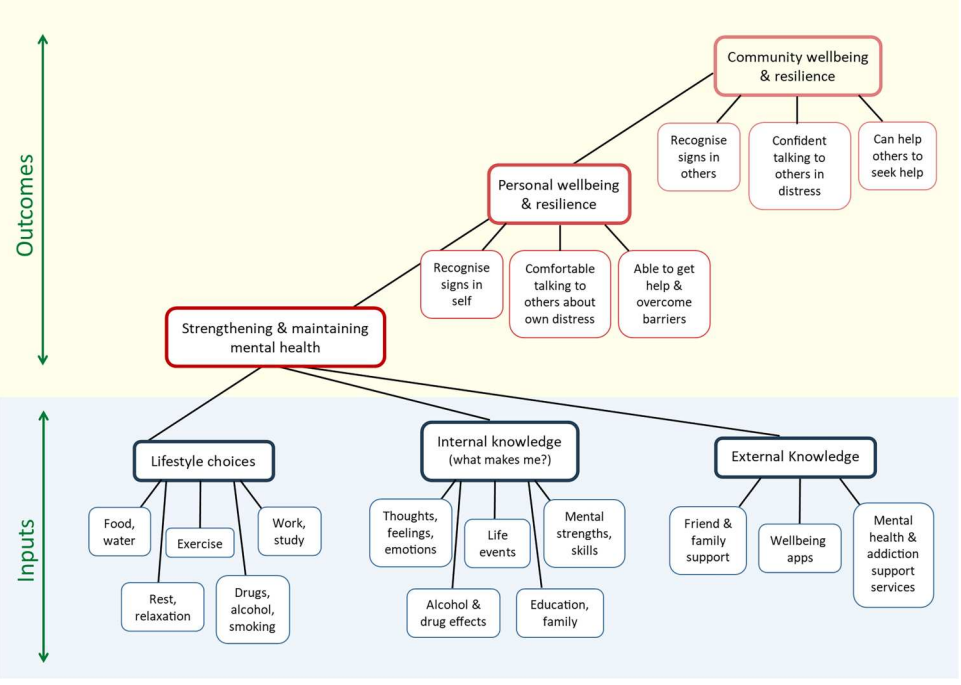

Figure 1. Mental health framework for the WellMates programme.

Methods

Data collection and analysis

The WellMates programme was presented to students at two of NZs land-based universities and data consolidated. Evaluation of the programme consisted of a mixed methods approach, in which a quantitative survey was conducted to assess whether there was an increase in wellbeing knowledge and skills. Subsequently, qualitative interviews were conducted to gain an understanding of the wellbeing needs of students, the value of the programme, and the aspects that contributed to the success (or lack thereof) of programme participation. The qualitative data provided contextual information related to participants' experiences of the programme, and explanatory data in relation to the quantitative findings.

Quantitative approach

A treatment and control group were surveyed to assess the effect of programme participation on knowledge and skills increase. The survey questions consisted of: (i) an eight question, five-point Likert mental health knowledge and skills question set (Appendix 1.1); and (ii) a nominal eight question survey which collected demographic information (Appendix 1.2). For the comparison between the treatment and control group, a propensity score matching (PSM) analysis was conducted to assess the Average Treatment Effect (ATT) (Stuart 2010). This approach was applied by firstly estimating the propensity score of the survey participants based on the covariates, for which the statistical summary of matching characteristics is provided in included in Table 1. Secondly, the participants

Table 1. Demographic summary statistics with t-test comparisons of the means prior to matching.

	Control ($N = 58$)		Treated ($N = 69$)		Welch *t*-test for differences (C-T) in covariates		
Variable	Mean	St. Dev	Mean	St. Dev	*p*-value	Lower 95% CI	Upper 95% CI
18 Years or Younger	73.7%	–	68.2%	–	0.506	−10.8%	21.8%
19 Years	14.0%	–	22.7%	–	0.215	−22.5%	5.1%
20 Years or older	12.3%	–	9.1%	–	0.574	−8.0%	14.4%
Female	46.6%	–	43.1%	–	0.702	−14.5%	21.4%
First at Uni	48.3%	–	34.3%	–	0.117	−3.5%	31.4%
Higher study	6.9%	–	9.0%	–	0.673	−11.7%	7.6%
Māori	10.3%	–	8.7%	–	0.756	−8.8%	12.1%
Urban	10.7%	–	12.3%	–	0.786	−13.2%	10.0%

in the treatment and control groups were matched by using nearest neighbour matching without replacement, including a 0.25 caliper. Thirdly, after checking the quality of matching, by using the log-likelihood and Akaike information criterion values (Cameron and Trivedi 2005), the matched sample was used to estimate the ATT.

