Bandilovska, A., Aston, R., Sawyer, S. M., & Raniti, M. (2025). Teacher readiness for health promotion: A survey of Australian pre-service teachers' knowledge, attitudes and skills. *International Journal of Wellbeing*, *15*(2), 4149, 1-32. https://doi.org/10.5502/ijw.v15i2.4149

ARTICLE

Teacher readiness for health promotion: A survey of Australian pre-service teachers' knowledge, attitudes and skills

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Abstract: Whole-school approaches to health promotion such as Health-promoting Schools (HPS) recognise the importance of health and wellbeing for student learning and educational outcomes, as well as schools as settings that support health and wellbeing. A myriad of teacher actions contribute to student health and wellbeing including creating positive social-emotional environments, modelling healthy behaviours, identifying concerning behaviours, and encouraging students and their families to access health services. In the absence of research on teacher trainees, we set out to explore pre-service teachers' knowledge, skills and attitudes towards whole-school approaches to health and wellbeing by inviting students enrolled in postgraduate education training at an Australian university to complete an online survey which was designed to measure knowledge, skills and attitudes about HPS. Responses were obtained from 178 participants (20% response rate). Participants were relatively knowledgeable about HPS but less aware of the requirements to implement and sustain whole-school approaches. While participants generally agreed that teachers' actions are important in promoting the health of school communities, this was not universally supported. During placements, participants reported high rates of engaging in health-related activities but had differing understanding of their roles in supporting student health and wellbeing. In conclusion, while participants had reasonable theoretical knowledge about whole-school approaches for promoting health, they were less confident about their skills to apply this to teaching practice. Many expressed the need for more practical experiences beyond coursework and others wanted more explicit focus on health promotion in their studies, suggesting greater focus on health promotion is warranted in pre-service and early teacher education.

Keywords: health-promoting schools, wellbeing, school health, mental health, teacher health

1. Background

Whole-school approaches to health promotion such as Health-promoting Schools (HPS) are built on understanding the importance of health and wellbeing for student learning and educational outcomes, as well as appreciation of schools as settings for health and wellbeing. As defined by the World Health Organization (WHO), a HPS is "a school that consistently strengthens itself as a safe and healthy setting for teaching, learning and working" (WHO & UNESCO, 2021a, p.viii). The intention of HPS is to support the health and wellbeing of students, which in turn supports students to reach their maximal academic, social, emotional, and physical potential (WHO &

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UNESCO, 2021a). To promote sustainable implementation of HPS, WHO and UNESCO recently launched eight global standards that focus on adopting a systems approach through aligning government policies and resources, school policies and resources, school governance and leadership, school and community partnerships, school curriculum, school social-emotional environment, school physical environment and school health services (WHO & UNESCO, 2021a).

The global standards are intended to be adaptable to support governments and schools to address the situational needs and priorities of individual school communities. For example, mental health programs can be implemented at all schools but may look different from one school to another school (e.g., in terms of how and what activities are implemented) and within an individual school (e.g., according to year level). In the primary years, it is likely that schools will focus on assisting students' emotional regulation, have rules on zero tolerance to bullying and other small but discrete programs to promote mental health in a prevention-focussed manner. Given the higher incidence of mental disorders across adolescence (Robson et al., 2025), secondary schools may have a more explicit approach with seminars on mental health awareness, hosting of guest lecturers sharing personal journeys with different mental health illnesses along with investment in student leadership and approaches to fostering student agency (e.g., mental health ambassadors, mental health first aid), and more explicit support to access mental health services.

Teachers have been identified as the most influential factor in children's education (Hattie, 2009). In addition to their role as educators, HPS is based on understanding the indispensable role of teachers and school staff in supporting student health and development through creating positive social-emotional learning environments, modelling healthy behaviours, detecting concerning behaviours, providing consistent disciplinary approaches, and encouraging students and their families to access health services (e.g., psychologists, doctors; Hoover & Bostic, 2021; Jourdan et al., 2021; WHO & UNESCO, 2021a). While students are the main focus of HPS, the health of teachers and the wider school community is also valued, particularly in relation to the role of teachers in supporting students to thrive (Jourdan et al., 2021; St Leger, 2000; WHO & UNESCO, 2021a; WHO & UNESCO, 2021b).

Whole-school approaches to health and wellbeing are considered best practice internationally (WHO & UNESCO, 2021a). However, WHO and UNESCO's aspiration of a fully embedded and sustainable HPS system is challenged by the multiple barriers that contribute to the presence of an 'implementation gap' between the goal of HPS and what is widely observed in practice in many countries (Moore et al. 2022; Sawyer et al., 2021; Scheirer, 2005). These factors include lack of dedicated resources (financial and other), lack of time within the contemporary curricula (particularly in secondary schools), as well as lack of prioritisation of activities that, if primarily framed as health promoting, may not be seen as the core business of schools (Bruce et al., 2012; Guggleberger & Dur, 2011). A further factor that influences HPS sustainability is teacher capability. Research suggests that teachers who are not confident or underprepared to respond to the variety of student health and wellbeing needs are less likely to engage in HPS approaches (Day et al., 2019). In this regard, even when studies indicate that teachers are enthusiastic about HPS, they tend not to be comfortable driving its implementation without adequate training or resources (Rooney, 2019). Evidence indicates that barriers can differ between primary and secondary schools, for example, teacher attitudes towards the need to focus on broader supports for students in primary schools, and the tendency of secondary schools to be larger with a more crowded and subject-specific curriculum (Boyle et al., 2023; Levin, 2012;). Teachers also need the autonomy to shape its implementation to align with their classroom practices (St. Leger, 2000). This feature is appreciated within the new HPS global standards, as their emphasis on

implementing HPS as a system recognises the importance of a strong enabling policy and school leadership. In sum, studies suggest that lack of professional development around HPS or other whole-school approaches perpetuates teachers' sense of limited capability to fully embrace the potential of their roles (Herlitz et al., 2020).

In Australia, teachers in government schools are encouraged to embed a variety of practices to support health and wellbeing, regardless of their specific teaching role (Department of Education, 2022). A body of Australian research documents teacher attitudes to HPS, mainly voicing their support of HPS (e.g., Askell-Williams & Cefai, 2014; Aydin et al., 2021; Shepard et al., 2015). However, there is a distinct absence of research about pre-service teachers, notwithstanding growing expectations, especially since the COVID-19 pandemic, that teachers engage in regular practices to support student health and wellbeing.

Given how little is known about the preparedness of pre-service teachers to implement whole-school approaches to health and wellbeing in Australia or internationally, coupled with the growing expectations on teachers, it is valuable to understand the degree to which pre-service teachers feel prepared to implement whole-school approaches to health and wellbeing (Jourdan et al, 2021; WHO & UNESCO, 2021a; WHO & UNESCO, 2021b). This is an important question to explore because failure to adequately prepare pre-service teachers in relation to their future roles in implementing whole-school approaches will flow through to their future teaching practices (Clinton & Smith, 2023).

We surveyed pre-service teachers undertaking a Master of Teaching (Primary or Secondary) in 2022 at the University of Melbourne, Australia to gather evidence about their knowledge, skills and attitudes of HPS and its implementation. This in turn allowed us determine the extent to which pre-service teachers understand and feel ready to implement whole-school approaches to health and wellbeing in their future teaching roles. Given that the health, wellbeing, and developmental needs of children and adolescents vary across their schooling, we aimed to understand and compare the experiences of the Master of Teaching primary and secondary cohorts.

2. Methods

2.1 Ethics

Ethics approval was received from The University of Melbourne Human Research Ethics Committee (HREC ID #23958). Participation was voluntary. Written informed consent was obtained from participants to undertake the anonymous online survey.

2.2 Recruitment

Eligible participants were students (n = 912) enrolled in a Master of Teaching (Primary or Secondary) subject in Semester One, 2022 at the Faculty of Education at the University of Melbourne. Students were recruited through an online post within their learning management system. Facilitated by subject and year level coordinators, an invitation to participate was posted weekly for six weeks, starting in the last week of the Semester One teaching period (May 23rd, 2022) and ending one week after the end of the Semester One examination period. Recruitment to the survey coincided with the Faculty's semester Subject Evaluation Survey (SES); it was made clear to participants that this was an independent study.

2.3 Development of the survey

The design of the survey was informed by the new Global Standards for Health-promoting Schools and Systems (WHO & UNESCO, 2021a). The first section sought participant demographic information (e.g., age, type of degree [primary, secondary], year of commencement). The remaining sections focused on the themes of knowledge, skills and attitudes, and included exploration of school placement experiences and participants' personal perceptions and confidence about implementing health and wellbeing approaches. For example, participants were asked questions about the relationship between health and education (e.g., to what extent they agreed with the statement 'A school can only run effectively if it promotes the health and wellbeing of its students, staff and community'), questions that sought knowledge of whole-school approaches to promoting health and wellbeing (e.g., participants were asked to select the correct definition of a HPS), and perceptions of their roles and responsibilities as future teachers (e.g., the extent to which they agreed that 'it is a part of a teacher's role to look after their own mental health'). Efforts were made to maximise participation by reducing potential anxiety about incorrect responses. For example, prior to various questions seeking specific information, participants were informed that 'this is not a test'. Most response options used a 6-point Likert scale (e.g., ranging from strongly disagree to strongly agree) to ascertain participants' views. Other questions used a true/false response option. Some questions also encouraged free text responses. Qualtrics (The University of Melbourne licensed proprietary survey development software) was used to develop the online survey. At the end of the survey, links were provided that directed participants to relevant global reports on HPS to support their learning (WHO & UNESCO, 2021a; WHO & UNESCO, 2021b; WHO & UNESCO, 2021c). The draft survey was piloted with three current students as well as education experts to test face validity and readability, which led to some minor wording changes. The final survey took approximately 15 minutes to complete.

