

Promoting social and mental health among higher education students: Student engagement in pioneering and co-creating a universal health-promotive intervention, the Unite Students, with and for students

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Research Article

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Additional Declarations: The authors declare potential competing interests as follows: ML is the original developer of Unite Students, a non-for-profit intervention to be led by Student health services at universities for and with university students. Apart from that, the lead author declares no conflicts of interest to report regarding the study.

Abstract

Background

A significant number of university students experience loneliness and mental health issues on daily basis. While methods to promote social and mental health are urgently needed both nationally and internationally, there is a lack of evidence-based interventions with such focus. To meet these needs, *UniteStudents* was designed as a universal, group-based, health-promotive intervention focusing on increased health. *UniteStudents* was early on advanced in overlapping co-creative processes, involving different stakeholders in separate studies. This study pioneers the co-creative development of *UniteStudents* involving student perspectives and ideas. The aim was to co-create a useful social and mental health-promotive intervention, addressing students' contemporary challenges and needs, as well as their proposed themes, pedagogical approaches, and elements for meaningful change.

Methods

The participating students in this study were recruited by open announcements at a large Swedish university in three rounds between 2021–2024, involving new groups of students each year, with a sequence of three workshop-sessions for each group. A total of 19 students from 13 different university programs were involved. The initial participatory workshops were based on co-creative methods, such as brainstorming and design-thinking, while the ending workshops included reflections, modifications, and refinement of the intervention.

Results

Students viewed loneliness and mental health challenges as silenced, systemic and interconnected. Workshops proposed scalable, discussion-based support emphasizing relational skills, social connectedness, and university spaces for deeper conversations, highlighting pedagogics of peer-professional co-learning, and the need for both micro-level health promotion and broader structural change to improve student- and living conditions and distress.

Conclusions

Students emphasized the value of contributing to the development of an intervention promoting social and mental health and believed it could have major impact on sense of connectedness and value at university; room for health-related dialogues; improved wellbeing; completion of education; life-prospects, and future working life. These reverberations hold potential in both individual, societal, public health, and socio-economic perspectives.

Introduction

Loneliness, defined as the subjective sense of insufficient meaningful social connection, is increasingly prevalent among younger populations [1], recognizing loneliness as a social determinant of health, and a distinctly 21st-century challenge for the public health system. Although often studied in older adults, loneliness is most widespread among adolescents and young adults reaching 71% [2], in contrast with estimates from the 1970s when prevalence was around 11% [3]. The highest frequency of all, regarding loneliness prevalence compared to other groups, is exhibited in the population of higher education-/university students [4]. Loneliness was significantly more prevalent among university students than expected even prior to the pandemic [5, 6] and is considered to have increased further during the pandemic [1].

While transient loneliness is a normal human experience, chronic loneliness poses significant risks [7]. It is linked to immune dysregulation and inflammation, increasing susceptibility to chronic diseases [7, 8]. Moreover, loneliness has a detrimental association with mental health [9, 10, 11]. Mental health consequences include i.e. elevated anxiety and depression [12], and loneliness is also implicated in "deaths of despair" related to substance use and suicide [13].

A large percentage of university students experience both loneliness and mental illness on daily basis [11]. Also, a marked increase in depression, stress, and anxiety has occurred over a fifteen-year period. Consequently, student-health services in large parts of the world have received significantly increased search pressure and demands, as up to 25% of students take part in, or are on a waiting list for interventions [14].

Contributing factors to increased loneliness and mental illness include socially constructed issues, such as shifts in family structure, geographic mobility, weakening of local institutions, a culture fostering independence and isolation, and digital communication patterns among youth and young adults [15]. Among university students, identified predictors of health and well-being are level of loneliness, stress, mental resilience, sense of coherence, and housing status [16, 17]. Academic belonging and social connectedness are directly associated with students' sense of belonging, persistence in their studies, and retention [17].

The high rate, and increasing trends, of loneliness and mental illness among university students, thus indicate an urgent need for social and mental health promotive and -preventive interventions in the student population [6, 11, 17]. Meeting these demands is a challenge requiring partly new ways of working, as well as new interventions [18]. Universities, including Student health services, have the opportunity and capacity to tackle loneliness and mental ill-health among students [11]. Evidence suggests a greater need for universal interventions promoting social and mental health among university students, reaching out broadly.

Due to the scarcity of universal, social- and mental-health promotive interventions targeting university students, lead author (ML) drafted the basic idea of the 'Unite Students' intervention [19, 20], designed to be led by Student health services at campus. Typically, student health units utilize an individualistic, biopsychosocial, and medical approach. Unite Students was developed as a complementary alternative comprising early health-promotive, collectivistic, social, recovery- and peer-support components, in theme- and group-based open sessions for university students, facilitated by student health services. Moving from an individual towards interpersonal, collective, and societal perspectives in supporting students to widen their understanding and handling of their social and mental health, holds potential in contributing to an increased understanding and common benefit of how the worldwide, rapid changes in the lives of young people and students have affected the large collective.