$$ATT = E[Y(1)|D = 1] - E[Y(0)|D = 0]$$

ATT is the average treatment effect on the students who participated in the workshop, where $D = 1$ indicates participation and $D = 0$ indicates the student did not participate. Y refers to each observed student in the participation (1) or non-participation (0) state and E is the expected value.

For analysis, data from the knowledge and skills question set were aggregated into four groups based on topic similarity, as well as an overall knowledge measure. Data values for each grouped variable are an average of the five-point Likert survey responses to the component questions because the grouped variables contain different numbers of component questions (Table 2). Due to participation in the workshop, we expected a positive ATT on the performance indicators.

Qualitative approach

To gain insight into the aspects of the programme that led to change, qualitative data were collected by conducting semi-structured interviews. All interview participants were recruited using purposive sampling and were volunteers responding to interview requests. Interviews were conducted with ten agricultural students who were neither participants or from the control group to gain an understanding of how they managed their health and wellbeing as well as their experience of using university support services

Table 2. Aggregated knowledge and skills outcome measures from the WellMates workshops. More detail on the survey can be found in the Appendix.

	Topic	Knowledge and confidence questions
1	Five ways to wellbeing	Q1: I know about the five ways to wellbeing model
2	Talking about mental health	Q2: I feel comfortable talking about my own mental health
		Q3: I would ask for help if I was struggling with my mental health
		Q4: I could talk with a friend who seems mentally upset
3	Helping self	Q5: I recognise the signs when my mental health is not great
		Q6: I know what to do if I need mental health support
4	Helping others	Q7: I can recognise when someone else really needs help with their mental health
		Q8: I know what to do to help someone who is mentally upset
5	Overall knowledge and skills	All eight questions

providing a context of understanding in relation to the delivery of the programme. Further semi-structured interviews were undertaken with seven students who had attended the WellMates programme across both universities to explore their experience of the programme, any new knowledge gained, and their reflections on future WellMates delivery. The number of programme participants who were interviewed was limited to those who volunteered to participate. Finally, the two programme educators were interviewed to gain insight into their experience delivering the programme including aspects that worked well and areas requiring further development.

In total 19 semi-structured interviews were conducted, these occurred either online using zoom (an online conferencing tool) or in-person. There were four male participants and fifteen female participants. No other demographic information was collected due to the small number of potential interview participants, and the need to ensure confidentiality of information for the participants. Interviews occurred at a time that was convenient to the participants and participants received a small food voucher to thank them for their contribution. All interviews were recorded, transcribed, and returned to participants for transcript checking to ensure the trustworthiness of the research process.

All qualitative data were analysed inductively utilising thematic analysis informed by the processes of reflective thematic analysis articulated by Braun and Clarke (2022). Data analysis was undertaken manually by both the research assistant and the lead qualitative researcher to ensure inter-coder reliability. The interviews were grouped by type (agricultural students, WellMates participant interviews and educators) and initially analysed separately. The research questions formed the starting point for the iterative process of moving between transcripts to identify any repeated patterns or anomalies within the data. This process supported themes to emerge from the data without any pre-existing assumptions. Once themes were developed these were considered in relation to the other data sets and existing literature on the topic.

Ethical considerations

The relevant ethical bodies from both universities gave approval for all stages of the research. Key ethical principles included informed consent, confidentiality, beneficence and conflict of interest. These principles were critical given the sensitive nature of research dealing with mental illness and suicide and because participants were students at the universities where both the student educators and authors were employed. Research participants were informed of the research via their online course page one week prior to the workshop. This information included the principles of confidentiality, the right to withdraw within seven days and mental health support services at both universities and their communities. The information was also made available in hardcopy and discussed at the start of the workshop with participants given the opportunity to ask questions. Members of the student wellbeing teams were present during delivery of WellMates. Beneficence was met by the outcome of the research benefitting future agriculture students at both universities. Conflict of interest was avoided by ensuring the authors were not involved in the delivery or assessment of students in the agriculture courses where the programme was delivered. This point was also included in information about the research.

