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UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Research Report

2024

An Inter-Institutional Collaboration to Inform the Implementation of the HEA Healthy Campus Framework

UCC & MTU Healthy Campus Research Collaboration

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

MTU
Ollscoil Teicneolaíochta na Mumhan
Munster Technological University

Healthy Campus

HEA | HIGHER EDUCATION AUTHORITY
AN tÚDARÁS um ARD-OIDEACHAS

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Foreword

UCC President

I am pleased to welcome this insightful report on the health and wellbeing of the students and staff of University College Cork and Munster Technological University.

At UCC, a commitment to health and wellbeing is a promise we extend to every member of our community. This is exemplified by our history of contributions locally and nationally, including our representation at the drafting and signing of the Okanagan Charter in 2014; our recognition as a Health Promoting University by the Health Service Executive (HSE) in 2015; and our deep involvement in the creation of the Higher Education Authority (HEA) Healthy Campus Charter and Framework in 2022. In 2023 I signed the Healthy Campus Charter pledging to make our campus a healthy place to study and work, and to research the wellbeing of future generations. Health and wellbeing are key priorities in UCC's 2023 Strategic Plan which emphasizes supporting student success, health and wellbeing, informed by the student voice.

This report represents the culmination of a year-long inter-institutional collaborative study at UCC and MTU, supported by the HEA, and provides a comprehensive view of the health and wellbeing needs of our campus communities. The insights gathered are encouraging, while highlighting areas that require focused attention and underscoring the importance of listening to the diverse voices in our communities.

This report will be a cornerstone in our ongoing efforts to implement the HEA Healthy Campus Framework and to cultivate a nurturing environment across UCC and MTU campuses through a whole-campus approach. It provides a detailed, data-informed view of wellbeing within our campus communities and will serve as a framework to enhance future support in meaningful, targeted ways.

I extend sincere gratitude to everyone involved in this collaborative research effort, especially to the project team and the research leads for each institution, Dr Andrea Bickerdike (MTU) and Dr Michael Byrne (UCC), and to those who contributed their perspectives.

Using the findings of this report as a foundation, UCC and MTU are embarking on their respective journeys to implement the HEA Healthy Campus Framework at our universities. With this report as a valuable resource, both organisations are well-positioned to advance health and wellbeing, ensuring a brighter and healthier future for all members of our communities.

Professor John O'Halloran MRIA

President, University College Cork

MTU President

As President of Munster Technological University (MTU), I welcome this Inter-Institutional Healthy Campus Research Report which builds on the long-standing legacy of academic partnership between MTU and UCC.

MTU formally committed to the HEA Healthy Campus Framework and Charter in January 2023, at a collaborative signing ceremony with colleagues from UCC. During the ceremony, we pledged to promote the health and wellbeing of students, staff, and the wider community through institutional policies and practices, in alignment with the International Okanagan Charter for Health Promoting Universities and Colleges. Acknowledging the call to "contribute to research and collaborations to promote health and wellbeing" in the Healthy Campus Charter, our two universities also committed to a pioneering research collaboration to inform the regional implementation of the Healthy Campus Framework.

The findings in this report will serve to inform the design, delivery, and evaluation of critical health-enhancing initiatives to support our campus communities for many years to come. MTU has long advocated for the health and wellbeing of students, staff, and the extended campus community. 'People and Community' is one of the key pillars of MTU's Strategic Plan Our Shared Vision 2022-2027 and sets out how we will support student and staff engagement with health and wellbeing initiatives. MTU has also committed to the HEA National Student Mental Health and Suicide Prevention Framework.

I sincerely thank all who facilitated and participated in this report's research. Thank you to all who took the time to complete surveys and attend focus groups and consultation sessions. Your insights, shared experiences, and informed perspectives have helped inform the key recommendations arising from this report.

Moreover, I commend members of the Research Team on their recent contributions to the multi-partner consortium (TCD, MTU, UCC and UL) that was mandated by the HEA to develop the national Healthy Campus Evaluation Toolkit. It is wonderful to see continued collaboration and co-creation of collective 'Healthy Campus' principles and guidelines at a national level.

As highlighted in this report, continuous engagement and collaboration with stakeholders such as the HEA Healthy Campus Network, HSE Colleagues within Cork-Kerry Community Healthcare, and local community agencies will serve to increase impact and transfer of current empirical data to practice. As we move forward, I am delighted to note that the Technological Sector Advancement Fund will support the establishment of an operational model to sustain 'A Healthy MTU' as a 'whole university' conduit through which we can deliver on the HEA Healthy Campus Framework. Actions will also remain informed by a designated programme of research within MTU's HEX-SPO Research Group in Health, Exercise and Sport Sciences.

Thank you once again to all involved in the implementation or facilitation of this research. I warmly endorse all efforts to enact Point 4 of the Healthy Campus Charter, which advocates for the identification of "opportunities to integrate health and wellbeing into the teaching and learning, research and services of all Departments, thus ensuring the development of citizens with the capacity to improve health and wellbeing of the wider community in their future life and work".

Professor Maggie Cusack, FRSE

President, Munster Technological University

UCC Students' Union President

This report offers critical insights into the wellbeing of our student body today. Its findings highlight some key challenges, including time constraints as the main barrier to physical activity, mixed perceptions of the provision of nutritious campus food, and concerns about sleep and mental health. It is alarming that 22.2% of students rate their mental health as 'poor' or 'very poor', with college workload being the most significant stressor. In the context of these challenges, which are compounded by significant financial pressure on today's student body, it is more important than ever for a whole campus approach to be developed across our Higher Education Institutions. We must work together to create an environment that supports all students and actively promotes healthy habits that allow students to thrive.

This report also highlights progress made, especially surrounding initiatives such as the Speak Out Tool, Active Consent* Training, and the Bystander Programme. It is heartening to see the effects of these programmes, and to know that their development has made a positive impact on the student experience. The potential of our environment is also recognised, with outdoor green spaces continuing to offer much-needed support for student wellbeing, underscoring the importance of preserving and enhancing these vital spaces.

The challenges outlined in this report are significant, but they also present opportunities for meaningful action; it is clear that a collaborative and campus-wide commitment to health and wellbeing is essential for our students. By prioritising student needs and building on the progress already made, we can create a campus environment where all students have the opportunity to meet their potential.

Katie Halpin-Hill

President, UCC Students' Union

MTU Students' Union Presidents

We warmly welcome this inter-institutional Healthy Campus Research Report, and extend our congratulations to all members of the Research Team. In addition, we would like to sincerely thank all students who took the time to participate in this critical research that will inform and guide the design of Healthy Campus activities.

MTU's mission is to "lead change and, through education, empower people for a successful future in a globalised world". As advocates for our university's student community, we strongly believe that student engagement and success is intricately linked to health and wellbeing. Initiatives and supports provided through Healthy Campus programmes can be critical for both the personal and professional development of students. This report presents a breadth of data, highlighting not only the current health and wellbeing challenges experienced by students, but also areas of opportunity where Healthy Campus initiatives could meaningfully serve to support our campus communities to achieve their full potential.

We welcome the key recommendations of this report, including calls for resourcing to sustain the implementation of the HEA Healthy Campus Framework at MTU. In addition, we also welcome all and any cross-sectoral partnerships to advocate for socioeconomic equity, and to enable students in critical need of supports to access same in a timely manner. Finally, we would support and endorse any future waves of this research, to ensure that Healthy Campus activities can remain evidence based.

Richard Noonan

MTU Cork Students' Union President

Stephen Fogarty

MTU Kerry Students' Union President

UCC Deputy President and Registrar
Chair, UCC Healthy Campus Steering Group

I am delighted to welcome the publication of this important report, generated through a landmark collaborative research project involving the Healthy Campus project teams in University College Cork and Munster Technological University.

The data contained within this report are critical in helping each of our respective institutions develop clearer roadmaps and more effective action plans to enhance the health and wellbeing of our students, staff, and wider communities under the Higher Education Authority (HEA) Healthy Campus Framework.

The leadership and support of the HEA in developing the Charter and Framework has given the Healthy Campus movement in Ireland real impetus and momentum, and now is the time to begin to build on that momentum. One of the important principles of Health Promotion contained within the Framework is that actions should be informed by local needs as identified by local and reliable data. This report provides these data, not only by identifying the health status of both students and staff, but also by identifying the range of services and projects that are on our campuses to tackle the health challenges that exist for our campus communities. It is clear that the Mental Health, Physical Activity, Nutrition, and Alcohol and Substances use are areas that need particular attention, and I look forward to working with students and colleagues in my role as Chair of UCC Healthy Campus Steering Group to develop appropriate and effective action plans in these and other areas over the coming years.

Finally, I am delighted that UCC has had an opportunity to work with colleagues from MTU to generate the new knowledge contained with this comprehensive report. We look forward to building on this collaboration in implementing the Healthy Campus Framework on our campuses, in our city, and within our region in an evidenced-based manner that has the potential to change the dial in terms of the health and wellbeing of all.