Involving end-users as stakeholders in the co-creation of health promotive public health interventions is increasingly advocated as an efficient solution to achieving positive societal changes. Globally, significant user engagement is credited as critical to effectual public health policies and practice [21]. Centering and positioning adolescent and student perspectives in policy decision-making is essential for improving health and wellbeing and achieving the Sustainable Development Goals [22]. The 'Second Lancet Commission on Adolescent Health and Wellbeing' underscores the necessity in creating supportive environments for meaningful youth engagement [23], ensuring accountable involvement and monitoring progress.

The co-creative processes of developing an intervention module, based on synthesized findings and different sources together with stakeholder representatives, such as students and professionals, holds potential to enable continuation and refinement of the intervention Unite Students, aiming at an optimal format manageable for the organization, that are Student health services, and an attractive and relevant method for the end-users, that are students. Participatory and co-creative research provide platforms for end-users, herein students, to share lived experiences, participate in the design, contribute ideas, and advocate for their needs and concerns in the development of a new social and mental health promotive intervention targeting students. The proposed co-creative and co-designing approach reflects contemporary paradigms by encompassing complexity and diversity [24]. The study aligns with a constructivist philosophy, recognizing reality and prosperity as socially constructed. It aims to foster collaborative pathways toward transformative change with meaningful societal, educational, and public health impact.

Thus, the research question of this study was: What are the student responses to an early draft of 'Unite Students', in terms of perceived usefulness, and ideas on development, content, pedagogical approaches, and refinement? The *aim* was to co-create a useful social and mental health-promotive intervention, addressing students' contemporary challenges and needs, as well as their proposed themes, pedagogical approaches, and elements for meaningful change.

Materials and methods

Overall study design

This study is part of a larger project, involving co-creative workshops with different stakeholders in overlapping sequences over time to develop the new health promotive intervention *UniteStudents*'. Participatory Health Research' (PHR) was chosen as broad research paradigm for the project [25], encompassing complexity-informed promotion [24], and including a variety of participatory methodologies.

In this study, the development of Unite Students was framed as co-creation including co-design [26], as the problem of student loneliness and mental health challenges was relatively known from previous studies, and a preliminary draft of the intervention was constructed, but deepened and contextualized in this study, and furthermore, collaboratively critically reflected upon and co-developed in themes, pedagogical approaches, and expected benefits.

Unite Students in practice context

A preliminary program-theory, see Fig. 1, and the 'Unite Students' basic components and focus, see Fig. 2, along with initial intervention guidelines [19], had been developed, based on literature reviews, prior to the start-up, as described below. Forthcoming in practice, participants/students, with or without health problems, are target group for the Unite Students sessions by open announcements at the university, and by student champions from local groups, such as student unions.

In practice, Student health services are encouraged to apply the Unite Students according to manual [19, 20], but with adaptive and flexible options, for monthly or bi-weekly, theme-based, open group sessions for and with students, at Campus.

Initial intervention guidelines

The basic idea with the intervention-module, is to add a complement to the traditional, individualistic and medically oriented interventions offered by Student Health Services at universities. The intervention-module has been developed with a collectivistic, societal, and socially oriented focus on understanding, promoting, and managing social and mental health.

The frame is to offer recurring 90-minutes open group sessions at Campus, led by Student health service, at times connected to the course-schedules to enable students to participate. The themes advertised should be themes expected to attract and challenge students to explore and learn more together, and to be better prepared for handling social and mental health issues.

Reference group; student advisory group (SAG)

Across the co-creative workshops involving different stakeholders, a reference group including student- and user-representatives has been assembled, framed as a 'student advisory group' (SAG). The SAG serves to continuously contribute with critical reflections, interpretations, and suggestions in the

development of the intervention Unite Students, accentuating the commitment to amplify student-/user-voices in public health decision-making. The SAG has been established, inspired by Youths/YAGs, to advise on issues that affect students. By cultivating advocacy skills, collective engagement, intergenerational connections, and research interests, the SAG can support researchers, policy-makers, as well as students, to shape health and wellbeing decisions that affect them [27].

Planning the frameworks, guidelines, and capacities needed, for the co-creation process

The co-creation process was guided by *participatory design principles* and *Design Thinking methodology*, ensuring iterative, user-centered development of the ‘Unite Students’ intervention. This approach integrates constructivist epistemology, emphasizing that knowledge and solutions are socially constructed through dialogue and collaboration.

Frameworks and strategies applied

Design Thinking was adopted as a flexible, human-centered framework for healthcare innovations [28] comprising five iterative stages, of which the four first were applied in this study: Empathize, Define, Ideate, Prototype, and Test. This enabled deep understanding of student experiences, generation of creative solutions, and rapid refinement through feedback loops.

Experience-Based Co-Design (EBCD) informed the process by prioritizing lived experiences and emotional “touchpoints,” ensuring that intervention themes resonate with students’ realities.

Participatory Design Principles, rooted in democratic traditions, emphasized shared decision-making, transparency, and equal partnership, while acknowledging and mitigating power asymmetries between researchers and participants.