2.4 Data analysis

Survey data were imported to Microsoft Software Excel for analysis. Missing data were minimal overall, although increased fairly linearly with progression through the survey. Given the exploratory nature of this study, the quantitative data were analysed using descriptive statistics (i.e., statistical hypothesis testing was not conducted). Participants were sub-grouped by cohort (e.g., primary, secondary) for certain further exploratory analyses. Upon examination of the sub-group data, it was not possible to conduct Chi-Square Tests of Independence for cohort type (primary/secondary) and opportunity to engage in health and wellbeing actions (yes/no) as the data did not meet minimum recommended requirements (e.g., cell frequency counts were <5 in around half of all items, representing 25% of the total frequency count for each item, and were zero in some cells (Bewick, Cheek & Ball, 2004; McHugh, 2013). Data were then presented across the three categories of knowledge, skills and attitudes; free responses to open-ended questions are used as illustrative examples to highlight and support the interpretation of the quantitative data analysis.

3. Results

The analysis sample consisted of 178 respondents from an eligible cohort of 912 students (response rate 20%). The number of responses from the primary (n = 35) and secondary (n = 143) cohorts was proportional to the number of enrolled students in each course. The details of participant flow for the study are shown in the Appendix (Figure A1).

Participant demographic characteristics are presented in Table 1. The mean age of respondents was 30 years (SD = 9; 60% female). A minority of participants (n = 11) had not completed any school placement at the time of the survey; eight of these were on placement at the time of the survey. Eleven participants had completed all of their placements remotely due to having commenced their degree during the COVID-19 pandemic (2020-2022).

In the secondary cohort, a sub-sample of participants were undertaking their Master of Teaching degree within an accelerated timeline (n = 16, 11%). These students had completed a wellbeing subject (Promoting Wellbeing in Secondary Schools) in advance of other participants completing their degree on the standard (non-accelerated) timeline. This wellbeing subject has an emphasis on whole-school approaches.

3.1 Knowledge of whole-school approaches to health and wellbeing

3.1.1 Definition of HPS

Participants were asked to select the best definition of whole-school approaches to promoting health and wellbeing; two of the three response options were relatively nuanced (Appendix, Figure A2). Less than half selected the correct definition. A higher proportion of participants in the primary cohort than the secondary cohort were able to correctly differentiate between the definitions (60% primary, 38% secondary).

3.1.2 Implementation of HPS

A high percentage (84%) of participants correctly selected the most appropriate scope of implementation actions for HPS when presented with three alternative scenarios (see Appendix Figure A3). Fewer participants (62%) identified the correct option from three scenarios designed to identify the combination of actions most likely to promote sustainability of health promotion within a school (see Appendix Figure A4).

The illustrative text below suggests that while some participants regarded themselves as knowledgeable about implementation, they did not feel confident about applying this knowledge in schools as part of their future teaching role. “Wellbeing in theory is different to wellbeing in practice…” (MTeach Secondary participant who had been on one placement).

In large part, participants explained this was because at the time of completing the survey, they did not feel they had sufficient practical experience in this area. “I have not engaged in practical experience in relation to health and well-being.” (MTeach Secondary participant who had been on three placements).

Other participants reported they were lacking both knowledge and skills and felt as though they needed explicit teaching in health and wellbeing. “Although I am in my second year of study …, promoting health and wellbeing has barely been touched on, in comparison to topics such as literacy and numeracy teaching strategies.” (MTeach Secondary participant who had been on three placements).

3.2 Skills underpinning whole-school approaches to health and wellbeing

3.2.1 Placement experiences

Table 2 summarises responses to 23 scenarios that participants might have encountered on placement that are associated with supporting student health and wellbeing. A median of 6 actions (IQR = 5) was reported, ranging from one to 23. The scenarios were grouped into 5 categories; the category with the highest reported participation was ‘social-emotional wellbeing and engagement’ (42%); the category with the least reported participation was ‘community welfare and responsibility’ (5%).

Table 1. Demographic data (n = 178), by cohort (primary, secondary)

Characteristics		Primary	Secondary	Total
		n = 35	n = 143	n = 178
		n (%)	n (%)	n (%)
Age of participants in years, M (SD)		30 (8)	30 (9)	30 (9)
Gender	Female	28 (80)	79 (55)	107 (60)
	Male	6 (17)	55 (38)	61 (34)
	Prefer not to say	1 (3)	5 (4)	6 (3)
	Self-described[#]	0 (0)	4 (3)	4 (2)
Enrolment type	Domestic	33 (94)	123 (86)	156 (88)
	International	2 (6)	20 (14)	22 (12)
Previous qualifications	Certificate	0 (0)	1 (1)	1 (1)
	Bachelor's degree	28 (80)	105 (73)	133 (75)
	Master's degree	4 (11)	25 (17)	29 (16)
	Graduate Diploma	3 (9)	6 (4)	9 (5)
	Doctorate	0 (0)	6 (4)	6 (3)
Year course commenced[a]	2010-2014	0 (0)	1 (1)	1 (1)
	2015-2019	1 (3)	2 (1)	3 (2)
	2020	5 (15)	6 (4)	11 (6)
	2021	16 (47)	67 (48)	83 (48)

Characteristics		Primary	Secondary	Total
		n = 35	n = 143	n = 178
		n (%)	n (%)	n (%)
	2022	12 (35)	64 (46)	76 (44)
Previous employment in education related field*	Yes	5 (14)	39 (27)	44 (25)
	No	30 (86)	104 (73)	134 (75)
Completed at least one school placement	Yes	34 (97)	133 (93)	167 (94)
	No	1^ (3)	10^ (7)	11^ (6)
Number of school placements completed[b]	1	11 (32)	66 (50)	77 (46)
	2	15 (44)	43 (32)	58 (35)
	3 or more	8 (24)	24 (18)	32 (19)
Percentage of total placements to date completed online[b]	Full	0 (0)	11 (8)	11 (7)
	Partial	10 (29)	28 (21)	38 (23)
	None	24 (71)	94 (71)	118 (71)
Participants who had heard of whole-school approaches to health and wellbeing or HPS prior to commencement of their degree[c]	Yes	7 (29)	36 (34)	43 (33)
	No	13 (54)	58 (55)	71 (55)
	Unsure	4 (17)	11 (11)	15 (12)
Participants who had received training in whole-	Yes	1 (14)	7 (19)	8 (19)

Characteristics		Primary	Secondary	Total
		n = 35	n = 143	n = 178
		n (%)	n (%)	n (%)
school approaches or HPS prior to commencement of their degree	No	6 (86)	29 (81)	35 (81)
Participants who had learnt about whole-school approaches in their current course[c]	Yes	10 (44)	52 (48)	62 (47)
	No	12 (52)	37 (34)	49 (37)
	Unsure	1 (4)	19 (18)	20 (15)

Note. HPS = Health-promoting Schools.
[#]Participants described their gender as a free-text response;
*Examples of education related field include: employment at boarding schools, assistant principal, assistant teachers, sports coaches, music instructors, science teachers and language teachers;
^All participants (with the exclusion of three secondary participants who had not completed placement) were currently on placement when completing the survey;
[a]Missing data were 3% for the primary cohort and 2% for the secondary cohort;
[b]Sample size differs as these questions were not applicable to respondents who had not completed a placement (primary [n = 34] and secondary [n = 133];
[c]Missing data is 27% (note that these questions came at the end of the survey).