Professor Stephen Byrne

BSc (Hon) Pharmacy, PhD, Dip Stat, Cert Health Econ, Cert Clin Pharm

MTU Healthy Campus Co-Chairs

As Co-Chairs of MTU's Healthy Campus programme ('A Healthy MTU'), we are delighted to welcome this Inter-Institutional Healthy Campus Research Report. As articulated in the HEA Healthy Campus Charter, it is critical that strategic approaches to promoting health and wellbeing are reflective of both locally identified needs and national health priorities.

The current report encapsulates empirically informed insights into the complex determinants of health and wellbeing within two respective higher education institutions. Pragmatically, findings will serve to guide the ongoing development of Healthy Campus initiatives at both MTU and UCC, which will have a multiplicative and synergistic impact across the southwest region. In a broader context, the endorsement from Senior Management at both respective institutions to implement this translational research has exemplified the power of partnership and collective advocacy.

As settings of substantial influence, universities are uniquely positioned to advocate and support health, wellbeing, diversity, inclusion, and sustainability. 'A Healthy MTU' strives to create a healthy and inclusive university that enables all students and staff to reach their full potential. The current report has provided a breadth of evidence that will undoubtedly shape future policies, practices, and applied research strategies implemented under the remit of 'A Healthy MTU'.

Responding to these data with 'whole-university' approaches will explicitly align with the HEA Healthy Campus Charter, and indeed MTU's shared vision to "lead transformation through education" (Our Shared Vision – Strategic Plan 2022-2027).

We wish to extend our sincere appreciation to all students, staff, and stakeholders within the extended campus communities of both respective institutions who took the time to participate in this mixed-methods research. In addition, we wish to acknowledge National Healthy Campus Co-Ordinator, Ms Caroline Mahon, and all Colleagues within the Higher Education Authority (HEA) who provide the critical strategic leadership to nurture the national Healthy Campus agenda. We warmly welcome future opportunities to collaborate with Colleagues at UCC, and indeed additional HEI partners across the diverse HEA Healthy Campus Network.

Dr Andrea Bickerdike

'A Healthy MTU' Co-Chair

Dr Cian O'Neill

'A Healthy MTU' Co-Chair

Acknowledgements

The UCC & MTU Healthy Campus Research Project Team wish to acknowledge, with appreciation, the Healthy Campus seed funding allocated to each respective institution by the Higher Education Authority (HEA), which has supported the current inter-institutional research.

Building on the long-standing advocacy and endorsement from critical stakeholders such as Healthy Ireland, the HSE, and the Department of Further and Higher Education, Research, Innovation and Science, ongoing strategic leadership from the HEA has enabled the continued expansion of national discourse and structures to support local and regional-level implementation of the Healthy Campus Charter and Framework.

Moreover, we wish to extend sincere gratitude to Ms Caroline Mahon (National Healthy Campus Co-Ordinator, HEA) and Dr Ross Woods (Senior Manager, Teaching and Learning, Student Success, Health and Wellbeing, HEA) for their critical guidance throughout both the (i) conceptualisation, and (ii) implementation of all phases of this research. In addition, we acknowledge the continued support from Dr Maria Harrington (HSE Senior Health Promotion Officer).

We sincerely thank President John O'Halloran (UCC), President Maggie Cusack (MTU), and all members of Senior Management at both Partner Institutions for their unwavering endorsement of this collaborative research that will inform the regional implementation of the HEA Healthy Campus Charter and Framework. Further, we extend sincere gratitude to the Students' Unions across both UCC and MTU for their championing of all phases of this research.

Finally, we wish to acknowledge the time and effort of all who engaged with, facilitated, and/or participated in any element of this mixed methods research. Your invaluable contributions are greatly appreciated, and have served to inform the collection of policy, practice, and research recommendations comprised within the current research report.

Thank you all.

Go raibh míle maith agaibh go léir.

UCC & MTU Healthy Campus Research Project Team.



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Key Facts and Findings

- Mixed Methods Research Design
- Quantitative Student and Staff Surveys
- Qualitative Consultation with Stakeholders at UCC and MTU

Quantitative Findings: Survey Instruments

1,246 student participants | **862** staff participants

‘Good’ or ‘Very Good’ General Health

76.4% of students

86.0% of staff

Physically Active

42.0% of students **56.7%** of staff

A higher proportion of ‘active’ students and staff resided within highest wellbeing quartile relative to students/staff who were 'somewhat active' or 'inactive'

Only

16.6% of students **25.2%** of staff

reported consumption of ≥5 daily servings of fruit and vegetables

Cumulative prevalence of overweight/obesity

35.3% amongst students

51.8% amongst staff

Binge Drinking Incidence

77.8% of students

62.4% of staff

51.0%

of students reported that they had used cannabis in their lifetime. Almost one in five male students had used cannabis within 30 days of data collection.

‘Poor’ or ‘Very Poor’ Sleep Quality

30.4% of students

22.5% of staff

‘Poor’ or ‘Very Poor’ Mental Health

22% of students

Most prevalent stressor amongst students and staff was workload

72.0% of students **59.5%** of staff

84.7%

of staff would welcome a Healthy Campus Framework or Policy

87.0%

of staff in favour of a 'Smoke-Free' Campus Policy

Qualitative Findings: Stakeholder Consultation

24 campus stakeholders | **2x** focus group sessions

University Leadership, Strategy, Governance

Critical to embed Healthy Campus Framework in an approach endorsed by Senior Management.

Campus Environment

Need to evaluate campus food environments. Campus infrastructural capacity a possible barrier to health.

Culture and Communications

Culture of high workloads a potent barrier to health and wellbeing.

Personal and Professional Development of Students and Staff

Need to structurally enable participation in health-related initiatives.

Executive Summary

Context and Overview

In July 2021, the Irish Healthy Campus Framework and Charter (hereafter referred to as the HEA Healthy Campus Framework and Charter) were publicly launched by Minister for Health Stephen Donnelly TD, and Minister for Further and Higher Education, Research, Innovation and Science, Simon Harris TD (Dept. of Health, 2021). This was the culmination of a co-creative consultative process that involved higher education institution (HEI) stakeholders, representatives from Healthy Ireland (HI), and the Health Service Executive (HSE). The central 'call to action' within the Framework is for HEIs in Ireland to adopt a 'whole campus approach', and develop local Healthy Campus Strategic Action Plans that encompass actions across all strata of respective HEI environments, culture, and ecosystems; with a specific emphasis on (i) Leadership, Strategy and Governance, (ii) Campus Environment, Facilities and Services, (iii) Campus Culture and Communications, and (iv) the Personal and Professional Development of all who interact with, and within, the campus community.

Building on a long-standing legacy of academic partnership, University College Cork (UCC) and Munster Technological University (MTU) committed to engage in an inter-institutional research collaboration that would serve to empirically inform each institution's implementation of the HEA Healthy Campus Framework.

The subsequent dual-strand (QUAN-QUAL) mixed methods research design was adapted from previous similar work conducted at MTU (Bickerdike et al., 2023), with the following specific research objectives:

I. Present a descriptive analysis (stratified by gender) of quantitative health and wellbeing indicators reported by students and staff

II. Examine the association(s) between demographic characteristics, self-reported health and lifestyle indicators, and subjective mental wellbeing amongst both students and staff

III. Qualitatively explore the perspectives and lived experiences of key campus stakeholders at each institution regarding campus services/facilities, and the implementation of the HEA Healthy Campus Framework

IV. Map and examine the potential ecological reach of a subset of health-related services and supports at both UCC and MTU



Data were gathered between May and July 2023, via two 'cohort-specific' (i.e., one for students and a second for staff) questionnaire instruments that were disseminated to all registered students (≥18 years old) and staff of both institutions (as per centrally maintained records within each HEI). The instruments were designed following an empirically rooted (Bickerdike et al., 2019, 2022) iterative process to identify the most appropriate complement of health-related domains, validated scales, and newly devised items for inclusion. Items were stratified into sections relating to a particular health domain (general health, physical activity, nutrition and dietary behaviours, alcohol consumption, tobacco use, drug use [students only], sleep, sexual health and wellbeing, mental health, and stress). Wellbeing was measured using the World Health Organization-Five (WHO-5) Well-Being Index (Topp et al., 2015). For both students and staff, WHO-5 scores were divided into equal quartiles (Q1-Q4), whereby the lowest Quartile 1 encompassed participants with the poorest wellbeing, and Quartile 4 comprised respondents with the highest wellbeing. Cross-tabulation descriptive analyses were thereafter used to examine relevant demographic and health-related variable distributions across the WHO-5 wellbeing score quartiles.
In total, two focus groups sessions were conducted with 24 university stakeholders, including representatives from Student and Staff Health & Wellbeing services, Buildings and Estates, Access & Disability services, the Students' Union, Adult Education, Chaplaincy, and the Green Campus Teams. Focus group transcripts were coded using a deductive paradigm, which was rooted in the core components of the 'whole-campus' approach as articulated above (Leadership, Strategy and Governance; Campus Environment [Facilities and Services], and Campus Culture and Communications; and Personal and Professional Development). Finally, desk research was also undertaken to identify and map a subset of current services and facilities related to health and wellbeing at the respective institutions. The potential 'Ecological Reach' of the mapped services/initiatives were thereafter evaluated using an empirically informed system developed by Bickerdike et al. (2023).