Guidelines for carrying out the co-creative workshops

The co-creative workshops were guided by principles ensuring they were *relevant and engaging*, encouraging active involvement. They were also designed to be *generative*, supporting the development of new ideas rooted in students’ lived experiences rather than repeating existing solutions.

For *inclusivity and representation*, recruitment strategies aimed to capture diverse student voices, including those with varying academic, social, and socio-economic backgrounds. For *psychological safety*, sessions incorporated clear ground rules, confidentiality agreements, and opt-in/opt-out options to protect participants when potentially discussing sensitive topics.

Warranting *iterative adaptation*, continuous feedback loops were embedded through new participants each round/year (including three workshops each) and recurrent workshop evaluations. Additionally, a student advisory group (SAG) was engaged for continuity over time, all together allowing refinement of defining problem, ideation of themes, pedagogical approaches, mechanisms of change, delivery formats, and prototyping.

Resources, capacities and ethical standards

Capacities needed to successfully apply a co-creation approach, such as emotional, group-leader, creative processes, and adaptability, was reflected upon and pre-planned before the recruitment and workshops started.

The workshop leader (ML) had long previous experience and *group facilitation skills*, such as competence in managing group dynamics, encouraging equitable participation, and handling sensitive disclosures. *Resource allocation* was ensured by time and support for the iterative workshops, and a SAG established for long-term iteration, synthesis of findings, and prototype development. *Organizational support* was confirmed by commitment and interest from Student Health Services to test and potentially integrate co-created outputs into existing structures. *Creative and technical tools* were prepared, such as use of collaborative platforms, creative means, and generative design toolkits for ideation and prototyping.

To safeguard *ethical standards* in participatory approaches, the overall process adhered to principles of respect, reciprocity, and transparency, aligning with GRIPP2 reporting guidelines for end-user and public involvement in health and social care research [29]. The involvement is presented in the body of the paper under relevant reporting rubrics, and in GRIPP2 SF checklist, see Supplementary item.

Selection and recruitment of collaborators for this specific study; students as co-creative partners, and their power dynamics and interests

Participants were recruited through an open advertisement posted around a large university, inviting students from diverse programmes, levels, and backgrounds to join three 1.5-hour co-creation workshops over three to four months, aimed at developing a new social and mental health-promotive method for students. Interested students scanned a QR code to access details, read the information letter, and complete a consent form with contact information and permission for the first author (ML) to reach out. ML coordinated all study activities, including the workshops, preliminary analyses, and three annual cycles of recruitment and workshops (2021–2024), as well as collaboration with the SAG.

In total, 20 students agreed to participate, whereof one declined before the first workshop. Another student dropped out after the first workshop, still included in the sample of 19 students, see Table 1. Students represented a variety of 13 different programs and subjects, i.e technology, teacher, humanistic-, social- and health-related programs, etcetera (not listed in table to safeguard anonymity).

Table 1
Sociodemographic characteristics of
the co-creation participants
(students), 2021–2024, (N = 19).

Characteristics	N (%)
<i>Age (years)</i>	
18–25	10 (52.6)
26–33	5 (26.3)
34–41	3 (15.8)
≥42	1 (5.3)
<i>Gender-identity</i>	
Woman	12 (63.2)
Man	6 (31.6)
Other	1 (5.3)
<i>Educational level of ongoing studies</i>	
Stand-alone courses	3 (15.8)
Bachelor program	11 (57.9)
Master program	4 (21.1)
Doctoral program	1 (5.3)

Aligning with the recommendations for democratic co-creative processes, lead author/workshop-leader (ML) pre-planned for each round of new participants, initiating them in the previous work conducted, the phase of development they were to be engaged in, and the forthcoming work in long-term development of the new intervention. Importantly, the workshop-leader thoroughly paid attention to the power dynamics and interests of the participating students, integrated their ideas and input, and informed about the design methods, ownership, and communication tools to apply, such as: working in small groups, defining tasks and objectives, giving clear instructions, using many different creative activities with immediate outcomes, and continuously reflecting on ownership. To avoid tensions of ownership between students and the researchers, each session started by informing about the possibilities that some of their arising ideas could potentially be developed further in forthcoming phases, and concluded by reflecting on ownership requests that had emerged during the workshop. Enabling affirmed ownership, participants were repeatedly invited to become co-authors of the study, or mentioned as contributors, if they wanted to.

Data-generation and analysis

Participating students were repeatedly asked about oral consent to record the workshops, and to share their reflections, ideas, and materials for the study. All workshop discussions were then audio recorded along with field notes, observations, and reflections during and after each co-creative workshop. Personal details or identifiable information were pseudonymized or deleted in the transcripts. During workshops, some of the materials students produced and analyzed briefly together, were directly reported in the results section, while other data were transcribed, thematically analyzed and interpreted by lead author.