Table 2. Percentage of participants (n = 166) who reported opportunities to engage in health and wellbeing actions on placement. A total of 23 actions are presented, grouped by five categories, presented by cohort (primary, secondary)

Categories		Primary	Secondary	Total
		n = 34^	n = 132^	n = 166^
		n (%)	n (%)	n (%)
Individual student support activities				
Discussed a student's health or wellbeing issue with a mentor or a school leader (e.g., principal, year level or wellbeing coordinator)	Yes	28 (85)	85 (70)	113 (73)
	No	5 (15)	36 (30)	41 (27)
Supported/ comforted a student in distress	Yes	29 (88)	64 (52)	93 (60)
	No	4 (12)	58 (48)	62 (40)
Helped a student access health support at school	Yes	7 (21)	17 (14)	24 (16)
	No	26 (79)	104 (86)	130 (84)
Encouraged a student to access mental health support at school	Yes	2 (6)	21 (17)	23 (15)
	No	31 (94)	101 (83)	132 (85)
Had a conversation with a student that they asked you to keep confidential	Yes	3 (9)	6 (5)	9 (6)
	No	30 (91)#	114 (95)	144 (94)#
Provided emergency care for a student health issue (e.g., called an ambulance, administered an EpiPen)	Yes	0 (0)	2 (2)	2 (1)
	No	33 (100)	120 (98)	153 (99)

Categories		Primary n = 34^	Secondary n = 132^	Total n = 166^
		n (%)	n (%)	n (%)
Targeted teaching approaches				
Changed your teaching plan/ practice for a student with a disability or chronic health condition	Yes	18 (55)	60 (50)	78 (51)
	No	15 (45)	60 (50)	75 (49)
Discussed topics of identity with students, such as sexuality, gender and ethnicity	Yes	13 (39)	45 (37)	58 (38)
	No	20 (61)	76 (63)	96 (62)
Implemented a learning plan for a neurodiverse student	Yes	8 (24)	36 (30)	44 (29)
	No	25 (76)	85 (70)	110 (71)
Taught a class on a specific health or wellbeing topic to students	Yes	24 (73)	19 (16)	43 (38)
	No	9 (27)	103 (84)	112 (72)
Implemented a behavioural management plan for a student	Yes	7 (21)	25 (21)	32 (21)
	No	26 (79)	96 (79)	122 (79)
Discussed topics of sexual and reproductive health with students (either informally in response to students' questions or formally as part of teaching a class)	Yes	3 (9)	11(9)	14 (9)
	No	30 (91)	110 (91)	140 (91)

Categories		Primary n = 34^ n (%)	Secondary n = 132^ n (%)	Total n = 166^ n (%)
Social-emotional wellbeing and engagement				
Encouraged a student who has disengaged from learning/ class activities	Yes	31 (94)	105 (87)	136 (88)
	No	2 (6)	16 (13)	18 (12)
Helped students engage in conflict resolution	Yes	26 (79)	40 (33)	66 (43)
	No	7 (21)	81 (67)	88 (57)
Helped students resolve a friendship problem	Yes	25 (76)	19 (16)	44 (29)
	No	8 (24)	102 (84)	110 (71)
Assisted a student who is refusing to attend school	Yes	5 (15)	9 (8)	14 (9)
	No	28 (85)	111 (93)	139 (91)
Staff wellbeing and professional development				
Read the health and wellbeing policies at each school	Yes	29 (88)	98 (81)	127 (82)
	No	4 (12)	23 (19)	27 (18)
Supported a colleague in distress	Yes	14 (42)	42 (34)	56 (36)
	No	19 (58)	80 (66)[#]	99 (64)[#]
Received support for your health or wellbeing from a colleague or supervisor	Yes	11 (33)	28 (23)	39 (25)

Categories		Primary n = 34^ n (%)	Secondary n = 132^ n (%)	Total n = 166^ n (%)
	No	22 (67)	93 (77)	115 (75)
Delivered a health and wellbeing presentation to colleagues	Yes	1 (3)	3 (2)	4 (3)
	No	32 (97)	119 (98)	151 (97)
Community welfare and responsibility				
Engaged with local community members or businesses to support the health and wellbeing of students and the school community	Yes	1(3)	8 (7)	9 (6)
	No	32 (97)	113 (93)	145 (94)
Supported a parent, carer or family in distress	Yes	6 (18)	3 (2)	9 (6)
	No	27 (82)#	119 (98)	146 (94)#
Helped a student or family access external support services (e.g. health services in the community, Centrelink services, tutoring)	Yes	0 (0)	3 (2)	3 (2)
	No	33 (100)	118 (98)	151 (98)

Note. ^Sample size is smaller as these questions were not applicable to some respondents who had not yet undertaken placement;
#One respondent said they were asked to but said no;
For most questions, missing data constituted <5% total responses, ranging from 0-9%;
Shading indicates actions that had greater than a 10 percentage point difference between the primary and secondary cohorts.

Despite high rates of participation in many scenarios during placement, free-text answers indicated that engagement tended to be through observation rather than direct involvement in health and wellbeing actions on placement. This is consistent with lower responses to direct actions such as 'helping a student access health support at school' (16%), 'providing emergency care for a student health issue, such as calling an ambulance or administering an EpiPen' (1%), and "At placement, schools were reluctant for us inexperienced pre-service teachers to be dealing with any health and wellbeing issues." (MTeach Secondary participant).

> "While I have not had direct engagement with a lot of these activities - especially the daily social issues with young students e.g. conflict / relationship problems - I have observed these situations and how they have been managed by teachers. I think there needs to be more focus on developing appropriate skills and the different approaches to resolve social issues." (MTeach Primary participant)

3.2.2 Health and wellbeing actions during placements

The shading in Table 2 signals actions that had greater than a 10 percentage point difference among the primary and secondary school teacher candidates who reported engaging in these actions during their placement. There were seven areas of difference across the actions; in six of these, primary participants engaged more frequently than secondary participants. Primary participants reported being exposed to situations where they had to 'help students resolve a friendship problem' (76%) and 'engage in conflict resolution' (79%) at a much higher frequency than the secondary participants (16% and 33%, respectively). However, 17% of secondary participants had encouraged a student to access mental health support at school, compared to only 6% of primary participants. Comments highlighted participants' nuanced understanding of age-appropriate supports.

> "I believe that working with children at different age group(s) might require [a] different level of understanding and experience. I hope that in the upcoming placement, I will have the opportunity to work with different grade(s) to learn more about the challenges. This would then help to improve my level of confidence in this field." (MTeach Primary participant)

There were higher rates of participation in more generic activities than for specific tasks (see Table 2). For instance, within the 'social-emotional wellbeing and engagement category', a very high proportion (88%) of participants reported they had been in the position to encourage a student who had disengaged from learning/class activities. However, fewer participants (9%) reported having had the opportunity to assist a student who was refusing to attend school, a more specific challenge. This pattern was observable across the other categories, with lower participation rates reported for more specific interventions. Overall, many of the comments highlighted that participants felt unprepared to respond to specific issues. For example, "I feel ill equipped to deal with any significant issue if it arose"(MTeach Secondary participant who has had teaching responsibilities prior to course commencement), "Going into my first placement, my biggest concern was behaviour management - particularly managing disruptive behaviours in class." (MTeach Primary participant) and "I am aware of the importance of wellbeing in general and overarching strategies, not specific interventions."(MTeach Secondary participant).

3.3 Attitudes towards whole-school approaches to health and wellbeing

3.3.1 Confidence in implementation

Around two thirds of participants reported confidence implementing evidence-informed practices (41% were confident, 25% somewhat confident, 7% very confident). A similar pattern of reported levels of confidence was identifiable with respect to all statements, as shown in Appendix (Figure A5), such as confidence to provide opportunities to involve students in the planning, implementation and evaluation of health promoting activities, and confidence to participate in partnerships and collaborations with communities and families.

3.3.2 Perception of teachers' roles within student health

Participants overwhelmingly endorsed the importance of building relationships with students (74% strongly agreed, 23% agreed), as shown in the Appendix (Figure A6). Likewise, participants strongly agreed that it is within their role to support the development of a safe and inclusive social-emotional school enviornment (68% strongly agreed, 28% agreed). Participants also strongly agreed that their role included them identifing students who are engaging in unsafe behaviours at school (60% strongly agreed, 38% agreed).

3.3.3 Participants' perspectives of their own mental health

Participants endorsed items that signalled the importance of their current and future mental health. Fifty-nine percent of participants strongly agreed and 31% agreed with the statement that schools are responsible for supporting the health and wellbeing of teachers (shown in the Appendix, Figure A8). Moreover, while 25% of participants reported they had sought assistance for personal mental health concerns on placement, more participants (36%) had supported a colleague in distress (shown in Table 2). The majority of participants agreed that it is part of their role to support the development of a safe and inclusive social-emotional environment as well as a safe physical environment for students and staff (Appendix, Figure A6). However, only 44% strongly agreed that it was part of their teaching role to look after their own health and wellbeing (Appendix, Figure A6). A number of comments also referred to the mental health of teachers. It is important to note that these placements occurred during periods where COVID-19 infections were high.

> "(Neither) The mentor nor the school had supported or addressed anything about mental health for teachers or for myself as a teaching candidate (TC). It made me and my other classmate who were doing a placement under the same mentor re- consider whether we should stay as secondary teachers as our long- term career due (to) the insufficient access or considerations to our mental health (and) wellbeing." (MTeach Secondary participant)

"I honestly think that teachers need more support – we do so much but are expected to help ourselves." (MTeach Secondary participant).

3.3.4 Conceptualisation of teacher and school roles supporting health and wellbeing

Participants were largely aware and confident about engaging in self-reflective acts (37% very confident), as shown in the Appendix (Figure A7). Despite this, comments revealed that some participants were unsure about how to conceptualise this in relation to the expectations of them as teachers. "I don't really know what is meant to be expected of me. This isn't something that has been explicitly communicated with me through my degree." (MTeach Secondary

participant). "I would like to learn about what is expected from us and what we can do to support children" (MTeach Primary participant).