Quantitative Strand: Summary of Findings

Survey Response Rates and Demographics

- In total, 1,939 initial student responses (response rate 5.2%) and 1,063 staff responses (response rate 21.6%) were retained within the masterfiles for preliminary analysis.
- However, the current report includes only cases for whom complete WHO-5 Wellbeing Index data were available (n= 1,246 students, n= 862 staff).
- In the current student sample, 69.5% identified as female, 26.3% as male, 3.0% as non-binary, and 1.1% preferred not to say. Self-reported ages ranged from 18 to 71 years, with a median age of 22.0 years. Of note, non-binary students, and students who preferred not to disclose gender reported lower levels of wellbeing, general health, mental health, and sleep quality.
- Almost two thirds (65.8%) of students were either in their first (37.8%) or second (28.0%) year of study. Overall, 53.8% lived independently in designated student accommodation or private rented accommodation. Of concern, 12 students reported being of no fixed abode.
- In the final staff sample, 70.2% identified as female, 28.9% as male, while just under 1% reported as either non-binary or preferred not to say.
- More than three-quarters (76.6%) of the staff sample were employed on either a permanent contract (65.0%) or contract of indefinite duration (11.6%). A further 22.1% were employed on either a fixed-term or special purpose contract.

General Health

- In total, 76.4% of students and 86.0% of staff rated their general health (GH) as either ‘Good’ or ‘Very Good’.
- Male students appeared to rate GH more favourably (80.8% as ‘Good/Very Good’) relative to both female (75.5%) and non-binary counterparts (60.5%).
- Amongst staff, the most prevalent health conditions/symptoms were (i) ‘back or neck pain’ (66.6%), (ii) ‘frequent headaches’ (50.7%), (iii) ‘anxiety or depression’ (42.5%), and (iv) ‘allergic conditions’ (40.4%). Symptoms were most prevalent amongst staff within the lowest wellbeing quartile.
- The cumulative calculated prevalence of ‘overweight/obesity’ was 35.3% amongst students, and 51.8% amongst staff. Body Mass Index (BMI) calculations also classified 6.3% of students and 1.2% of staff as ‘underweight’.
- Discrepancies between calculated and self-perceived BMI were evident amongst both students and staff. Only 18.8% of students whose BMI values exceeded the related obesity threshold (>30 kg/m^2) self-identified as ‘obese’. The remainder underestimated BMI status (8.8% self-identified as ‘normal weight’, 71.9% as ‘overweight’, and one student identified as ‘underweight’). Furthermore, only 33.3% of staff who were calculated to be ‘obese’ via BMI threshold values self-identified within this category. The remainder identified as either ‘overweight’ (64.3%, n=108), ‘normal weight’ (1.8%, n=3), or ‘underweight’ (n=1).

Physical Activity

- Overall, 42.0% of students (52.4% of males, 38.6% of females, 35.7% of students who preferred not to disclose gender, and 31.6% of non-binary students) and 56.7% of staff (60.2% of males, 55.4% of females, 50% of staff who were either non-binary or preferred not to disclose gender) were classified as ‘active’ (i.e., reported being physically active for at least 30 minutes on ≥5 out of the 7 days prior to data collection).
- The most common perceived barrier to becoming more physically active (amongst students and staff, and across all genders) was a lack of time.

Dietary Behaviours and Perceptions of the Campus Food Environment

- Only 16.6% of students and 25.2% of staff reported habitual consumption of ≥5 daily servings of fruit and vegetables (F&V).
- Almost one in two students (45.2%) reported consumption of ≤2 cumulative F&V servings per day.
- Overall, 52.0% of students and 51.4% of staff reported that the campus food environment enabled healthy choices, which indicated somewhat mixed perceptions regarding same.

Alcohol Consumption

- Overall, 83.9% of students and 84.1% of staff reported drinking alcohol.
- Further, 77.8% of students and 62.4% of staff reported that they had engaged in binge drinking (defined as the consumption of 6 or more drinks on a single occasion). A higher proportion of male staff reported binge drinking monthly or more, relative to female colleagues (33.0% vs 18.0%).
- In terms of alcohol consumption typologies, evaluation of Alcohol Use Disorders Identification Test (AUDIT) scores classified 27.2% students and 11.7% of staff as ‘increased risk’, 3.7% of students/1.9% of staff as ‘high risk’, and 2.9% of students/0.2% of staff as ‘alcohol dependent’.
- Direct and indirect alcohol-related harms (ARHs) were reported amongst both students and staff. Of note, the prevalence of ARH appeared inversely associated with wellbeing amongst both students and staff (i.e., lower prevalence amongst students/staff in higher wellbeing quartiles).

Tobacco Smoking

- The prevalence of tobacco smoking was 16.5% amongst students and 9.2% of staff (32.3% of staff were 'former smokers').
- Overall, 24.7% of students reported using e-cigarettes or 'vapes' (this rose to 32.0% of students in the lowest wellbeing quartile).

Drug Use (Student Cohort Only)

- Over half (51.0%) of students reported that they had used cannabis during their lifetime (63.2% of non-binary students, 53.9% of males, 49.5% of females, and 42.9% of students who preferred not to disclose gender).
- Almost one in five (19%) male students had used cannabis within 30 days of data collection.
- The lifetime prevalence of cocaine use was 15.3% (21.4% of students who preferred not to disclose gender, 20.1% of males, 18.9% of non-binary students, and 13.2% of females), and the prevalence of ecstasy/MDMA use was 11.3% (24.3% of non-binary students, 14.9% of males, 9.4% of females, and 7.1% of students who preferred not to disclose gender).

Sexual Health and Wellbeing

- The majority (71.4%) of the student sample were sexually active. In total, 73.2% were heterosexual, 14.3% bisexual, 5.1% gay/lesbian, and 7.4% pansexual/asexual or other.
- A lower proportion of non-binary students perceived that they had access to adequate sexual health information/ services relative to both male and female students (76.7% vs 85.8% of males and 84.7% of females, respectively).
- Amongst staff, 90.8% reported a heterosexual orientation, 3.8% were bisexual, 3.1% were gay or lesbian, and 2.2% were pansexual, asexual or another sexual orientation.
- Of note, 52.6% of staff who reported being either pansexual, asexual or of other sexual orientation were within the lowest wellbeing quartile.
- Almost two thirds (64.6%) of staff reported a perceived need for greater menopause-related supports, 50.7% for information and advice in relation to the prevention of testicular cancer, and 45.7% for counselling and support services for pregnancy loss.

Sleep

- Recent sleep quality was rated as 'Poor' or 'Very Poor' by 30.4% of students and 22.5% of staff.
- Both students and staff exhibited sub-optimal habitual sleep durations on week nights (only 38.5% of students and 55.2% of staff attained ≥7 hours), coupled with extant tendencies to 'catch up' at the weekends (66.6% of students and 80.2% of staff reported ≥7 hours per night at the weekend).

Self-Rated Mental Health and Stress

- Overall, 22.2% of students rated their mental health as 'Poor' or 'Very Poor'. Whilst a lower proportion of staff (5.8%) rated mental health as 'Poor/Very Poor', an additional 16.9% rated mental health somewhat ambivalently as 'Neither Good nor Poor'.
- Students' most common stressors were 'college workload' (72.0% either highly/often stressed), 'studies in general' (71.6%), and 'exams' (69.3%).
- 'Workload' (59.5%), 'pressure to work outside of normal hours' (33.3%), and 'family situation' (32.1%) were the most commonly perceived psychological stressors amongst staff. Amongst both students and staff, the extent of perceived stress (i.e., 'Highly/Often stressed') in response to each stressor was highest amongst those within the lowest wellbeing quartiles.

Wellbeing Status

- In terms of reliability, the WHO-5 Wellbeing Index exhibited high internal consistency amongst both the student and staff samples (Cronbach's Alpha values of 0.87 and 0.89 respectively).
- On specific WHO-5 items, 29.8% of staff reported waking up fresh and rested either 'most of the time' (26.9%), or 'all of the time' (2.9%) during the two weeks prior to data collection. Of note, 15.8% of students reported that they had not felt fresh and rested following waking at any time during two weeks prior to data collection.
- There were statistically significant differences in total WHO-5 wellbeing scores (possible range 0-100, higher scores constitute more favourable wellbeing) between male (Md. 60.0), female (Md. 52.0), and non-binary students (Md. 38.0). Amongst staff, WHO-5 scores did not differ significantly between gender groups, but 50.0% of those who were either non-binary or preferred not to report gender were within the lowest wellbeing quartile.
- Older students appeared to exhibit more favourable wellbeing. In this regard, 30.2% of students aged 24 years or older resided within the highest WHO-5 wellbeing quartile, relative to 17.0% of students aged ≤20 years old. Similarly, higher proportions of staff aged 45-54 years (24.2%) and 55+ years were also in the highest wellbeing quartile, relative to those aged 18-34 (18.4%) or 35-44 (13.8%).