Table 3. Mann-Whitney U hypothesis tests for PSM matched sample on knowledge scores by treatment group (*** $p<.001$, ** $p<.05$).

	Mean				
Knowledge scores	Control	Treated	Difference	Percentage Diff	*p*-value
Overall (out of 40)	32.45	36.02	3.57	11%	<0.001***
Five Ways to Wellbeing (1–5)	2.93	3.96	1.04	35%	<0.001***
Talking about mental health (1–5)	3.67	3.89	0.22	6%	0.0294**
Signs and support for self (1–5)	3.95	4.13	0.19	5%	0.0269**
Signs and support for others (1–5)	3.84	4.07	0.23	6%	0.0107**
N	56	56	112	–	–

Findings

Effects of participation

Skills and knowledge increase

The quantitative data analysis provided insight into the knowledge and skills increase after programme participation. The ATT for knowledge increase in the treatment group (Table 3) shows evidence of positive treatment effects for our five knowledge and skills topics (Table 2). All results are statistically significant at least at the 5% level. The findings show that the workshop increases overall knowledge by 11%, increases knowledge associated with the Five Ways to Wellbeing model by 35%, increases the reported ability to talk about mental health by 6%, increases the awareness of signs and support for their own mental health by 5% and increases the awareness of signs and support for others' mental health by 6%. These results demonstrate that the workshop increases mental health awareness and knowledge among undergraduate students.

However, when individual questions are analysed it is noted that students bring with them skills in some areas but need knowledge and skills in others. For example, students in the control (non-workshop) group report being confident talking to their friends about their friend's mental health issues. However, they are not as confident in asking for help themselves (talking to others about their own mental health) – this is a skill that is improved by the programme. Moreover, students report already knowing signs of poor mental health in themselves. However, they are less confident identifying signs in others, another skill improved by the programme. Finally, they are also less likely to know how to access support (even if they can identify signs of poor mental health) – this again is increased by the programme. Hence, the programme is supplementing their existing wellbeing education and experience to date and is of value in terms of knowing how to access support and dealing with others who have mental health struggles.

Insights from the qualitative analysis

Findings from the qualitative interviews with WellMates participants supported the value that participants found in attending. John's praise was typical of others saying: 'they brought up some good ideas and just made people aware of what was going on, and what you should be doing … Yeah, I think they did a good job' (John). Participants also spoke about the value in applying the learning, Harry commented on the real-life application saying: 'I definitely think that the tools we learn at WellMates definitely does translate very well to real life application 100%.' (Harry). Both he and Beth found

it was a useful reminder to prioritise self-care, with Beth explaining: 'So when you have someone in a room saying: "look you need to focus on this again", it kind of straightens you up, and you are like yes, I need to be there for myself.' (Beth).

A key component of WellMates is in learning the skills of how to support others. This was an area of need identified in the interviews with agricultural students who had not attended the programme. These students believed that they had been taught how to look after themselves but not how to support others. Eight non-attenders discussed the challenges of not knowing how to support their friends, flatmates, and family members who they thought might be becoming unwell. Joanne gave the example of wanting to support her flatmate, but she was not sure what to do saying: 'I was always told to support each other, look out for each other, but it is more of how do we actually do that' (Joanne). Four of these students discussed lacking the confidence to know how to help others explaining that any initial confidence was undermined by self-doubt. Megan explained:

> I would probably have some idea [of what to do], but then I would probably doubt myself, and not do anything … cos you don't want to get it wrong and ask them, and they are like real offended or something. Just like you are potentially quite awkward and probably not good at all in these situations. (Megan)

WellMates interview participants affirmed the value of learning how to support others as part of the course. Beth spoke about how it improved her confidence. Rose explained this was new knowledge and she regarded it as the most valuable part of the course saying: 'it's not really something we talked about at high school at all' (Rose). Harry gave an example of how he had applied this knowledge:

> I had a friend who recently has been through a very hard time, you know sort of just that look, listen part. For others, it wasn't in good places. Just sort of gave him a text and said 'are you alright mate'. Nah, not really. I said 'I'm here for you if you want to talk about it, we talk about it, you call me' whatever, and he did end up calling me and we had a really good chat about it. So definitely the tools that I have gathered, and the refreshed tools from that Well-Mates course has definitely made a big difference so far. (Harry)

As evidenced by Harry's quote, participants regarded this knowledge about supporting others as incredibly valuable. Harry, Rose and Sarah saw this as an area that could be extended in future deliveries of the programme.