3.3. 5 Reciprocal relationships between health and learning

Participants demonstrated understanding of the nexus between health and learning in different ways. For example, respondants overwhelmingly agreed that students who feel physically safe at school learn better (73% strongly agreed, 22% agreed). Likewise 56% strongly agreed and 33% agreed that healthy students learn better, as further outlined in the Appendix (Figure A8) and in the following illustrative examples that indicated their interest in further specific training. Throughout the survey they were also asked to comment on what they believe they need to learn in their course in relation to student health and wellbeing. Many participants reported wanting to better understand the mental health of students as well as needing education on various aspects of child and adolescent psychological development. Interest in formal training was also noted around a range of specific health topics, for example, in relation to trauma (bullying, sexual harrassment, violence at home, suicide), gender diverse students, ADHD, and auditory processing and language disorders. A variety of comments were also made about the need to support teachers' mental health. For example undertaking, "Mental Health First Aid and [learning] how to support trauma-impacted students" (MTeach Primary participant) and "Learn[ing] how to increase the health and wellbeing of the student who suffer bullying/sexual harassment/unhappy experience in their home." (MTeach Secondary participant).

Many commented on the need for resources, how to access them and how to use them to better support student health, such as "Engage more [with] tools and resources" (MTeach Primary participant).

Participants were also interested in understanding what they could practically do to ensure the successful implementation of approaches and strategies that aim to enhance health and wellbeing, such as "How to practically embed this in the classroom" (MTeach Primary participant).

Participants were aware of the need to sensitively approach situations, including using appropriate language, while maintaing the boundaries of their role. For example, "The best way to address newly encountered wellbeing issues and maintaining correct professional boundaries …" (MTeach Secondary participant).

Moreover, paticipants strongly agreed (55%) and agreed (35%) with the statement 'schools and families and local community members should work together to promote health and wellbeing', which was reinforced through a number of comments, such as "How to access support. Promoting health and wellbeing is a whole school community effort. Parents/carers, school staff, programs implemented, it all works together." (MTeach Primary participant).

Participants less strongly agreed (29% strong agreement, 41% agreement) that 'every teacher, regardless of subject taught, has the responsibility to promote health and wellbeing as much as a Physical Activity or Health Education teacher', as shown in the Appendix (Figure A8). Fewer participants agreed with the statement that, 'the role of school health staff (e.g., counsellors, nurses) is broader than just addressing the individual health or wellbeing needs of students', which was only strongly endorsed by 9% and agreed with by a further 37%. Illustrative examples saw participants highlight the need for more holistic teaching approaches to health and wellbeing, including appreciation of the interconnectedness between physical, social, emotional health, the community, and learning.

> "More about the relation betwen physical and mental health and learning ability, as well as ways to approach teaching and relationships with students and skills to define

> or figure out how students are feeling, emotionally and physically." (MTeach Secondary participant)

Despite high levels of endorsment of these statements in comparison to others, a greater proportion of participants also disagreed with many of these statements. For example, the statement 'the role of school health staff (e.g., counsellors, nurses) is broader than just addressing the individual health or wellbeing needs of students' had the highest percentage of participants who disagreed with it (24%). Similarily 22% disagreed that 'Promoting health and wellbeing is the 'core business' of schools'. This was also illustrated by comments from participants who believe that health and wellbeing lies beyond the scope of their role.

> "I don't agree with the onus put on teachers to be psychologists, social workers, get involved with families and their issues, etc. It's an unreasonable expectation, particularly given there is nothing like this sort of expectation on anyone else to care for teachers themselves. I'd like to teach kids how to read and write. Not happy to try and compensate for society. Obviously, if a kid turns up in evident distress you have some empathy for them and could seek to help out a bit, but it shouldn't be teachers' job to try and keep capitalism and social dysfunction going." (MTeach Secondary participant)

4. Discussion

This study aimed to explore the capabilities underpinning the next generation of teachers in relation to HPS. The findings suggest that most participants had a reasonable level of knowledge and understanding of many aspects of whole-school approaches to health and wellbeing. The overwhelming majority were also acutely aware of the important role they have in promoting student health and wellbeing and appeared to generally understand the reciprocal relationships between health and education which is an important principle of HPS (Langford et al., 2015). Both primary and secondary pre-service teachers who participted appreciated that whole-school approaches encompass more than just curriculum-based interventions and that the multi-faceted nature of schools allows them to be ideal settings for health promotion (St. Leger, 2000).

The extent to which pre-service teachers had participated in specific health and wellbeing support activities during their placements was strikingly high. The most commonly experienced situations where they supported health and wellbeing were relatively general, such as helping a distressed student. More specialised tasks, such as administration of an Epipen for anaphyslaxis, were the least commonly experienced activities, but were still reported by 1% of the sample. While this low percentage will at least in part reflect the relative rarity of such needs (in this case, to respond to possible anaphylaxis at school) and the brevity of school placements, that even 1% of pre-service teachers had experienced this reinforces the importance of professional development for potentially life-saving activities, especially given the responsibility carried by schools for these (Booth & Samdal, 1997; Department of Education, 2020). Participants strongly reinforced this view by acknowledging that they would benefit from specific training in supporting health and wellbeing (e.g., mental health first aid). Such training is crucial following the COVID-19 pandemic as demands on teachers have increased, particularly in relation to supporting mental health (Australian Institute for Teaching and School Leadership, 2022; Beames et al., 2024).

As anticipated, there were some interesting placement differences between responses from the primary and secondary cohorts which suggests that considerations of age and developmentally-appropriate professional development are needed. For example, pre-service

primary teachers reported higher rates of placement activities that involved supporting or comforting students in distress (and also parents, carers or families), as well as resolving friendship problems and engaging in conflict resolution. Conversely, teacher candidates enrolled in the secondary teaching qualification more commonly reported that they encouraged students to access mental health support at school. These placement differences reflect different developmental contexts, and are consistent with evidence showing that younger students require more support around friendship tensions while older students may require more help in regard to their mental health (Langford et al., 2017).

Notwithstanding commonalties for students (e.g., bullying is a problem in both primary and secondary schools), attention to such developmental nuance will benefit both primary and secondary pre-service teachers. For example, as younger students have less emotional regulation (Crone & Dahl, 2012), they are more likely to require teachers who can actively intervene when children are overtly distressed. This may be required around bullying and other friendship tensions, for which teachers will benefit from skills in conflict resolution. In contrast, while secondary students are better able to regulate external expression of emotional distress, the changing context of peer relationships can result in more insidious forms of social exclusion, which may only become apparent if features of depression and anxiety emerge as a consequence of bullying (Bond et al., 2001; Crone & Dahl, 2012). In this context, teachers need to be attuned to student relationship tensions and how to limit more insidiuous forms of bullying, as well as recognise that the features of common mental health concerns (e.g., depression, anxiety) change from mid-childhood through adolescence (e.g., school refusal, self-harm, substance use; Australian Institute for Teaching and School Leadership, 2022; Merikangas, Nakamura, & Kessler, 2009). These findings underscore the importance of all pre-service teachers understanding the significance of child and adolescent development, and the manifestations of common mental health problems in students, including impacts on learning (Laurens et al., 2022). Certainly, the findings confirm that pre-service teachers are exposed to student health concerns while on placements, including mental health and emotional wellbeing, and need to be supported prior to and on placement for how best to respond.

Participants resoundingly wished to have more practical knowledge about how best to respond to a variety of student health and wellbeing issues. Pleasingly, they suggested that practical experiences on placement could readily aid their learning, if appropriately supported. However, participants also described the lack of agency they had around health promotion while on placement. Whilst it is not expected that pre-service teachers would autonomously engage in health promotion activities, once pre-service teachers commence employment and become registered it is an expectation in Victoria, and many other parts of Australia, that they support student wellbeing as part of their learning (Department of Education and Training, 2022). This transition in role will be facilitated by access to supervision as well as responsive professional development opportunities that support teachers to develop the confidence to more autonomously engage in health promotion efforts as they develop professionally (Rowling, 1996).

Participants were clear about the need to build rapport with students and support their health and wellbeing, and the majority also believed that their role encompassed identifying students who were engaging in unsafe behaviours and those who could be at risk within their home environment, important factors affecting positive student development (Catalano et al., 2019). Participants were also aware of the professional standards that teachers must abide by, but had concerns that certain situations may sometimes warrant a response slightly outside those standards, for instance how to comfort a young student in visible distress without physically

touching them. There was evidence from some of the illustrative statements that these tensions created apprehensiveness around how pre-service teachers might best engage students. Supervision of pre-service teachers provides an ideal opportunity to model how such apparent tensions can be safely negotiated. It is important to consider these reflections in light of the fact that respondents were still completing their training when participating in the research.

Notwithstanding these positive findings from contemporary pre-service teachers, over one in five of these participants did not believe that in addition to learning, promoting health and wellbeing was the core business of schools. Similarly, nearly one in four did not agree that school health staff had a role beyond individual students, and one in ten did not believe that schools should be a place where families can turn to for help. While there is no expectation that teachers become makeshift health professionals, the Victorian Department of Education does acknowledge that teachers, along with families and the community, have an influential role in fostering student development including health and wellbeing (Department of Education and Training, 2022). These findings suggest that further professional development that reinforces this role for educators could be beneficial.