- A higher proportion of postgraduate students by research (30.4%) and taught postgraduate students (30.6%) were in the highest wellbeing quartile (Q4), relative to their undergraduate counterparts (20.4%).
- Higher proportions of staff who had not attained a university education were in the lowest wellbeing quartile (38.5%), relative to staff with either an undergraduate (25%), masters (26.9%), or PhD degree award (24.3%).
- Higher proportions of 'management' staff (27%) were in the highest wellbeing quartile, relative to either 'academic' (20.7%) or 'clerical/support/other' staff (19.6%).
- Although the absolute proportion within the total sample was low (0.9%, n=8), 50.0% (n=4) of staff who were either non-binary or preferred not to report gender were within the lowest WHO-5 wellbeing quartile

Demographic Variables and Health/ Lifestyle Parameters Across Wellbeing Quartiles

- Of note, 33.1% (n=53) of students with a calculated 'obese' BMI were within the lowest wellbeing quartile (Q1). This was higher than the proportion of students who were calculated to have a 'normal weight' (24.5%).
- Similarly, 37.5% of staff whose calculated BMI values were within the 'obese' range were in Q1, relative to 23.1% of staff who were categorised as 'normal weight'.
- Moreover, 54.1% of staff who self-identified as 'obese' were within the lowest wellbeing quartile (vs 21.1% of those who perceived themselves as 'normal weight').
- A higher proportion of physically active students and staff resided within the highest wellbeing quartile (32.7% and 26.0%, respectively) relative to students/staff who were 'somewhat active' (16.2% [students] and 16.5% [staff]), or 'inactive' (13.1% [students], 6.3% [staff]). Notably, 43.8% of 'inactive' students and 52.4% of 'inactive' staff were within the lowest wellbeing quartile.
- Of note, 28.2% of staff who reported sports participation were within the highest wellbeing quartile, relative to 18.7% of staff who did not participate in sport.
- In total, 52.6% of staff and 52.0% of students who reported 'Poor/Very Poor' sleep quality were within the lowest wellbeing quartiles.

- Higher proportions of students who exhibited hazardous alcohol consumption patterns exhibited lower wellbeing. Although the absolute proportion was low (2.9%), 38.9% of students whose AUDIT-10 scores indicted possible alcohol dependence reported wellbeing scores within the lowest wellbeing quartile.
- Similarly, the majority of staff who were classified as 'high-risk' drinkers were within the lowest wellbeing quartile (56.2%), and there were no 'high-risk' drinkers within the highest wellbeing quartile.
- Higher proportions of both students and staff who were tobacco smokers were within the lowest wellbeing quartiles, relative to non-smokers (38.0% vs 23.5% amongst students, 39.2% vs 25.2% amongst staff).



- Electronic cigarette use was more prevalent amongst students in the lowest wellbeing quartile (32.0% in the lowest Quartile 1 vs 14.5% in wellbeing Quartile 4).
- The lifetime prevalence of drug use (cannabis, cocaine, ecstasy/MDMA, magic mushrooms, Ketamine, LSD) was greatest amongst students in the lowest wellbeing quartile.

Policy Perspectives

- The majority (84.7%) of respondents to the staff survey stated that they would welcome a Healthy Campus Framework or Policy. In addition, a strong majority of staff (87.0%) were in favour of a 'Smoke Free' Campus Policy.
- Overall, 57.2% of students perceived that there were 'adequate alcohol-free activities on the college campus to socialise and relax'.

Qualitative Strand: Summary of Findings

A total of **24 stakeholders** took part in the focus groups. This sample included representatives from Student and Staff Health & Wellbeing services, Buildings and Estates, Access & Disability services, the Students' Union, Adult Education, Chaplaincy, and the Green Campus Teams. Findings pertaining to each component of the 'whole-campus' approach within the HEA Healthy Campus Framework are summarised below.

University Leadership, Strategy, Governance

- Focus group participants generally welcomed the introduction of the Healthy Campus initiative.
- To prevent a proliferation of piecemeal, tokenistic health and wellbeing initiatives, participants emphasised the importance of a strategic approach, whereby the Healthy Campus framework is properly embedded into university practices and policies, and endorsed by the University Executive and Senior Management.

Campus Environment (Facilities and Services)

- Focus group participants expressed dissatisfaction with elements of the campus food environment, particularly the greater availability and cheaper pricing of unhealthy food items.
- Participants also raised concerns about infrastructural capacity (e.g., sports facilities, classroom size) to meet rising student numbers. The possibility of inadvertent resentment arising from the implementation of the Healthy Campus Framework was noted, should current campus infrastructure and resources prove insufficient to sustain demands.
- Participants recognised the significant potential to maximise existing natural resources for health and wellbeing, such as outdoor green spaces on campus, nearby parks, and nature walks.

Campus Culture and Communications

- The issue of high workloads and time pressures experienced by university staff was underlined as a factor that was not conducive to health and wellbeing. The pervasive culture of academic pressure was perceived as having the potential to undermine the objectives of initiatives such as Healthy Campus.
- In addition, challenges related to structural change at the university were also raised, including the sense of uncertainty leading to increased stress amongst staff.
- For students, the campus culture was also perceived as being inherently stressful owing to academic pressure, busy timetables and a perceived "productivist" mindset. A rise in mental health issues amongst students was also noted by staff, particularly in the post-Covid era.
- In relation to campus communications, staff participants underlined an over-reliance on email, and the need for more creative communication platforms (e.g., 'Town Hall' meetings, leveraging social media to communicate with staff and students).

Personal and Professional Development

- Participants cited positive examples of staff wellbeing and social activity initiatives, signalling a greater commitment to this area.
- Regarding student-specific services, participants noted services related to sexual health and personal safety as particular exemplars of services supporting personal development and safety.
- Participants also referred to initiatives developed in more recent years around the prevention of sexual violence and harassment. Specific programmes such as the Speak Out Tool, Active Consent training, and Bystander programme were deemed positive developments.
- Notwithstanding the breadth of health-enhancing services for staff and students described in the focus groups, raising awareness of such services and encouraging participation was noted as a distinct challenge.
- A key emergent critique from the focus groups was the lack of onsite health-related services for staff at both Partner institutions (i.e., UCC and MTU).



Key Recommendations

Policy and Practice

1. There is a need for renewed institutional resourcing to sustain the implementation of the Healthy Campus Framework at UCC and MTU.

2. Initial Healthy Campus actions should focus on the resourcing of viable operational structures, and on the development of cohesive Healthy Campus Strategic Action Plans at UCC and MTU. Each plan should specifically acknowledge and signpost to the extant complement of institutional policies that concurrently impact upon facets of health and wellbeing.

3. Cross-sectoral partnerships are required to advocate for socioeconomic equity, and to enable students and staff in critical need of campus supports to access same in a timely manner.

4. Healthy Campus structures should encompass thematic working groups to examine key health-related domains through a 'whole-campus' lens (with a specific emphasis on physical activity, nutrition, alcohol consumption, substance use [assessed amongst students only], and sleep).

5. Comprehensive assessments of, and evidence-based interventions to support healthy dietary choices within, campus food environments are warranted.

6. Embedding a culture of physical activity should constitute a core thematic priority, and potent initial medium through which to demonstrate 'high-visibility' implementation of the Healthy Campus Framework at both UCC and MTU.

7. Nurturing internal partnerships and increasing engagement with existing campus facilities, interventions, and resources should be prioritised in the first instance. This will reduce the risk of excessive proliferation of siloed and time-limited 'de-novo' initiatives.

8. Healthy Campus initiatives and activities should be co-created with target beneficiaries. Communications should be via multiple methods, such as regular 'Townhall' disseminations and leveraging of media-rich communication channels.

9. Healthy Campus strategies and actions should encompass an equitable consideration for staff and students.

10. Healthy Campus activities should be embedded within academic curricula (students) and the 'core' working day (staff).

11. Continuous engagement and collaboration with stakeholders such as the HEA Healthy Campus Network, HSE Colleagues within Cork-Kerry Community Healthcare, and local community agencies will serve to increase impact and transfer of the current empirical data to practice.

12. Internal consultation with representatives from the complement of campus services/supports highlighted in the current Ecological Reach Mapping exercise should take place in the first instance.

Future Research

1. The current collaboration further substantiates the rationale for a designated national 'Healthy Campus' research strategy. Such a strategy should encompass both process and outcome indicators, and could be formally aligned with the HEA Healthy Campus Network.

2. The quantitative student/staff survey instruments should be disseminated every new 4-year academic cycle within each institution, utilising more intricate sampling strategies.