After each yearly round of three workshops, a preliminary analysis was conducted by lead author. This started by familiarization by reading transcripts and workshop materials, next identifying codes, along with important patterns and threads searched for inductively, at which point emerging patterns and themes were added to the reflection book. Illustrative quotations, tables, and pictures, were then collated, to enable summarizing, interpretation, and reporting. The SAG was invited to collectively scrutinize the preliminary analysis, and to add in reflections and refinements before the next round of co-creators started their co-creation process.

The following groups of participants were introduced the same way as previous participants; brainstorming student needs and perceived problem, being introduced to the preliminary program-theory of Unite Students, and next working with different creative activities to ideate new ideas, themes, and pedagogical recommendations. Thereafter they were introduced to the former co-creative results of previous groups, and encouraged to combine them with their own results, and further develop their collective ideas, to make shared decisions on gaps and solutions identified, and milestones achieved. These steps iteratively occurred to inform the next workshop content throughout the process.

After the last workshop in each round, the workshop leader reminded the group that their ideas and materials were planned to be integrated into the intervention to be pilot tested by Students health services in small scale, and continuously refined in forthcoming co-creative steps with other co-creators, to add in different perspectives, needs, and ideas from different stakeholders for iterative improvements.

Finally, we evaluated validity of the co-creation process through facilitator observations and reflection diaries, and evaluated co-creator experience through a follow-up survey including ratings as well as open-ended questions. Fifteen out of 19 participants in the co-creative workshops filled in the follow-up survey.

Lastly, three students from the final round volunteered to participate in an extra meeting, after all workshops and data-generation were completed, to curate data regarding all student proposals around suggested themes, structures, pedagogical approaches, and elements of meaningful change, and compiled these into figures.

Results: Co-creation outputs

Across the co-creative workshops, students consolidated a range of perceived problems and challenges; along with a set of priority themes for recurrent, open, campus-based group sessions; articulated pedagogical design requirements and elements that would make participation safe, engaging, and meaningful; and affirmed the feasibility of a collectivistic, socially oriented format that complements traditional, individual and medically oriented supports, to meet the challenges of student health and well-being. Students endorsed a flexible offer (theme-based, 90 minutes) led by Student Health Services and scheduled adjacent to course timetables to reduce access barriers. The workshops also highlighted the role of a SAG (student/user advisory group) to sustain quality through continuous feedback and adaptation. The co-creation outputs are presented in the sections below. Direct quotations are denoted by quotation marks.

Perceived needs, challenges, and health responses, being a student

The co-creative workshops revealed that students experience mental health and stress-related challenges as *silenced, multilayered and interconnected*, spanning societal, economic, academic, and interpersonal domains. These challenges were described as cumulative, often amplifying feelings of loneliness and vulnerability. Students emphasized that these stressors are not isolated but interact dynamically, creating a complex environment that affects well-being, academic performance, self-confidence, and social integration.

Students identified *societal expectations of high performance* as a pervasive source of pressure. They reported feeling caught between *individual achievement norms and collective ideals*, with family and societal demands reinforcing a narrative of constant success. This was compounded by economic uncertainty, which students linked to broader structural inequalities and the rising cost of living. Key *societal-level challenges* included a stress in succeeding in studies on time derived from “high-performance culture, with pressure from family, peers, and society to excel academically and professionally”. Likewise, students raised nervousness they framed as “economic precarity, with concerns about future employability and financial stability”. Balancing amount of time for studying versus extra-job, rent, and daily expenses, were also identified economic challenges. Financial stress emerged as a dominant theme, influencing both academic and social participation. Students described strategies such as retrieving literature at the cheapest possible price, avoiding dinners out, and carefully managing budgets to afford basic needs. Housing insecurity and high rental costs were also revealed as barriers to stability and concentration: “Housing is a common stress among us students. Limited affordable options, leading to cramped or unstable living conditions, affect the ability to focus on studies.” Moreover, students expressed distress from social norms, such as “expectations to maintain an active social life while excelling academically”. Connected to social norms were also affording social activities: “Feeling excluded from peer gatherings due to cost.”

In regard to *academic pressures*, students expressed difficulty maintaining concentration and motivation, particularly under conditions of stress and loneliness. Some mentioned cognitive overload, and the difficulty focusing due to stress and competing demands. Academic demands were perceived as relentless, leaving little room for recovery or social engagement. The pressure to complete studies on time and avoid delays was linked to fears of financial penalties and reputational harm. Worst case academic-related challenges were retention and completion anxiety: “Fear of dropping out or extending study time, occupy my mind when I’m overloaded.”

Students reported tension in *managing balance between social life and academic responsibilities*, often framed as “party versus leverage” or “negotiating between socializing, resting, and academic priorities”, struggling to integrate leisure time into demanding schedules. They highlighted challenges in maintaining leisure time, time alone, self-care, and physical health, such as finding time for exercise, outdoor activities, recovering, and sustaining meaningful friendships. Friendship maintenance was described as: “Efforts to find good friends and to support peers in distress.” Loneliness could be exacerbated by the difficulty of meeting friends who do not feel well, creating emotional strain and uncertainty about how to provide support. Additionally, travel to family could enlarge the stress: “Emotional and financial burden of maintaining family ties is common among us”.