These findings also affirm that participants were acutely aware of the importance of their own mental health and the role that school communities can play in fostering it, including on placement. This is consistent with the knowledge that teachers are most effectively able to support the implementation of health promoting schools, including supporting student mental health needs, when they learn to understand and respond to their own mental health needs (Clinton & Smith, 2023; Kemp & Hazel, 2013). Not only is teacher mental health and wellbeing helpful for their engagement with their students, research also suggests that there is a ripple effect that health promoting schools can have on the health of the community, including teachers (Macnab et al., 2014). While it may initially be deemed positive that over a third (36%) of pre-service teachers on placement had supported a colleague in distress, far fewer (25%) had themselves received support for their personal health or wellbeing needs from a colleague or supervisor. Many participant comments also noted the lack of support from mentors, teacher burnout and the absence of formal discussion about this within the course more broadly. The global standards for HPS were primarily developed to uphold student wellbeing but they strongly endorse the importance of teacher wellbeing, with schools as the workplace for teachers (WHO & UNESCO, 2021a). This view also aligns with the recent OECD framework for measuring teachers' occupational wellbeing, which includes mental and social wellbeing (Viac & Fraser, 2020).

More widely, studies show that successful whole-school approaches are reliant on the collegiality and collective efficacy of staff members, which is underpinned by positive, supportive relationships and a safe working environment (St. Leger, 2000). From this survey, participants were clearly aware that their ability to implement HPS approaches was contingent on the school where they are working and its culture and resources, the characteristics of the students attending the school, the level of support from stakeholders (including principals, mentor teachers and the community including parents) and their sense of autonomy over their classroom environment. These attitudes are highly consistent with the evidence around the barriers and enablers to implementation of whole-school approaches (Raniti et al., 2020) and of the value of school connectedness for promoting wider student mental health and wellbeing (Raniti et al, 2022), aspects that require a sophisticated understanding by pre-service teachers of the complexity of schools as a system in relation to the stage of their training.

Pleasingly, it appeared that practicum experiences positively influenced participants' perceptions of their role, their knowledge and what they believe should be incorporated in their

studies. Participants who had doubts in their confidence to be able to implement whole-school approaches surmised that more placement and practical experience could improve their confidence. They also expressed interest in access to health and wellbeing subjects as core subjects within their training. Some participants went as far to suggest that particular subjects addressing such areas of practice that were available to them as electives should instead be core subjects for all pre-service teachers (e.g., Positive Learning Environments).

We explored three distinct but interrelated components (knowledge, attitudes and skills) with the objective of understanding participants' readiness to implement whole-school approaches to health and wellbeing. While teachers' knowledge of health-promoting schools, including perceptions of their roles in implementing health promotion, are key contributors to successful implementation (Jourdan et al., 2021), implementation of health promotion requires interconnectedness between knowledge and attitudes with a set of skills and behaviours as part of teaching practice (Ajzen, 2011; Lee, 2009). Our findings of the apparent gap between participants' knowledge and the lack of opportunity to develop skills during their practical experience as part of teaching training is consistent with the well identified challenge of how best to apply the tenets of HPS within individual school settings (Sawyer et al., 2021). In that regard, while knowledgable and enthusiastic teachers are an important starting point, lack of confidence, supervision and resources will sap anyone's initial enthusiasm (Rooney, 2019). Thus while encouraging, the results of this study do not provide assurance that these pre-service teachers will necessarily gain the ability or confidence to implement whole-school approaches as future teachers as part of their initial teacher training alone. Our findings suggest that ongoing investment in in-service professional development continues to be needed, and may be particularly impactful for newly graduated teachers in ways that would complement their wider continuing professional development (Raniti et al., 2020; Rooney, 2019; Sawyer et al, 2021).

4.1 Strengths and limitations

To our knowledge, this is the first survey of Australian pre-service teachers' knowledge and perceptions of health promoting schools. This project was led by a multidisciplinary group of academics with detailed knowledge of HPS due to their roles in leading the development of the new global standards and an implementation guidance for HPS for WHO and UNESCO. Undertaken as a collaboration between health and education researchers, this academic partnership (that included the leadership team within the Faculty of Education), was extremely valuable in understanding the complexity of the various courses, as well as around more practical aspects such as distributing the survey invitation and link through the learning management system.

A key limitation is our lack of knowledge about the representativeness of the sample relative to other pre-service teachers across Australia or internationally. The study sample reflects the same proportion of primary and secondary participants as the eligible sample of enrolled students in the overall Masters of Teaching at The University of Melbourne over 2021. However, we are unable to compare any additional demographic characteristics as these are not routinely collected for the Masters of Teaching course. At the university where this study was conducted, only Masters level teaching qualifications are offered. For context, 35% of teacher candidates are enrolled in graduate training (14% in Masters and 21% in Graduate Diploma courses) in Australia which is similar to (27%) the state of Victoria where this study was conducted (Ellis et al., 2023; State of Victoria [Department of Education], 2024). Pre-service teachers complete their placements in a mix of Government, Catholic and Independent schools, depending on availablity, with the majority of placements occurring in Government schools as these make up

the majority of schools in Victoria and Australia more broadly (ACARA, 2024). We invested much effort in developing a survey that was anonymous, brief and simple to complete, in the hope of maximising the response rate. At 20%, this is a relatively standard response rate for education surveys (Stephenson, 2017; Wilson et al., 2024). Interestingly, the semester one subject experience survey (SES) undertaken by the Faculty of Education at the same time as our survey obtained far lower participation, with an average response rate of 8%. Due to low frequency counts (<5) for some item responses (see Table 2), we were unable to conduct inferential statistics and therefore cannot know if the differences between the primary and secondary participants groups were statistically significant.

Students may have been more likely to have participated if they were more positively inclined towards health promotion. Similarly, openess or interest in participating might also have reflected more personal challenges with health and wellbeing than those who chose not to complete the survey. These two factors may result in a positive bias to the findings. Certainly, many of the free-text comments included some relatively passionate perceptions about the importance of health and wellbeing in schools, which may also reflect the timing of this survey, soon after the return to face-to-face learning after the COVID-19 pandemic, in which appreciation of the importance of schools for student and staff wellbeing appears to have been amplified (Gouëdard et al., 2020; Ziebell et al., 2020). However, the Faculty of Education also aims to select 'well-rounded' students into its teaching degrees, based at least in part on results from the Teacher Capability Assessment Tool (TCAT). Given this, our survey responses may simply reflect that Faculty selection processes are working as intended (Clinton & Dawson, 2018).

5. Conclusion

Our findings suggest that the majority of participants believe that schools provide an important context for health and wellbeing, challenging more traditional beliefs that the core business of schools is simply education. Pre-service teachers were reasonably knowledgable about the various ways in which children's and adolescents' health and education outcomes are intertwined, and of the potential for whole-school approaches to health promotion. Participants also appreciated the cascading and complex effects of student health and wellbeing on schools and learning, and of the importance of staff wellbeing. A key finding of this study was that pre-service teachers sought greater practical experience in health promotion activities. There has been little research into initial teacher education around how much practical exposure to promoting health and wellbeing is helpful at the pre-service level, the relationship between practical experience and confidence in implementing whole-school approaches to health and wellbeing, or what coursework and/or placement experiences could best support this. Expanding this research with newly graduated and more experienced teachers could help elucidate some of these complex relationships.

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This research constituted AB's Bachelor of Science (Honours) project (unpublished thesis) at The University of Melbourne. The research was supervised by MR, RA and SMS. AB led the first draft of this manuscript, which all authors contributed to.

Funding

Dr Monika Raniti is supported through the Centre of Research Excellence: Driving Global Investment in Adolescent Health funded by the NHMRC (GNT1171981) and the ALIVE National Centre for Mental Health Research Translation (NHMRC Australia Grant GNT2002047). Professor Sawyer is supported by an NHMRC fellowship (GNT1196999) and the Geoff and Helen Handbury Chair of Adolescent Health, Department of Paediatrics, University of Melbourne. Dr Ruth Aston is supported by an ARC Linkage Grant, funded by the ARC (LP220200719) and the School of Education, University of Adelaide.

Conflict of interest statement

From 2018-21, SMS had a contract with the World Health Organization to undertake a series of studies that informed the first Global Standards for Health-promoting Schools and Systems and an Implementation Guidance, that she was also contracted to develop, which was supported by MR and RA and undertaken as a collaboration between WHO and UNESCO. This work was presented at the 2023 Australian Association for Research on Education conference and the 2022 Australian Association for Adolescent Health conference.

Data availability statement

The data that support the findings of this study are not openly available due to confidentiality.

AI statement

No AI was used in the preparation of this manuscript.

Acknowledgements

The authors wish to warmly acknowledge the assistance of Associate Professor Daniela Acquaro and the relevant subject leads in the Faculty of Education at The University of Melbourne for helping us understand

the complexity of the education courses and facilitating their students' access to the survey. The authors also thank Charli Tyler, Ana Milosovska and Branka Raniti for their time and expertise in informing the study design and survey development.