3. Future waves of qualitative data collection should encompass representation from all campuses.

4. For all future research activities aligned with Healthy Campus activities, multi-modal recruitment incorporating both digital and traditional (i.e., 'in-person' recruitment) methods could serve to enable multiple means of engagement. Where possible, in-person recruitment of student participants could be embedded within student induction programmes. This will also serve to increase students' awareness of Healthy Campus entities and initiatives.

5. Embedding a designated research strategy within intra-institutional Healthy Campus Action Plans will create opportunities to implement health-enhancing research interventions that inherently align with a multitude of UN Sustainable Development Goals (SDGs). Gender-specific 'champions' and role models should also be considered to increase participation and engagement amongst male students and staff.

1.1 Introduction and Context

1.1.1 Settings Approach to Health Promotion (HP)

Health promotion (HP) is defined as "the process of enabling people to increase control over, and to improve their health" (World Health Organization [WHO], 1986, p.1). The discipline is rooted within the Ottawa Charter for Health Promotion, a seminal document that articulates how "health is created and lived by people within the settings of their everyday life; where they learn, work, play and love" (WHO, 1986, p.3). In HP practice, the 'settings-based approach' has evolved into a prominent paradigm, which posits that health is mediated by, and within, the ecological contexts of cross-sectoral settings (Bickerdike et al., 2023; Newton et al., 2016; Whitelaw et al., 2001). The WHO has continued to advocate settings-based HP, as a conduit through which to "[shift] the focus from the deficit model of disease to the health potentials inherent in the social and institutional settings of everyday life" (Kickbusch, 1996, p. 5, cited in IUHPE, n.d.).

1.1.2 Higher Education Institutions as HP Settings

A HP setting has been defined as "the place or social context within which people engage in daily activities in which environmental, organisational and personal factors interact to affect health and wellbeing" (WHO, 1998, p. 19). Higher education institutions (HEIs), therefore, constitute pragmatic contexts in this regard. As inherently microcosmic entities, HEIs can serve to purposively leverage (i) organisational governance structures and policy mandates, (ii) extensive built environment facilities, (iii) transdisciplinary research and innovation ecosystems, (iv) existing on-campus health and wellbeing professional services, and (v) programmatic curricula to support the health and wellbeing of students, staff, and extended campus communities (Byrne & Surdey, 2021; Tsouros et al., 1998). Moreover, given the intricate associations between health, wellbeing, and sustainability (Kjærgård et al., 2014), settings-based HP both ideologically and operationally aligns with the broader mandates of HEIs to advocate for societal equity, progression towards the UN Sustainable Development Goals (SDGs), equality, diversity, and inclusion.

Sectoral discourse, policy drivers, and empirical literature regarding the application of the settings approach to HP within HEIs all utilise a breadth of inter-changeable terminology, such as 'Healthy University (HU)', 'Health-Promoting-University (HPU)', or 'Healthy Campus' approaches (Dooris

et al., 2020; Government of Ireland, 2021b; Okanagan Charter, 2015; Tsouros et al., 1998). Whilst nomenclature in recent literature has been variable, the fundamental characteristics of a 'Health-Promoting University' (HPU) were encapsulated within a 1998 Strategic Framework that was published by the WHO as an output from the First International Conference on Health Promoting Universities, and from a bespoke 'round-table' meeting to progress the strategic development of a European Network of Health Promoting Universities (Tsouros, 1998). In this framework, a HPU was characterised as a HEI that demonstrates a "clear commitment to health, sustainability and equity in its mission statement and policies" (Tsouros et al., 1998, p. 124). The framework also articulated that a HPU should serve to (i) offer supportive environments that are conducive to health and sustainability, (ii) build capacity amongst the campus community to enable healthy lifestyles, (iii) adopt a participatory paradigm in all operational decision making, (iv) develop "alliances for health promotion and outreach into the community" (Tsouros et al., 1998, p. 119), and (v) embed health and wellbeing within academic curricula and research activities.

The above-referenced core tenets of a HPU continue to permeate throughout more contemporary discourse, literature, and policy drivers that underpin settings-based approaches to HP within a diverse global higher education sector. Internationally, the 2015 Okanagan Charter for Health Promoting Universities and Colleges continues to serve as the most recent exemplar guidance document for national 'Healthy Campus' or 'Health Promoting University' strategies (including the HEA Healthy Campus Charter and Framework in Ireland, see Section 1.2). The Okanagan Charter explicitly calls upon HEIs to (i) lead Health Promotion action, and (ii) integrate health and wellbeing into all facets of organisational cultures and operations. By infusing health into organisational practices and academic mandates, the Charter articulates a holistic and co-ordinated 'whole-campus' paradigm to create a culture of compassion, wellbeing, equity, and social justice. The settings-based orientation to HP is explicitly advocated, in addition to participatory approaches and cross-sectoral partnerships that support health and wellbeing. A core principle within the Okanagan Charter is to promote research, innovation, and evidence-informed action.

1.1.3 Higher Education Sector in Ireland

In Ireland, the diverse suite of HEIs that are in receipt of 'core' public funding from the Higher Education Authority (HEA) comprises 'traditional' universities, technological universities, institutes of technology (IoTs), and college entities (HEA, n.d.). The magnitude of the Irish higher education sector is considerable, and the proportion of young adults aged 25-34 who have been conferred with a HEI award has been reported to exceed the EU-27 average; 58% vs 41% (CSO, 2021, cited in Bickerdike et al., 2023). Recent data reported 256,785 student enrolments within the Irish higher education sector during the 2022/2023 academic year (HEA, 2023). With regard to staff, HEA data (at December 31st 2022) indicated >30,000 'Full Time Equivalent' (FTE) roles across the sector, with an estimated 'headcount' of 36,029 (HEA, 2022).

Given the substantial populations who interact with, and within, the diverse complement of HEIs in Ireland, empirically informed campus HP interventions could constitute a prudent and highly scalable strategy to synergise with broader societal efforts to address complex public health challenges (Bickerdike et al., 2023). Such an approach would ensure that HEIs are optimised to concurrently support academic attainment, health, and wellbeing.

1.1.4 Health and Wellbeing Indicators Amongst HEI Campus Populations

HEIs have traditionally been posited as 'transitional' settings that substantially shape young adults' progressions towards increased behavioural autonomy (Murphy et al., 2015). However, the policy-driven impetus to adopt a holistic approach to support health and wellbeing within HEI settings has occurred against a backdrop of empirical evidence indicating sub-optimal health and wellbeing indicators amongst campus populations.

A recent programme of research (from which the current research collaboration evolved, see Section 2.1) highlighted an array of concerning quantitative health indicators amongst samples of both students (n=2,267) and staff (n=279) of a multi-campus HEI in Ireland (Bickerdike et al., 2023). A novel 'student-staff' comparative analysis comprised within that study's mixed methods research design revealed low energy/vitality (83.7% of students and 83.0% of staff), insufficient sleep (79.3% of students, 82.2% of staff), sub-optimal fruit and vegetable intake (74.9% students, 62.1% of staff), and excessive sitting time (65.7% of students, 60.8% of staff). Significant associations between students' collective lifestyle contexts and mental health were also reported, whereby a multiple linear regression model showed that 8 variables (biological sex, self-perceived general health, daily fruit and vegetable servings, drinking patterns, self-rated mental health, recent sleep quality, weekday social media use, and self-perceived overweight/obesity) predicted 37.0% of the variance in students' positive mental health scores (Bickerdike et al., 2019). Amongst staff, a cluster analytical procedure revealed that health and wellbeing parameters were exhibited on a relative continuum, with three distinctly clustered sub-groups; namely (i) 'sub-optimal', (ii) 'moderate', and (iii) 'healthy lifestyle' individuals. Notably, staff within the 'sub-optimal lifestyle' cluster reported significantly ($p < 0.05$) higher Body Mass Index (BMI) values, greater psychological stress, and more days' absent from work due to health issues during the 12 months prior to data collection (Bickerdike et al., 2022).

In a broader context, a substantial body of Irish and international literature has consistently reported a plethora of concerning health and lifestyle parameters amongst HEI student cohorts (Byrne et al., 2022; Dodd et al., 2010; Hope et al., 2005; Keller et al., 2008). Empirical studies have highlighted harmful drinking patterns amongst HEI students in Ireland (Bickerdike et al., 2019; Davoren et al., 2015), and international literature has also reported on the normative culture of hazardous drinking that appears interwoven within the quintessential 'higher education' experience (Gambles et al., 2022). The Drug Use in Higher Education in Ireland (DUHEI) Survey, which involved a sample of 11,592 students from 21 HEIs in Ireland, also revealed highly concerning habitual use of illicit substances (Byrne et al., 2022). Notably, 55.3% (n=6,408) of DUHEI participants reported having used

an illicit drug (54.2% of undergraduates, 57.1% of postgraduates), and 53.5% perceived that drug use was “a normal part of student life” (Byrne et al., 2022, p. 41).