Underlying these layers was a pervasive sense of *anxiety, loneliness and isolation*, often intensified by the inability to meet societal and familial expectations. Students described feeling “stretched thin” between competing roles and demands, with limited resources to cope. The intersection of *personal vulnerability and external pressures* created a cycle of stress that students feared could lead to mental illness or burnout.

Student-prioritized session themes

Students emphasized practical, relational, and societal aspects of social and mental health, foregrounding skill-building (e.g. micro-social skills such as small-talk), collective understanding (e.g. societal frames for mental health), and safety (e.g. recognizing and responding to vulnerability, intimate partner violence, feeling unwell, etcetera) as important domains in promoting student health.

They suggested specific topics for relevant, attractive and challenging themes, see Table 2. The repeated call to “make room for interpersonal meetings in everyday life” underscores a desire for everyday, low-threshold opportunities for connection and mutual learning. Students endorsed the possibility to suggest new themes over time, ensuring responsiveness to emergent needs, such as evolving crises, exam stress periods, or social climate issues.

Table 2
Student-prioritized domains, example topics for monthly themes, and session aims

Domain	Specific student-suggested topics (verbatim/translated)	Illustrative aims for a 90-min session (student suggested aims)
Interpersonal micro-skills	<ul style="list-style-type: none"> • Managing small talk • Sharing tips on how to socialize in an easy way without becoming burdensome 	Normalize and practice low-stakes interaction; reduce social anxiety; build confidence to initiate/maintain conversations
Deepening and sustaining relationships	<ul style="list-style-type: none"> • Deepening relationships • Making room for interpersonal meetings in everyday life; being open-minded 	Explore relational expectations and boundaries; expand repertoires for sustaining closeness and reciprocity
Relational & sexual health	<ul style="list-style-type: none"> • Relational and sexual health • Sound and secure relationships • Intimate partner violence (IPV) 	Promote consent, safety, and help-seeking; recognize signs of unhealthy dynamics; map campus/community resources
Crisis & vulnerability	<ul style="list-style-type: none"> • What global crises do to one's mental health • First aid for people who are vulnerable and/or feel unwell 	Situate distress in societal contexts; basic peer-support/"first aid" responses; pathways for referral
Societal/collectivistic perspectives	<ul style="list-style-type: none"> • Understanding and managing mental health from societal/collectivistic rather than individualistic views 	Link personal experiences to social determinants; foster solidarity, belonging, and mattering
Identity, roles & meaningful activity	<ul style="list-style-type: none"> • Identify meaningful activities not bound by gender norms • Find contexts in which to grow 	Broaden identity exploration; reduce restrictive norms; connect to clubs/contexts for growth
Everyday balance	<ul style="list-style-type: none"> • How to obtain activity balance in everyday life 	Introduce pacing, prioritizing, and recovery; share peer strategies for workload/life balance
Note. "Making room for interpersonal meetings in everyday life, and to be open-minded" was raised repeatedly, indicating strong salience across groups.		

Preferred pedagogical approaches, session design, and delivery requirements

During the workshops, students confirmed the feasibility of implementing the Unite Students intervention as a complement to existing student health services. Students expressed strong interest in theme-based sessions that combine professional input with peer learning, reinforcing the collectivistic and socially oriented approach envisioned in the intervention guidelines. They supported a 90-minute structure, and strong student-informed approach. Likewise, they affirmed monthly or bi-weekly frequency, open access, and timing coordinated with course schedules to maximize reach.

Students emphasized prioritizing small-group discussions framed by a brief pedagogical primer, such as establishing shared concepts, set tone and norms, and a closing by large-group share-out and integration. To further and stimulate the small-group discussions and peer-learning, students suggested a combination of practicing interpersonal/relational skills, with discussions, and blending in alternative peer-learning methods such as: rotating prompts; role cards; scenario cue cards; and reflective jotting. For continued motivation to practice the learnings in everyday life between sessions, they suggested each session to conclude by "harvest key takeaways" such as "one thing I'll try..."; reflection sheets; and resource handouts.

Students co-defined pedagogical principles and session design that emphasize psychological safety, clarity, inclusion, and peer-professional co-learning, presented in Table 3.