Reasons for knowledge and skills increase

Building on existing knowledge

A key contribution of the WellMates programme was reminding participants of their existing knowledge. Interview participants felt the course built on their knowledge about self-care gained from their own experience of mental illness or from wellbeing education at school. Harry said he: 'thought it was a very good reminder that, you know, we all go through things. You can ask for help.' (Harry). John agreed saying he felt the course emphasised the need to prioritise self-care and that everyone's lived experience is different:

> I guess it makes you think, oh I'm not feeling too good. That's not a bad thing. Just put down the books and go do something. Just have a break. You don't have to feel guilty about it. You

> don't know what others are thinking. You don't know what they are going through. So if someone's being an idiot or being a dickhead, you might look at him and think what the heck is he doing, but then he might be going through something, you don't know. (John)

Most participants said they were already aware of the self-care tools that were taught as part of the course but could not necessarily name them. Harry, while failing to name the tools, said the self-care tools: 'were a refresher, like just bringing it all back as well. Your signs, and what not, just putting in the scenarios and everything.' (Harry). As detailed in the quotes by Harry and John, attending WellMates had reminded them of the value of the wellbeing tools and supported them to prioritise their wellbeing.

Reducing stigma and a safe space

All WellMates interview participants affirmed the value of the course and that it should continue to be delivered. John's views were typical of others as he explained that the initial value came in talking about mental illness:

> I just think it is good that in general [WellMates] are making a big deal about it, so people know that it is not a problem if they want to talk to someone about it. I think that's important, yeah. And that's what they are doing. (John)

In agreement with John interview participants discussed that the course helped to breakdown the stigma of talking about mental illness, reducing barriers to seeking help. Sam explained that the messages delivered as part of the course: 'brought reassurance that it is ok to talk. Like it's not masculine at all to hold your feelings in. If anything, it's more masculine that you have got the bravery to talk to someone' (Sam). Harry agreed saying that WellMates had given him the confidence to talk with his friends about his own experience of mental illness:

> I think it was after the WellMates course that I just opened up and I said that I had actually been through this before, and that's not sort of a great feeling, and what not. So I think the WellMates course definitely led me to open up to my friends at university. (Harry)

Several interview participants commented on the challenges of mental illness within the agricultural sector and saw the value of WellMates' rural perspective in breaking down stigma. Beth spoke about the isolation of farming saying her key learning from the programme was that:

> Pretty much you are not alone. There is so many people in the same boat, like farming does get a bit lonely. You are out there by yourself, but if keep on top of it and you let yourself have those breaks, and let yourself go out, then it is not as bad as it potentially could be. (Beth)

Sarah also explained that WellMates' rural perspective supported her engagement:

> I liked how when normally hear about mental health, it is very broad, whereas [WellMates] was how to help people who are rural. You know, it is very different to town help, so that was quite nice. And sort of touching on how hard it is, and how many people don't speak up rurally, and how easy it is to go without speaking up when you are out there by yourself, sort of thing. I just liked the rural approach. (Sarah)

As evidenced in Sarah's quote, delivering WellMates from a rural perspective was an aspect that students enjoyed that participants found supported breaking down stigma within the rural community.

Discussion

The purpose of this study was to evaluate the effectiveness of an agricultural tertiary education programme focused on wellbeing. The mixed method findings show that there is a knowledge and skill increase among WellMates participants and that the participants experience the programme as useful. Students attribute two programme aspects to this: (i) building on existing knowledge, and (ii) the creation of a safe space by reducing stigma. This discussion explores how these findings relate to wider literature and considers how resilience and mental wellbeing through mental health literacy can be developed over time and reinforced.

Wellbeing education in the tertiary agricultural sector

This study is one of the first, to the authors' knowledge, to explore how to conduct successful wellbeing education among tertiary students in the agricultural sector. The mixed method approach is seen in previous work (Hill, Bradley, and Williams 2017; Knook et al. 2020). Similar to previous studies in older cohorts (Knook et al. 2018), the quantitative evaluation applying PSM shows an increase in skills and knowledge after programme participation. Following engagement with WellMates, students had a significant increase in confidence discussing mental health, knowledge of the signs of poor mental health in themselves and others, knowledge of how and where to seek support and knowledge of one positive mental health model, The Five Ways to Wellbeing.