Publishing Timeline

Received 14 June 2024
Revised version received 16 February 2025
Accepted 16 March 2025
Published 24 June 2025

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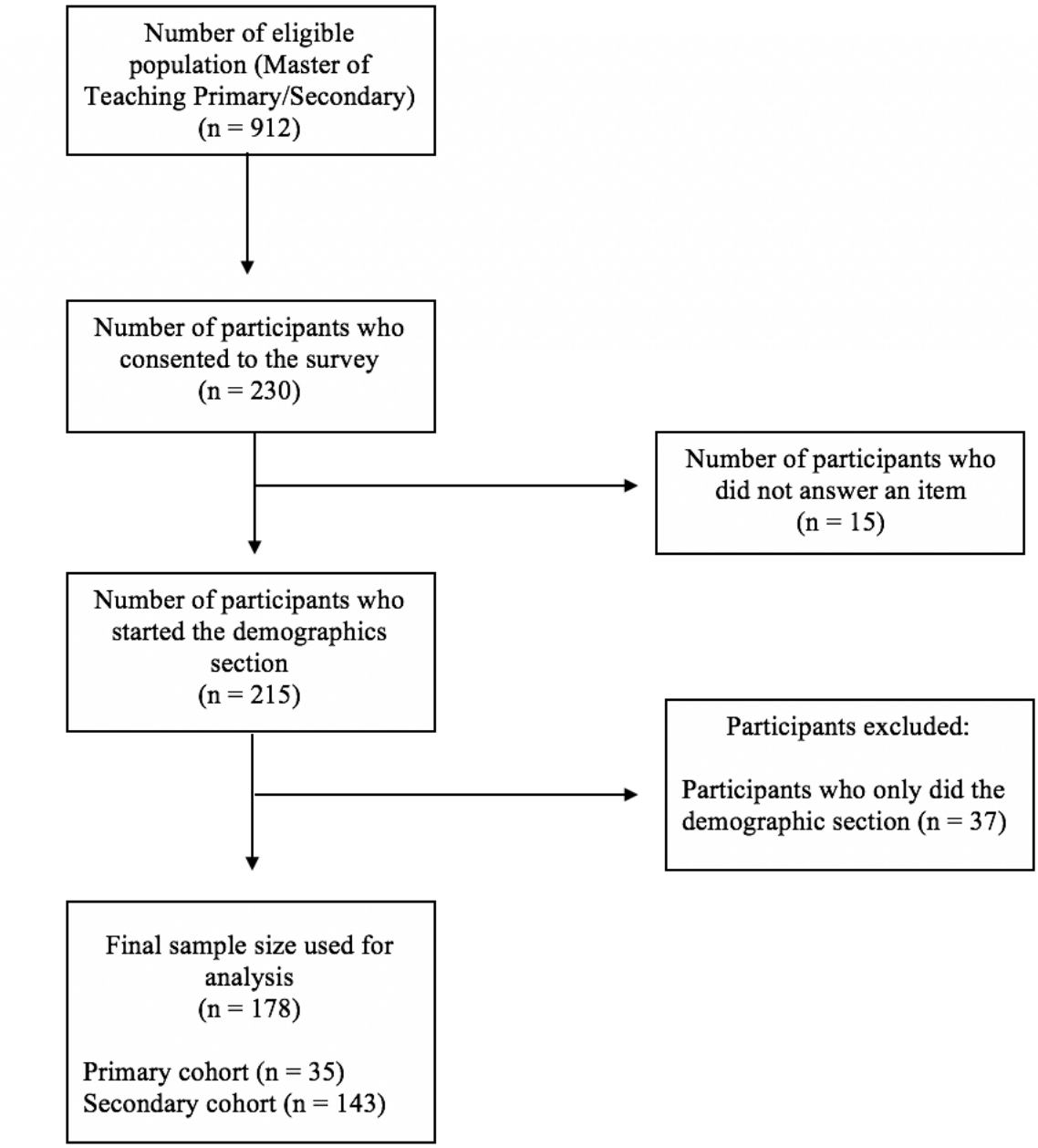
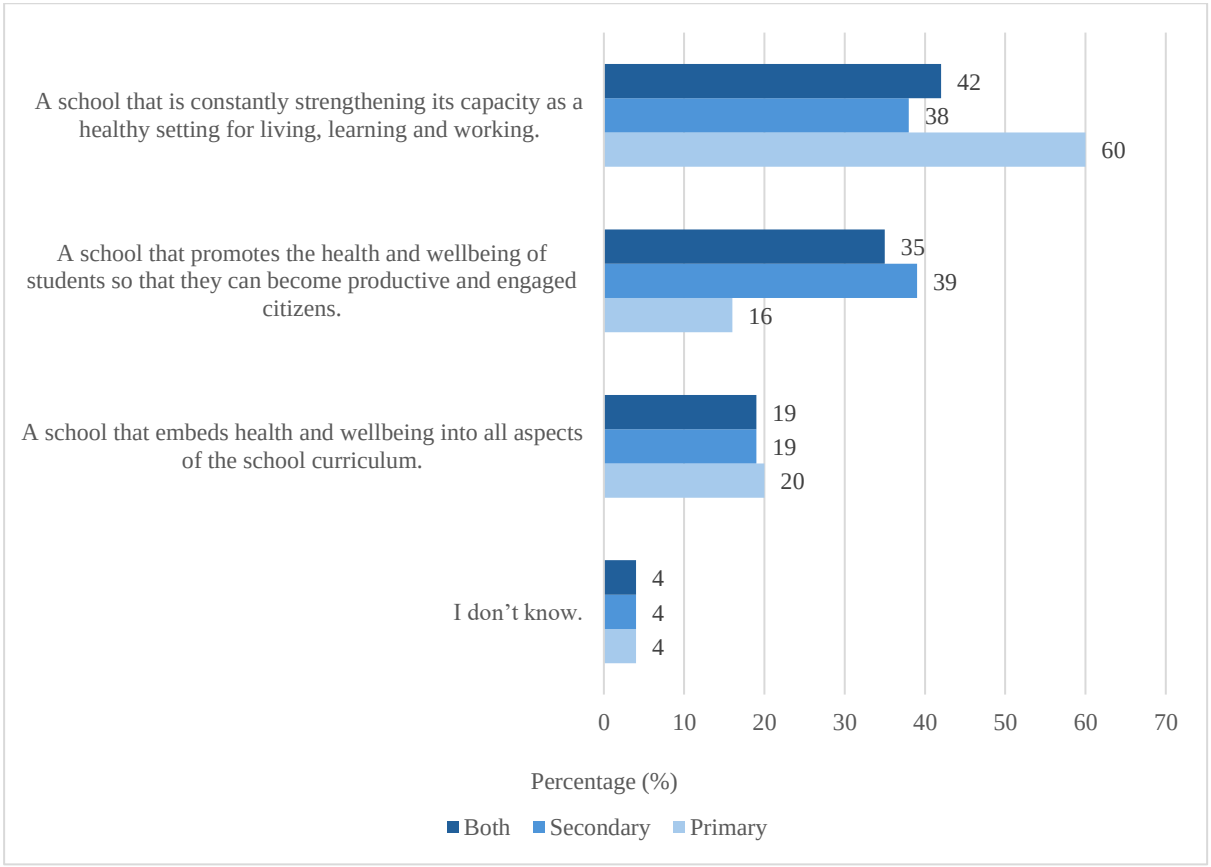
Appendix