Table 3
Pedagogical principles, session design, and implications for delivery

Pedagogical principles (original student phrasing)	What does this mean in practice (student-suggested session design)	Implications for facilitation by Student Health Services (student-suggested implications)
Welcoming, inspiring pedagogy; learn from professionals <i>and</i> peers	Short input; give most time to small-group discussions; interactive tools over lectures	Prepare 5–10 min primers; use prompts/cue cards; train facilitators in group process
Social and relational learning; stimulating themes and levels	Scaffold from low- to higher-challenge activities; optional depth	Offer optional activities; accommodating mixed comfort levels
Maintain integrity/privacy while gently challenging	Clear opt-in/opt-out for sharing; normalize privacy choices	Model non-disclosure as acceptable; offer reflective writing/private note-taking
Brief get-to-know round	5–7 min icebreaker focused on study program/term (non-personal)	Provide neutral prompts; keep it brief and predictable
Group rules so all can speak	Co-create norms: step up/step back, confidentiality, no fixing	Display rules; revisit mid-session; reinforce gently
Clear structure to feel safe	Transparent agenda with timeboxes; preview sensitive segments	Send pre-session blurb; agenda on screen/handout
Flexible attendance	Standalone sessions; no prerequisite attendance	Design each theme as a complete unit; provide 1-page recap
Non-judgemental facilitators	Strengths-based language; validate diversity of experiences	Training and supervision; reflective debriefs
Skilled handling of difficult topics	Clear escalation plan; on-call clinician; resource signposting	Safety briefs; crisis protocols; warm handovers where needed

Mechanisms of impact, elements of meaningful change, and expected benefits

In workshops, students reflected both spontaneous and structured (as part of the content) on the potential mechanisms of impact, elements of meaningful change, and the expected benefits, see Fig. 3. Students advocated for building hope and belief in the sessions and methods of working together to instigate collective confidence in seeing and helping each other as students and human beings.

By embedding peer learning, mattering, and belonging within structured, psychologically safe discussions, students believed sessions could be expected to: strengthen micro-social skills (e.g. initiating conversations, navigating boundaries); get to know other students; provide a platform for talking and learning about health issues and health promotion; increase collective understanding and agency to promote social and mental health in oneself and peers; normalize help-seeking and improve navigation to supports (especially for sensitive topics such as intimate partner violence or acute distress); enhance activity balance and meaningful engagement through shared strategies, and campus connections. On a long-term basis, students believed Unite Students could have major impact on sense of connectedness at university, improved wellbeing, completion of education, life-prospects, and future working life. Students' inputs aligned with a collectivistic, socially oriented theory of change.

(insert Fig. 3 about here)

Evaluation - validity of the outcome

Observations from the workshop leader of the co-creation process, together with follow-up surveys from co-creators, that are the participating students, drew attention to a few main topics about process validity, as described below.

Co-creators' overall satisfaction and ownership

Fourteen participants (out of the fifteen participants who filled in the follow-up survey) were *very satisfied* or *satisfied* with the co-creative processes, workshops, content, creative activities, organization efficiency, openness for any reflections and new ideas, and the recurrent reflections on ownership. One participant wanted longer workshops once entering the creative flow and completing the outputs. Comments reflected enjoyment and pride, such as: "I felt very content being able to share such important issues and contribute to new initiatives"; "the process made us produce a great level of ideas and interaction"; "I felt proud about being part of the engagement, and a strong sense of student connection".

Partitivity and making change

The in-person workshops were highly valued by participants, allowing shared reflections, information, dynamic interactions, and great opportunities for rapport building and new friendships between students. Furthermore, all participants stated that they chose to participate because they wanted to make change and take the opportunity to contribute to development in an important and underdeveloped area for students' health and wellbeing.

Belief in the intervention

All participants expressed confidence in the Unite Students and its relevance for students. The majority believed that the university should invest more in this type of group-based promotional interventions and preferably also in open, easily accessible, inexpensive activities that unite and make it easier to both get to know other students and find inexpensive, meaningful social and leisure activities indoors and outdoors.

Questioning representation of subgroups

Although the participants represented a great variety of university students, regarding programs, subjects, levels, and backgrounds, co-creators noted the exclusion of certain sub-groups of students, including international students, minorities, students with serious mental illness, students having children/family, and students who commuted to campus. This may result in our intervention being less accessible to these groups and hence risk them to be excluded from the future offers of the intervention in practice. A recommendation was therefore to include such sub-groups in forthcoming co-creative studies, to build a universal intervention for all students.

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Discussion

End-user and public involvement in this study was especially operational, being the very first co-creative study developing and co-designing the 'Unite Students' intervention and thus influenced important aspects.

Representing a student population, the participating students perceived mental health challenges as *systemic and multi-layered*, where societal expectations, economic constraints, academic pressures, and interpersonal struggles converge with individual challenges. These stressors not only affected psychological well-being but also influenced study completion, retention, and quality of life, underscoring the need for interventions that address both individual coping, peer-support and structural conditions.

Collectively, the co-creative workshops produced a coherent specification for Unite Students: a promotive, scalable, discussion-centric group offer that supplements individual care by cultivating social connection, shared understanding, and practical competence. Thematically, students prioritized everyday relational skills, safety and consent, societal perspectives on mental health, peer first aid, and activity balance. Pedagogically, they called for clear structures, psychological safety, flexibility, and non-judgmental, skilled facilitation, with most of the time devoted to relational and small-group interaction.