Longitudinal effects of WellMates were explored using qualitative interviews with students who had participated in the WellMates programme two months previously and these provided insight into the value of the programme. The qualitative component of the research ensures that a study represents the perspectives of the research participants through ensuring credibility, transferability, auditability, and confirmability (Lincoln and Guba 1985). The results of the study offer proximal similarity and generate important context and knowledge in relation to the study's overall findings. This can thus add to putting the programme's findings into context.

A key aspect for success in agricultural extension programmes is double loop learning, a process of learning in which feedback loops known as frames of reference are changed and beliefs and assumptions are reshaped (Argyris and Schon 1996; Inman et al. 2018). This occurs through the development of trust after sustained knowledge exchange with for example peers (Franz et al. 2010; Sewell et al. 2014). Although a one-off two-hour workshop is unlikely to facilitate this double loop learning, students who take the programme do participate in shared classes for a period of one to two years. Even though wellbeing learning is not facilitated at that stage, sustained knowledge exchange with peers might still be possible. Further research should focus on these longitudinal effects, to identify how to provide support to ensure sustained change.

Important programme aspects to support mental health literacy

Key aspects contributing to the success of the programme were: (i) building on existing knowledge; and (ii) creating a safe space by reducing stigma. Building on existing knowledge is an often applied strategy in multi-year education and extension programmes, in

which the first year is about slowly introducing new concepts and building trust, followed by making changes and allowing moments of reflection in the following years (Cofré-Bravo, Klerkx, and Engler 2019; Knook et al. 2022a). There are two important aspects to this: building trust to enhance knowledge exchange and allowing sufficient time to reflect on learning and subsequently change practices and behaviours.

Although WellMates does not span several years, most programme participants had only completed their secondary school education in the year or two prior to WellMates delivery in 2021. During the Covid-19 pandemic much NZ schooling occurred online. As part of their online delivery, schools prioritised providing students with wellbeing resources related to self-care including teaching skills in relation to mindfulness, social and emotional regulation, as well as engaging with students and their families online amongst other supports and resources (Education Evaluation Centre 2021). The knowledge students gained about well-being during this period provided a foundation upon which WellMates could build by introducing further skills to cope with wellbeing challenges and further reinforcing existing knowledge. It also supported participants to develop confidence in applying the knowledge to their own mental health and in relation to supporting others, key aspects of mental health literacy (Bulanda et al. 2014; Morgaine et al. 2017; Reavley et al. 2014).

Our study did not explore the extent to which trust was important (Hammersley et al. 2022), but did talk with participants about aspects that they felt improved their learning. In other wellbeing education, a known educator or advisor is key in making change (Knook et al. 2022a), whereas the WellMates educators did not know the students personally before the workshops, and only had a two hour window to build this trust. However, participants reflected on the value of developing connection with the educators. This supported their engagement with the programme and hence their openness to learning (Hay et al. 2024). Creating a safe space has been found to be a key aspect in other agricultural extension and education programmes. WellMates created this space by applying peer-to-peer education, which is seen to be used by other education and extension programmes in Europe (Burton and Paragahawewa 2011) and NZ (Cradock-Henry et al. 2020).

Conclusion

First and foremost, we report on a novel wellbeing education programme targeted at adolescent rural populations. The demonstrated effectiveness of this positive mental health programme for agricultural tertiary students is encouraging. The positive mental health skills learnt by this young farming cohort have the potential to transform not only their own resilience but also to strengthen resilience within the farming community. As these young people move into roles of responsibility, working and living on-farm, their competence to notice and discuss mental health concerns has the potential to make a positive change in their community. There are few of these in the literature and the success of this programme suggests other cohorts could benefit if such a programme design was used to promote wellbeing in agriculture elsewhere.

Developers of wellbeing education programmes for the tertiary sector would benefit from building the programme around existing knowledge and to reduce stigma around mental health discussion by creating a safe space with peer-peer conversations with respected peer leaders.

Future research should focus on the longitudinal effects of such learning using mixed methods to explore retention of learning after extended timeframes.

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Data availability

All data are securely stored and available.

Ethics approval

Ethical approval was received by both universities involved in this study (HEC2022-04, SOA 22-08 and SOB22-28).

Patient consent

All research participants gave informed consent to take part in this study.

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