Both physical activity and obesity are key indicators within the broader ‘Healthy Ireland’ strategic framework (Government of Ireland, 2021a), and the HEA Healthy Campus Framework advocates leveraging HEIs to laterally align with national public health policy (Government of Ireland, 2021b). Notably, HEIs have been proposed as both inherently opportune physical activity (PA) promotion settings (García-Álvarez & Faubel, 2020) and critical contexts to contribute towards cross-sectoral action to ameliorate overweight and obesity (Deforche et al., 2015). From a PA perspective, greater infrastructural provision within a HEI (i.e., facilities, internal partnerships, and varsity sports clubs) was significantly associated with more favourable PA patterns amongst a subsample of 6,951 HEI student participants in the seminal Student Activity and Sport Ireland (SASSI) Study (Murphy et al., 2024). Concurrently however, only 64.7% of the full SASSI sample of 8,122 HEI students from 31 HEIs in Ireland at that time were deemed to attain sufficient weekly PA (Murphy et al., 2018). In terms of BMI, the SASSI Study also outlined a 28% prevalence of overweight/obesity amongst its nationally representative sample (Murphy et al., 2015). In a more local context, Bickerdike et al. (2019) reported an overall prevalence of overweight/obesity of 38.2%, with notable gender-specific discrepancies in students’ self-perceived versus calculated body habitus. While both sexes underestimated obesity, a greater proportion of male students underestimated ‘overweight’, whereas a greater proportion of female students tended to overestimate this BMI category (Bickerdike et al., 2019). More recent work conducted in 2021 (i.e., during extant public-health restrictions attributable to the COVID-19 pandemic) reported an overweight/obesity prevalence of 40.5% amongst a cohort of 268 Year 2 undergraduate students at MTU (Sheedy O’Sullivan et al., 2022). Notwithstanding the limited generalisability of the convenience sampling approach employed, it was pertinent to note that 78.4% of participants reported that they had gained body mass since the onset of the COVID-19 pandemic (Sheedy O’Sullivan et al., 2022).

From a mental health and wellbeing perspective, it is well-documented that higher education constitutes a high-risk life stage for either the initial presentation and/or exacerbation of multiple mental health conditions (Price et al., 2019). In Ireland, mental health issues have been reported to account for 20-40% of all presentations to HEI Student Health Services (Hill et al., 2020, cited in Bickerdike et al., 2023). In University College Dublin (UCD), mental health presentations to the Student Health Service increased by 94% between 2015-2019 (UCD, 2023). In terms of empirical evidence, the ‘My World Survey 2’, which included a sample of 9,935 HEI students from 12 HEIs in Ireland, also highlighted a concerning prevalence of ‘severe/very severe’ depression/anxiety (~20%) and attempted suicide (>10%) (Mahon et al., 2022). Sub-optimal mental wellbeing amongst HEI student cohorts has been linked to concurrent health indicators such as habitual drug use (Byrne et al., 2022), harmful alcohol consumption (Tembo et al., 2017), physical inactivity (Grasdalsmoen et al., 2020; Murphy et al., 2018), overweight/obesity (Phelan et al., 2015), and sub-optimal sleep (Dinis & Bragança, 2018).

HEIs also serve as prominent workplace settings for diverse and heterogeneous cohorts of staff. Surprisingly, however, with the exception of occupational stress, there remains a relative paucity of literature reporting on health and wellbeing indicators of staff cohorts, relative to the abundance of research pertaining to HEI students (Bickerdike et al., 2023). This could be attributable to the inherent heterogeneity of staff cohorts, which are comprised of a variety of academic, professional, managerial and support roles. In terms of mental health and wellbeing, a grey literature publication reporting on data obtained from 59 HEIs across the United Kingdom, via the Freedom of Information Act, noted substantial increases in ‘staff access’ (i.e., number of counselling sessions) to counselling services between 2009-2015 (Morrish, 2019), with intra-institutional increases of between 72% - 316% reported during this time period. Increased workloads, pressures to adhere to performance targets, and competitive metricisation were posited as determinants of stress and poor mental health amongst HEI staff, and the author referred to the higher education sector as a context “...in which excessive pressure to perform has been normalised” (Morrish, 2019, p. 51).

International literature involving HEI staff cohorts has also articulated a complex duality whereby high levels of perceived job satisfaction may co-exist alongside substantial occupational stress (Shin & Jung, 2014). In Ireland, previous empirical work involving a cohort of 1,131 academic staff within the IoT sector, highlighted specific sources of ‘high/very high stress’, including workload intensity (reported by 83% of participants), workload pace (56%), and pressure to work long hours (40%) (Kenny, 2015). Interestingly, positive perceptions of both ‘general health’ and ‘quality of life’ were reported in more recent work amongst a cohort of 279 HEI staff of a single IoT entity in Ireland (Bickerdike et al., 2022). These self-perceptions co-existed alongside concurrently reported health-risk indicators such as overweight/obesity (49.4%), low fruit and vegetable intake (62.1% reported <5 daily servings), physical inactivity (23.5% not meeting minimum national guidelines), sedentary behaviours (60.8% reported ≥ 4 hours daily sitting time), insufficient sleep (82.2% <8 hours per typical weeknight), and hazardous alcohol consumption (13.3%) (Bickerdike et al., 2022).

From a physical activity perspective, literature predominantly from the US has substantiated the importance of HEIs as prudent intervention settings for staff. Specifically, previous empirical work has reported favourable changes to cardiovascular risk profiles amongst a cohort of 104 HEI staff who participated in an 8-week campus-based walking intervention (Butler et al., 2015). In addition, a 4-week walking intervention resulted in significant reductions in perceived stress amongst a cohort of 39 female HEI staff (Leininger et al., 2014). Finally, within the relatively limited body of literature available, further health indicators of concern reported amongst international HEI staff cohorts have also encompassed (i) a hazardous drinking prevalence of 35% amongst a cohort of 129 HEI staff in the UK (Awoliyi et al., 2014), and (ii) a 45.5% prevalence of overweight/obesity amongst a cohort of 276 staff of two HEIs in Poland (Kwiecień-Jaguś et al., 2021).

1.2 Irish Healthy Campus Framework and Charter

In July 2021, the Irish Healthy Campus Framework and Charter (hereafter referred to as the HEA Healthy Campus Framework and Charter) were publicly launched. This was the culmination of a co-creative consultative process that involved HEI stakeholders, in addition to representatives from Healthy Ireland and the Health Service Executive (HSE). As an explicit enactment of the 'whole-of-government' ethos of the 'Healthy Ireland' strategic framework (Government of Ireland, 2021a), it was notable that oversight of the national adoption of the Healthy Campus Framework was allocated directly to the HEA, as the agency with statutory responsibility for the effective governing and regulation of the higher education sector. To date, prominent national developments have encompassed the appointment of a National Healthy Campus Co-Ordinator within the HEA, further evolution and expansion of the National Healthy Campus Network, and the proportionate allocation of preliminary 'Healthy Campus' seed funding to each HEI (which has supported the current research collaboration, see Section 2.1 below).

The HEA Healthy Campus Framework was developed in line with international best practice and specifically draws upon the ecological tenets of the settings-based HP paradigm, in addition to the principles within the Okanagan Charter for Health Promoting Universities and Colleges (2015). The Framework further endorses the core vision comprised within the national 'Healthy Ireland' strategy, which strives for:

> "A Healthy Ireland, where everyone can enjoy physical and mental health and wellbeing to their full potential, where wellbeing is valued and supported at every level of society and is everyone's responsibility" (Dept. of Health, 2013, p. 5).

Within the Framework, the seminal work of Professor Mark Dooris (a global thought leader within the domain of settings-based HP) is cited to define a 'Healthy Campus' as a HEI that:

> "...adopts a holistic understanding of health, takes a whole-campus approach and aspires to create a learning environment and organisational culture that enhances the health and wellbeing of its community and enables people to achieve their full potential." (Dooris et al., 2010, p.i, cited in Government of Ireland, 2021b).

Essentially, the Framework aims to support a collective understanding of the 'Healthy Campus' concept, to promote action in specific areas of health and wellbeing, and to acknowledge the fundamental role played by HEIs to support the health and wellbeing of diverse campus communities in Ireland. The preliminary step in the adoption of the HEA Healthy Campus Framework within each HEI is a formal commitment to its enactment, whereby an accompanying Charter (Appendix A) is signed by an Executive Management representative.

1.2.1 'The What': Advocating a 'Whole-Campus' Approach

In addition to the above-referenced explicit policy alignments (Okanagan Charter, Healthy Ireland Strategy), the HEA Healthy Campus Framework is underpinned by four cross-cutting principles; namely 'Participation', 'Partnership', 'Evidence-Based' action (directly informed by research, where applicable), and 'Sustainability' of campus HP through integration with habitual policies, operations, teaching, and research activities.