The workshop findings underscore the importance of *social support groups, small-group interactions, peer sharing, and social connectedness* as core mechanisms to combat loneliness and mental illness. This aligns closely with a recent systematic review [11] which reported that approximately 80% of interventions focused on social support, increasing social interaction, or reflective exercises, effectively reduced loneliness among university students. The prominence of these strategies in our student-prioritized themes suggests the Unite Students intervention is consistent with best practices for designing social connectedness interventions in higher education [1]. Interventions promoting social connectedness seem to be successful [11, 1]. Notably, our findings also indicate a *stress in keeping up with friends and supporting friends who feel unwell*, which is noted as an observandum in the continued development of Unite Students, and possibly can be raised in the form of a separate theme. This type of stress is, to a certain extent, mirrored in a third review, examining the mental health outcomes of school-based peer-led interventions [30]. The review indicate improvements in self-esteem, social stress, and quality of life, though one study showing an increase in guilt, another study showing an increase in learning stress and a decrease in overall mental health scores. Taken as a whole, the evidence base for student mental health outcomes is sparse. More high-quality studies in a larger number of countries are requested, taking vulnerable student groups into consideration.

Students strongly advocated for *peer-driven discussions and collective learning*, calling for non-judgmental environments, co-facilitation, and peer-to-peer insight exchange. This mirrors the findings of Pointon-Haas et al [31], whose review of peer support interventions in higher education highlighted that peer mentoring and peer learning were positively associated with reduced anxiety and stress. Another review, evaluating group-based peer support interventions for persons with mental illness [32], categorised interventions as psychoeducation, recovery-oriented, skills training, and anti-stigma. Findings presented improvements in recovery outcomes, reductions in psychiatric symptoms, and increased empowerment scores. While evidence remains heterogeneous, the emphasis on informal peer integration and structured support matches the Unite Student intervention and the outcomes our co-creative processes produced.

Workshop participants frequently mentioned *financial constraints*, such as succeeding in studies on time, budgeting for textbooks, meals, and housing, as clear stressors impacting mental health and academic focus. This is reinforced by Karas [33], who concluded that financial stress is associated with anxiety, depression, reduced academic performance, and even sleep disturbances. Similarly, Bennett et al [34] documented a 55% increase in student-reported financial stress correlating with deteriorating mental health. These findings validate the students' concerns and highlight the importance of addressing economic barriers within Unite Students, and related initiatives at a higher societal and political level.

Concerns over *living conditions and housing affordability* were featured in workshops. This complements a systematic review by Franzoi et al [35], which found that poor student housing strongly correlates with homesickness, distress, sleep problems, depression, anxiety, and other mental health outcomes. Housing situation is also linked to retention, social connectedness, belonging and wellbeing [17]. Housing stress thus emerges as a critical, but often

overlooked, component of student mental health, supporting the inclusion of such issues in intervention designs like Unite Students, and particularly in university strategies strengthening student recruitment and retention.

Critical reflections

Participatory approaches give end-users meaningful influence over content and design to ensure alignment with their goals and activities [36]. While rooted in Scandinavian democratic ideals, viewing participants as equal partners, power imbalances between researchers initiating the process and participants remain a persistent challenge, demanding reflexivity.

Being the initiator of the Unite Students intervention (ML), my dual role as both designer and facilitator of co-creative workshops introduced unique opportunities and challenges. This positionality provided deep familiarity with the intervention's theoretical underpinnings and practical constraints, enabling nuanced dialogue with students. However, it also raised reflexivity concerns regarding power dynamics, confirmation bias, and the risk of steering discussions toward pre-existing design assumptions. Being experienced in the role of workshop leader applying creative methods and participatory approaches in research, I continuously reflected on possible tensions, uncertainties, and contributions, throughout. While efforts were made to maintain openness, the inherent asymmetry between facilitator and participants warrants critical scrutiny. My role as the intervention's originator may have unintentionally shaped discussions, privileging certain ideas or framing questions in ways that aligned with the original concept.

Trust between researchers and participants is crucial in co-creative processes, and thus researchers are recommended to create design space for each concept as a way of showing due respect for the efforts of the participants involved [37]. In this study, I (ML) strived to establish a shared, inviting, and transparent understanding of the design process and ownership to maintain trust. One student declined before the first workshop and one dropped out after the first workshop due to changed timeframes, while the others fulfilled all three workshops, indicating their strong interest in contributing, and trust, in the co-creative processes. Students expressed appreciation for being treated as knowledge holders, not passive recipients. This forwarded a sense of ownership, which is essential for interventions aiming to promote collective agency and peer support cultures.

Despite open recruitment, workshop participants may not fully represent the heterogeneity of the student population (e.g. international students, students with severe mental illness, living far from campus, having family, or those facing extreme financial hardship and thus might have to prioritize time for work, etcetera). This limits generalizability and underscores the need for broader sampling in forthcoming iterations.

Conclusions

In summary, our co-creative findings strongly resonate with existing evidence, reinforcing the merit of group-based, peer-centered, and holistic interventions to mitigate loneliness and mental health challenges among university students. The explicit inclusion of economic and structural dimensions, such as financial stress, literature access, housing, enhances the intervention's real-life validity. Moving forward, there is a clear imperative to implement and evaluate interventions with an integrated lens, addressing both micro-social processes and macro-structural stressors to support student well-being, academic success, and retention.