Figure A1. Participant flow for the study



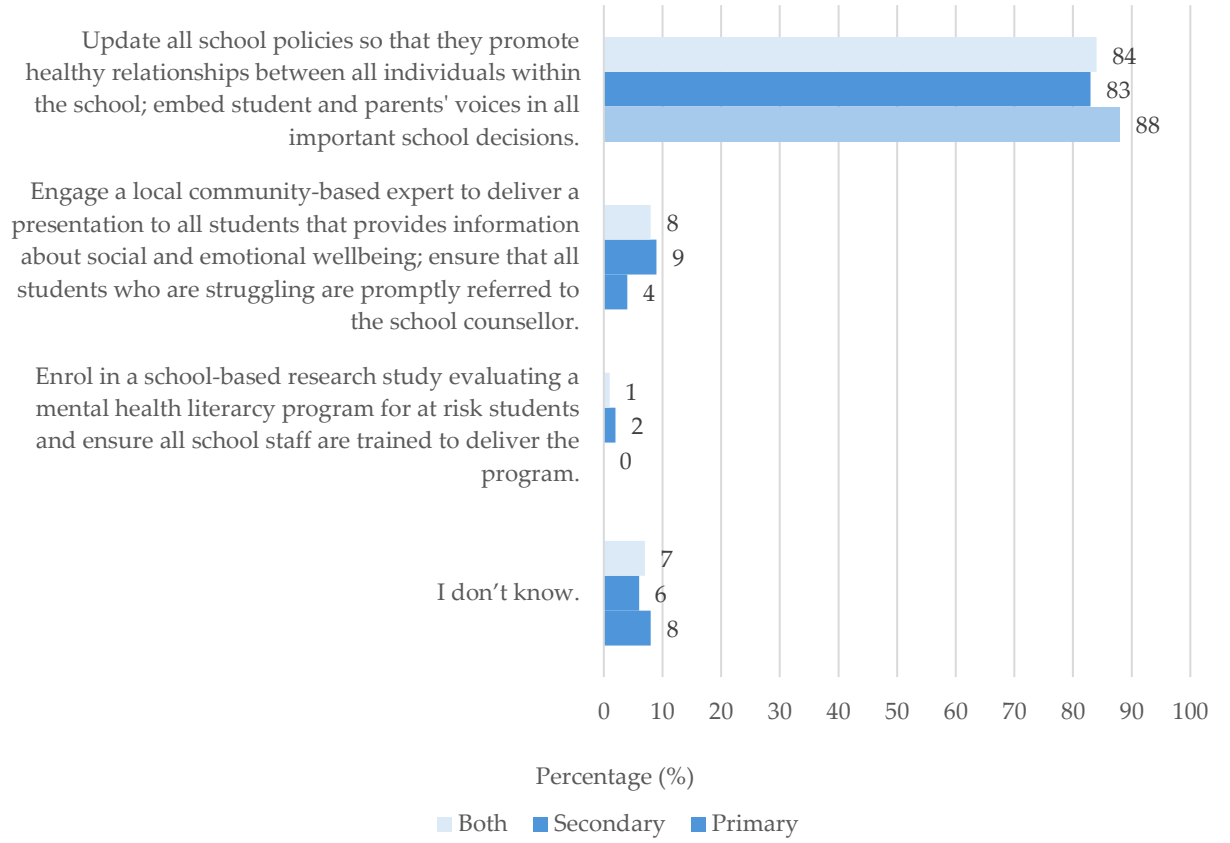
Note. The final sample size was 178, but one participant consented, answered the demographics section, but only the first item of the survey. This made them eligible for analysis and their results were included within the demographic data, however they were not included in subsequent analyses.

Figure A2. Percentage of participants (n = 134) who selected the correct definition of a health-promoting school



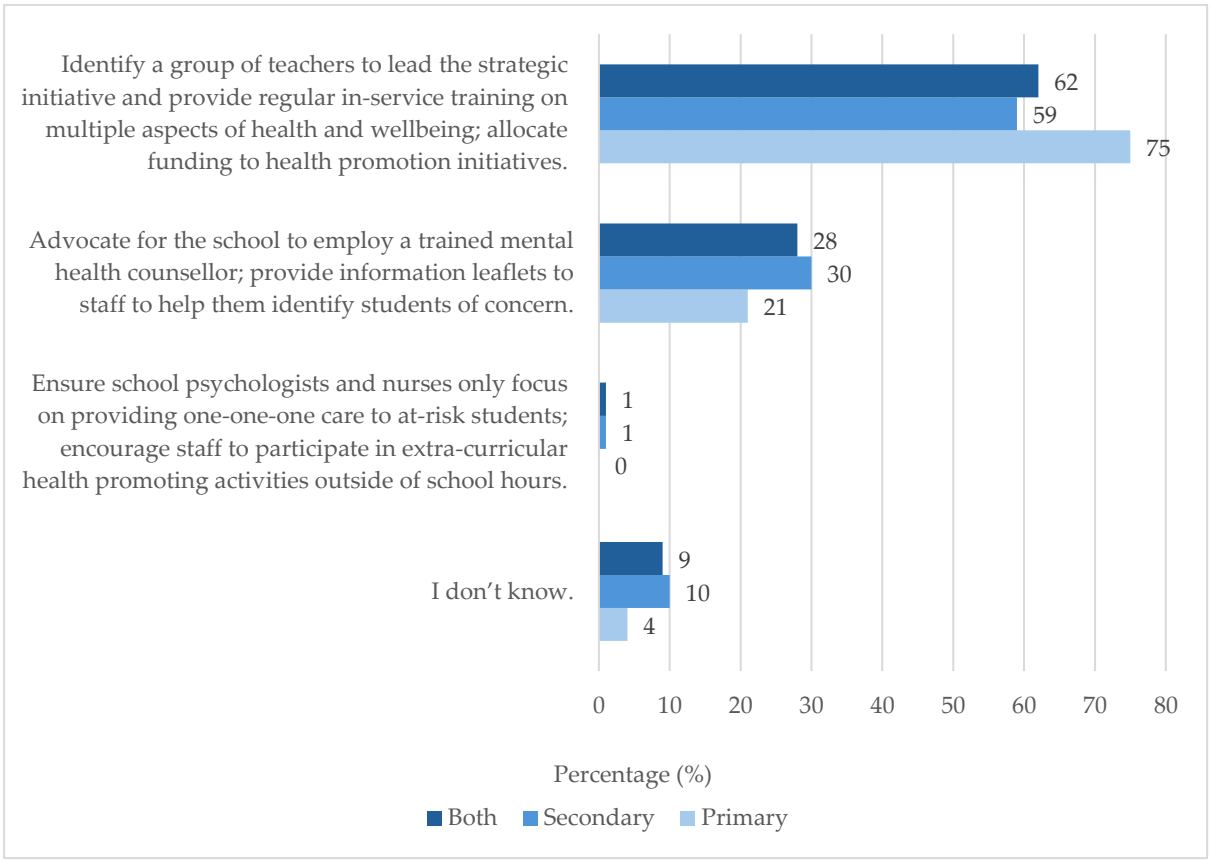
Note: the first option is correct.

Figure A3. Percentage of participants (n = 134) who nominated which suite of actions are most consistent with a whole-school approach to health and wellbeing, by cohort (secondary, primary)



Note. The first option also included the examples "provide alternative learning pathways for students who are struggling to succeed academically; ensure there are no "hidden" places where bullying is more likely to occur".

Figure A4. Percentage of participants (n = 132) who nominated the most likely combination of actions that would ensure that health promotion is sustained over time within a school. Note: the first option is correct



Note. The first option also included the example "engage students and parents by regularly reporting the results of student wellbeing surveys". The second option also included the example "conduct regular fundraising to fund information sessions about various health topics (e.g. healthy eating, emotional wellbeing)".

Figure A5. Percentage of participants (n = 126) expressing confidence in implementing whole-school approaches to health and wellbeing

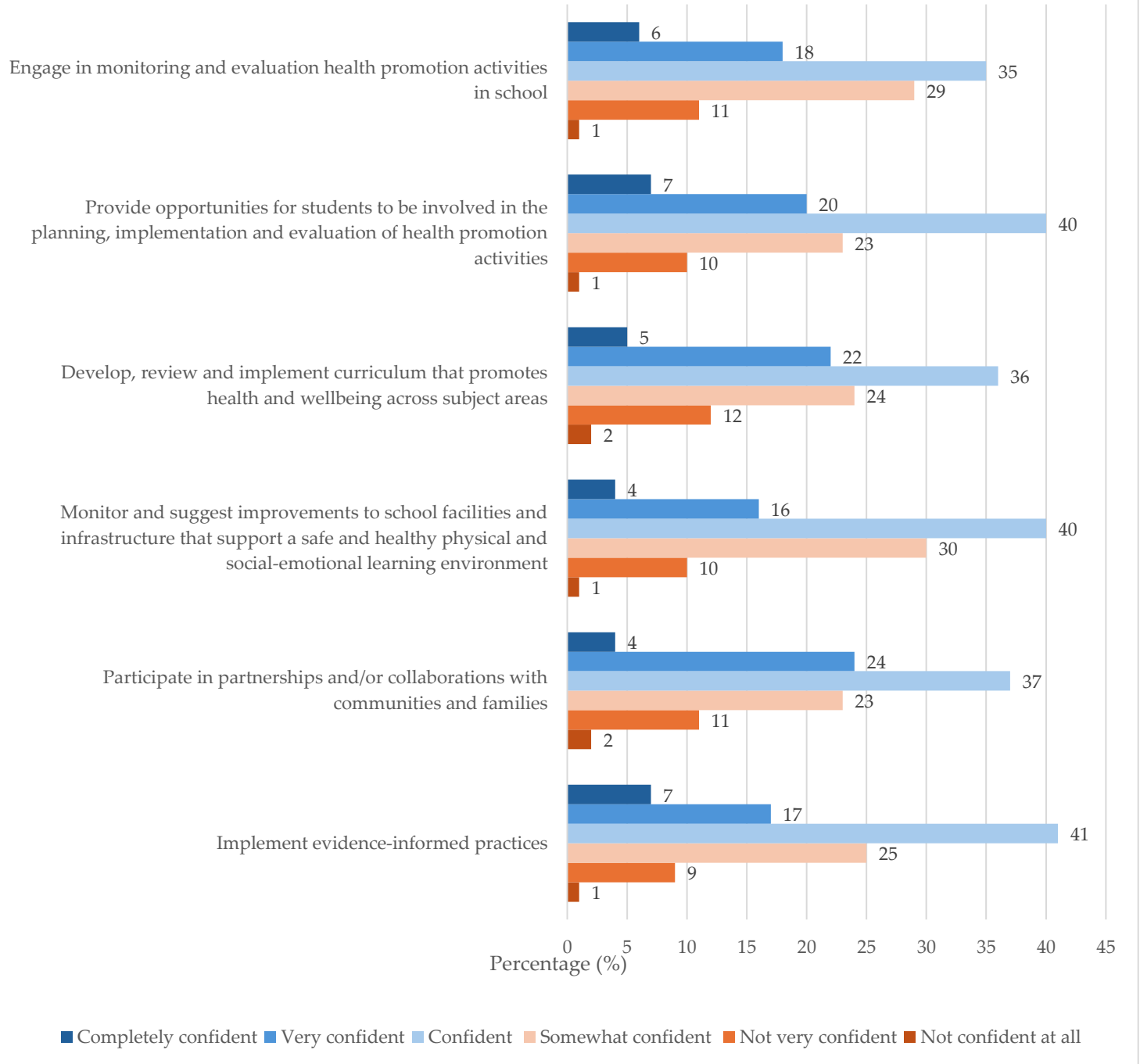


Figure A6. Percentage of participants' perceptions (n = 168) of their role as teachers in promoting health and wellbeing