The central call to action within the Framework is for HEIs in Ireland to adopt a 'whole campus approach', and enact local Healthy Campus Strategic Action Plans that encompass dedicated actions across all strata of the HEI's environment, culture, and ecosystem, with a specific emphasis on:

1. **Leadership, Strategy and Governance;**
2. **Campus Environment, Facilities and Services;**
3. **Campus Culture and Communications;**
4. **Personal and Professional Development (of all who interact with, and within, the campus community).**

Specifically, the framework emphasises alignment with key local and national policies pertaining to "...the key areas of physical activity, obesity, tobacco, sexual health, mental health and drugs and alcohol" (Government of Ireland, 2021b, p. 3).

1.2.2 'The How': A Sustainable and Holistic Healthy Campus Process

It has long been recognised that a 'Health-Promoting University' should not be viewed as a finite target or outcome, but rather a continuous process of improvement (Tsouros et al., 1998). Similarly, the HEA Healthy Campus Framework describes a cyclical and co-ordinated approach to the ongoing implementation of a 'whole-campus' set of actions to support health and wellbeing. This process has been conceptualised as having multiple phases and possible 'entry-points' as detailed in **Figure 1**.

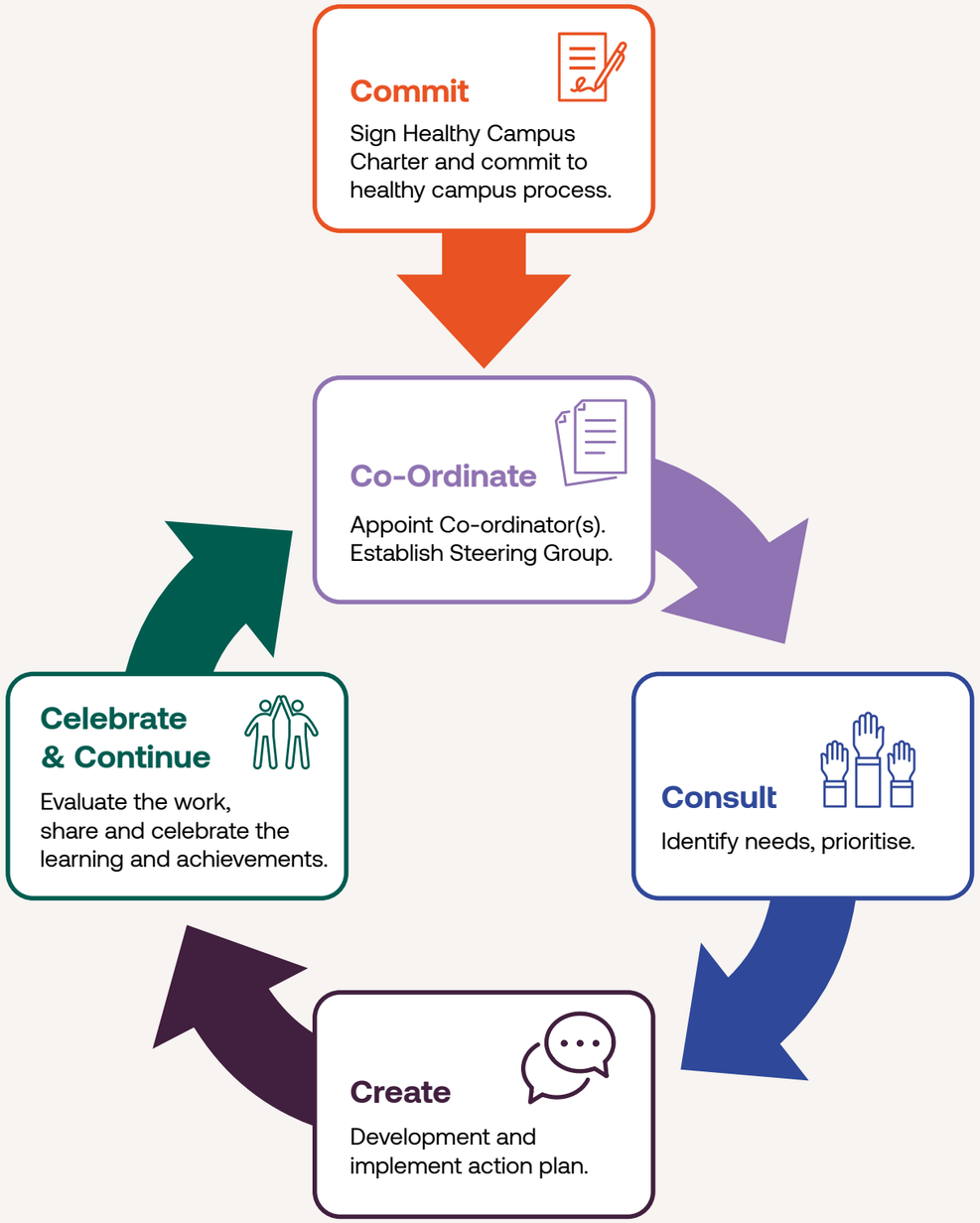


Figure 1: HEA Healthy Campus Framework (adapted from Govt. of Ireland, 2021b)

Phase 1: 'Commit'

An overarching commitment to deliver on the Healthy Campus Framework, whereby the Charter is signed by the HEI's President (or equivalent nominee)

Phase 2: 'Co-Ordinate'

Appointment of a Healthy Campus Co-Ordinator, Project Officers, and a representative Steering Group

Phase 3: 'Consult'

Consultation with key stakeholders to identify current health-related activity, and to identify specific needs

Phase 4: 'Create'

Development of an Action Plan through which to operationalise a 'whole-campus' approach to supporting health and wellbeing. This should encompass a consideration for an evaluation process.

Phase 5: 'Celebrate & Continue'

Evaluation of work and celebration/ sharing of findings. Learnings should be applied and utilised to inform and plan to progress to the next cycle of the process.

2.1 Evolution of the Current Research Collaboration

In direct alignment with the HEA Healthy Campus Framework Principles of participation and partnership, University College Cork (UCC) and Munster Technological University (MTU) signed the Healthy Campus Charter at a collaborative ceremony held in UCC on 9th January 2023. This ceremony was attended by each institution's representative on the HEA Healthy Campus Network (Dr Michael Byrne [UCC] & Dr Andrea Bickerdike [MTU]), in addition to (i) Executive Management from both UCC and MTU, (ii) Students' Union and Staff Welfare representatives, (iii) a colleague from the regional HSE Health Promotion Unit, and (iv) the National Healthy Campus Co-Ordinator within the HEA (Ms Caroline Mahon).

Building on a long-standing legacy of academic partnership, UCC and MTU also agreed to engage in an inter-institutional research collaboration that would serve to empirically inform each institution's Strategic Action Plan to implement the HEA Healthy Campus Framework. A previous mixed-methods programme of research involving cohorts of students and staff of the Cork Campuses of MTU (formerly known as Cork Institute of Technology) highlighted an unequivocal rationale for ongoing monitoring of health and wellbeing indicators amongst HEI populations, given the dynamic and ever evolving nature of the sector (Bickerdike et al., 2019, 2022, 2023), in addition to the residual impacts of the COVID-19 pandemic (Sheedy O'Sullivan et al., 2022).

The current research was supported by pooled HEA Healthy Campus seed funding from March-August 2023. In terms of interim milestones and outputs, preliminary findings were disseminated at the 16th European Public Health Conference (Calnan et al., 2024), which was held at the National Convention Centre, Dublin, in November 2023 (Appendices B & C). Moreover, an Interim Report was presented within each institution, and additional preliminary findings were presented to the UCC Staff Wellbeing Team in January 2024.





Figure 2: Representatives of UCC and MTU at gathering to sign Healthy Campus Charter Photo credit: Daragh McSweeney/Provision

2.1.1 Research Aims and Objectives

In alignment with Phase 3 (i.e. 'Consult') of the Healthy Campus Framework (Section 1.2 above), the current research aimed to identify thematic priorities amongst a heterogeneous target population comprised of students and staff across two distinct universities, spanning seven regional campuses in the southwest region. Given the extant and residual repercussions of the COVID-19 pandemic upon both academic engagement and wellbeing (Sheedy O'Sullivan et al., 2022), it was postulated that a collaboration of this nature would be of interest to a multitude of campus HP practitioners, public-health researchers, academics, and policy makers.

Given the collaborative paradigm underpinning this UCC-MTU partnership, it was agreed at the outset that data from each institution would be pooled in all current analyses, and findings would be reported collectively. In the current report, data is therefore stratified by gender and wellbeing quartiles (but not by institution). Any such inter-institutional comparisons would not align with the settings-oriented (i.e., whole-system) and participatory ethos upon which this collaborative relationship was founded.

Whilst beyond the scope of the current analyses, it was envisaged that this research would generate a critical baseline dataset from which to design (and evaluate) future HP interventions in alignment with the HEA Healthy Campus Framework. Whilst institutional stratification has not been performed in the current report, the methodological approach will enable repeated cross-sectional comparisons with previous empirical work conducted amongst both student (Bickerdike et al., 2019; Byrne et al., 2022; Davoren et al., 2015) and staff (Bickerdike et al., 2022) cohorts at each respective institution. In the longer term, this will facilitate the monitoring of a suite of core population health indicators referred to in the HEA Healthy Campus Framework, and indeed multiple public-health policies under the remit of 'Healthy Ireland' (physical activity, obesity, mental health, sexual health, drug use, alcohol consumption, and tobacco use).