Implications for intervention design

The synthesis of student insights with established literature, highlights key outcomes and design principles, such as: the uniqueness of combining *early promotion of social and mental health* among university students; group-based, social, and peer-led formats are strongly evidenced to reduce loneliness and distress; intervention content must address student life, everyday life concerns, economic, and structural stressors to have real-world relevance and uptake; incorporating housing-related stressors and providing psychoeducation, peer strategies, and referral pathways can align interventions with documented mental health drivers.

These insights support the design of Unite Students as a universal, holistically framed, socially anchored, and mental health promotive intervention situated within student realities.

Integration into practice

This co-created intervention is designed to fit within existing Student Health Service resources while remaining adaptable over time through ongoing student and stakeholder input.

The workshops confirmed the relevance of implementing the Unite Students intervention as a complement to existing student health services. Students expressed strong interest in theme-based sessions that combine professional input with peer learning, reinforcing the collectivistic and socially oriented approach envisioned in the intervention guidelines.

Contribution, gaps, and future directions

While existing literature validates the relevance of social, mental, academic, economic, and housing stressors, respectively, it also identifies lack of *combined* student health *promotive* interventions with these foci, and gaps in rigorous evaluation, particularly in multi-modal peer-led interventions. Unite Students responds to this gap by offering a co-designed, contextually adaptive, and promotive intervention with embedded evaluation potential. Future research could assess not only loneliness and mental health outcomes, but also tangible metrics like quality of life, recovery, housing perception, and academic retention; areas currently underexplored in literature.

Declarations

Ethics approval and consent to participate

Ethical essentials included ensuring psychological safety, particularly when discussing potentially sensitive topics, even though we did not intend to assemble sensitive personal data, such as personal health, but at the group level for students.

In accordance with the Declaration of Helsinki, all participants provided informed consent. Both written and oral informed consent was obtained when they were enrolled in the study. The study was approved by the Swedish Ethical Review Authority (Dnr 2024-05294-01).

Consent for publication

All co-creators and the SAG have given consent to publish the results of this study.

Availability of data and materials

The data generated in this study can be made available from the corresponding author upon reasonable request.

Competing interests

ML is the original developer of Unite Students, a non-for-profit intervention to be led by Student health services at universities for and with university students. Apart from that, the lead author declares no conflicts of interest to report regarding the study.

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Authors' contributions

ML ideated the early intervention components, planned and acted as workshop-leader during the co-creative sessions, analyzed and interpreted the data, including involving SAG in data triangulation, and wrote the manuscript.

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Figures

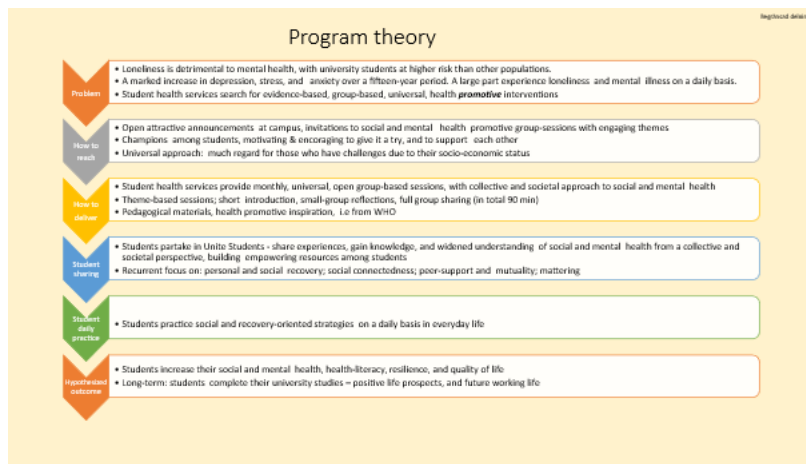


Figure 1

The 'Unite Students' preliminary program theory, version 1 (2021)

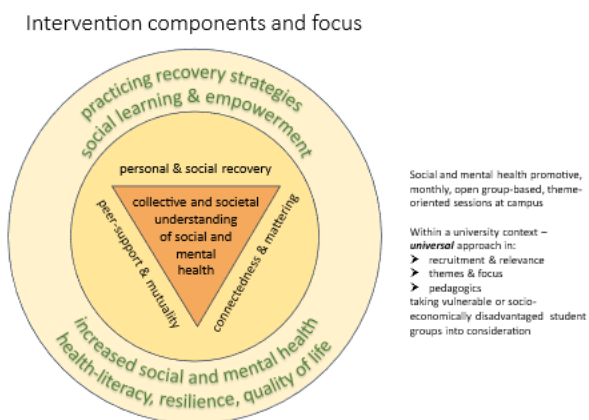


Figure 2

The 'Unite Students' preliminary intervention components and focus, version 1 (2021)



Figure 3

Co-designed Theory of Change: Operating Elements Supporting the Integration of Health Promotion in Daily Student Life