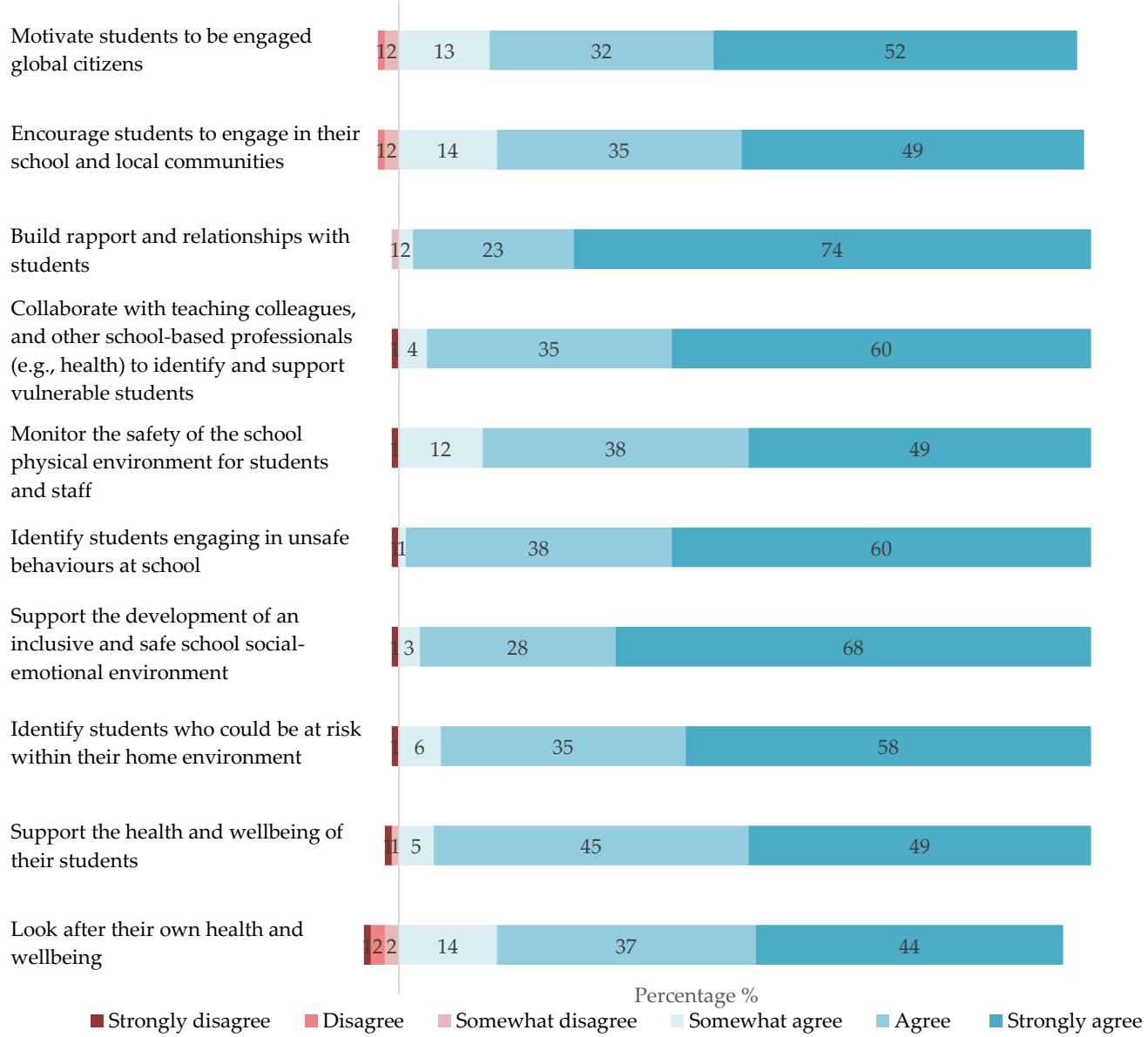


Figure A7. Participants' confidence (n = 165) to engage in professional reflection and development of their teaching practices to promote health and wellbeing

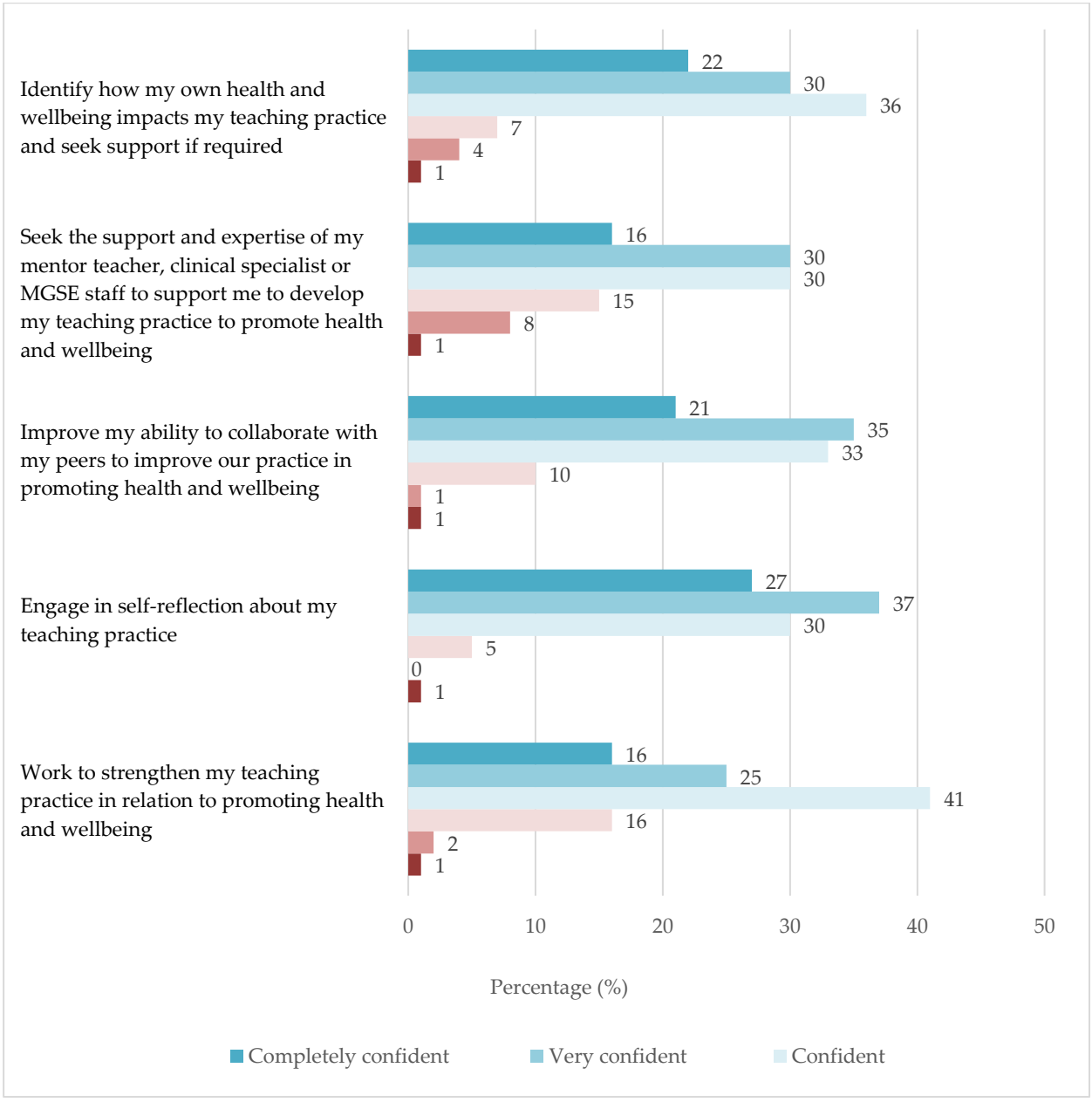


Figure A8. Participants' perception (n = 177) of the relationship between health and education