Specifically, the objectives of the current research were to:

I. Present a descriptive analysis (stratified by gender) of quantitative health and wellbeing indicators reported by students and staff

II. Examine the association(s) between demographic characteristics, self-reported health and lifestyle indicators, and subjective mental wellbeing amongst both students and staff

III. Qualitatively explore the perspectives and lived experiences of key campus stakeholders at each institution regarding campus services/facilities, and the implementation of the HEA Healthy Campus Framework

IV. Map and examine the potential ecological reach of a subset of health-related services and supports at both UCC and MTU

2.2 Study Design and Methods

The overarching methodology was adapted from previous similar work conducted at MTU (Bickerdike et al., 2023), comprising a mixed-methods, dual strand (QUAN-QUAL) study design to achieve the above-mentioned research objectives, which comprised the following:

1. Quantitative Strand (QUAN)

a. The QUAN strand centred around the dissemination of cohort-specific, web-based questionnaire instruments to all students and staff of both UCC and MTU.

b. The majority of items within each instrument were either previously validated, or had been iteratively designed/adapted in previous work (Bickerdike et al., 2019, 2022).

c. The instruments gathered data pertaining to demographics, general health, nutrition, self-reported BMI, physical activity, alcohol use and harms, sleep, mental health and wellbeing, sexual/reproductive health and wellbeing, and substance use* (*student instrument only).

2. Qualitative Strand (QUAL)

a. The QUAL strand encompassed a consultative focus group within each respective institution (1 at UCC, 1 at MTU) with a sample of purposively identified stakeholders (including representatives from Student and Staff Health & Wellbeing services, Buildings and Estates, Access & Disability services, the Students' Union, Adult Education, Chaplaincy, and the Green Campus Teams). During the focus group, participants were prompted to articulate their personal perspectives and lived experiences on campus, in addition to sharing views regarding (i) current campus facilities/services, and (ii) the implementation of the HEA Healthy Campus Framework within their respective institution (barriers, facilitators, and relevant contextual issues).

b. In addition, a desk-based mapping exercise was conducted to evaluate the 'ecological reach' (Section 2.2.5) of a subsample of identified health and wellbeing-related services and supports at each University.

2.2.1 Timing of Research

Data were collected from May to July 2023. Data cleaning was undertaken in the period July to September 2023, and final analysis between September 2023 – July 2024.

2.2.2 Ethical Approval

Ethical approval was granted by both the Social Research Ethics Committee (SREC) at University College Cork (Ref: 2023-052) and the MTU Human Research Ethics Committee (MTU-HREC-MR-23-015-A). An internal survey request form was also submitted to the University Student Surveys' Board at UCC to ensure that the scheduling and focus of the student survey was appropriate.

2.2.3 QUAN Strand: Questionnaire Instruments

Dissemination

In February 2023, two 'cohort-specific' (i.e., one for students and a second for staff) questionnaire instruments were designed following an empirically rooted (Bickerdike et al., 2019, 2022) iterative process to identify the most appropriate complement of health-related domains, validated scales, and newly devised items for inclusion. Both instruments were subject to rigorous drafting and revision to ensure face validity with respect to (i) the overarching aim of this mixed-methods research collaboration, and (ii) the specific suite of research objectives outlined above. The instruments were hosted on the web-based 'Qualtrics' survey platform, which enabled the insertion of skip logic to ensure participants were exposed only to items of relevance, hence minimising participant burden. Prior to dissemination, several web-based technical pilots were conducted to verify functionality of the survey platform, and its data export function, given the anticipated magnitude of both the student and staff datasets.

A convenience sampling approach was employed, and inclusion criteria extended to all registered students (≥18 years old), and all staff of both UCC and MTU (as per centrally maintained records within each HEI at the time of data collection). An aligned strategy was employed to disseminate the instruments via institutional email to each respective cohort, as summarised within **Table 1.**

Table 1

Student and staff instruments: dissemination timeline

Student Questionnaire Instrument	UCC	MTU
Wave 1 initial dissemination	19/04/2023	19/04/2023
Reminder following examination period	24/05/2023	23/05/2023
Staff Questionnaire Instrument	**UCC**	**MTU**
Wave 1 initial dissemination	23/05/2023	23/05/2023
Reminder 1	31/05/2023	31/05/2023
Reminder 2	w/c 12/06/2023	15/06/2023
Close of both student and staff instruments	**26/06/2023**	**26/06/2023**

w/c = week commencing

As outlined in Section 2.1, given the participatory paradigm and the intent to pool all data, the same links were issued to participants within both UCC and MTU. All participants were required to provide informed consent prior to completion, and the distribution email outlined the purpose, scope, and entirely voluntary nature of the research.

Instrument Design

Although in total there were 72 and 68 main items (exclusive of sub-items) inputted into the student and staff survey platforms, respectively (see Appendices D & E), not all participants were exposed to the same number of items due to the presence of skip logic. In both instruments, items were stratified into sections relating to a particular health domain, and all participants were exposed to the sections in the same sequential order. The subset of questionnaire items included in the current analysis are presented in **Table 2.**

Table 2

Subset of questionnaire items included in the analysis

Section	Variables measured	Adapted/Sourced from
About You	• Gender, age, registration status*, mode of study (full/part-time)*, area of study*	Hope et al., 2005, cited in Bickerdike et al., 2023
	• Role#, tenure status#	ND
	• Primary campus, year of study*	ND
	• Living conditions during term time*	Mac Neela et al., 2012, cited in Bickerdike et al., 2023
	• Level of education (utilised as a quasi-indicator of SES)#	ND
	• Nationality	ND
General Health	• Self-rated general health (5-point Likert scale)	Hope et al., 2005; Morgan et al., 2008; Ware et al., 1993
	• Self-rated quality of life#	Morgan et al., 2008
	• Perceptions regarding Healthy Campus Framework# ('Would you welcome a Healthy Campus framework or policy at your college to improve staff health and wellbeing?' Yes/No/Don't Know)	ND
	• Self-reported and diagnosed medical conditions within previous 12 months#	Morgan et al., 2008
	• Self-reported height/body mass	ND
	• Self-perceived BMI category	ND
Food Habits & Nutrition	• Self-reported servings of fruit and vegetables per day	Mac Neela et al., 2012
	• Campus food environment: engagement indicator ('Overall, where do you most frequently have your main meal during term time?')	ND
	• Campus food environment perceptions	
	• ('Do you believe the food and beverage facilities on your college campus enable [staff] to make healthy food choices?')	Bickerdike et al., 2023

Physical Activity	• Single-item PA volume recall (Sport Ireland M1 indicator)	Sport Ireland, 2020.
	• Sports participation	Hope et al., 2005, cited in Bickerdike et al., 2023
	• Gym attendance	Hope et al., 2005, cited in Bickerdike et al., 2023
	• Barriers to physical activity	Morgan et al., 2008
Alcohol Consumption	• Alcohol Use Disorders Identification Test (AUDIT)	Babor et al., 2001
	• Alcohol related harms (own drinking)	Mc Caffrey & Mac Neela, n.d
	• Alcohol related harms (another's drinking)	Mc Caffrey & Mac Neela, n.d
	• Perspectives regarding alcohol-free activities for students* ('Do you think there are adequate alcohol-free activities on the college campus to socialise and relax?' Yes/No/Don't Know)	ND
	• Perspectives regarding alcohol policy# ('Would you welcome any health promotion initiatives by your college employer aimed at reducing alcohol consumption among staff?' Yes/No/ Don't Know)	ND
Tobacco & Other Substances	• Current and previous tobacco smoking	Hope et al., 2005, cited in Bickerdike et al., 2023
	• E-cigarette use	ND
	• Perceptions regarding smoke-free campus policy ('Would you be in favour of a smoke-free policy at your college?' Yes/No/Don't Know)	ND
	• Lifetime use of cannabis*	Mc Caffrey & Mac Neela, n.d.
	• Lifetime use of illicit drugs*	Hope et al., 2005 (terminology verified with local HSE HP unit), cited in Bickerdike et al., 2023
Sexual and Reproductive Health & Wellbeing	• Sexual orientation	Hope et al., 2005, cited in Bickerdike et al., 2023
	• Sexual activity status ('Have you been, or are you currently sexually active?' Yes/No)	
	• Perceptions regarding sexual health information ('Do you feel you have access to adequate sexual health information and services at your college?' Yes/No/ Don't Know)*	ND
	• Perceived gaps in current information or services provided by employer# ('Are there any of the following issues for which you would like more information or services provided by your college employer?' STI prevention/Pregnancy loss, Menopause, Breastfeeding, Testicular cancer prevention)	ND
Mental Health & Sleep	• Self-rated mental health	Ware et al., 1993, cited in Bickerdike et al., 2023
	• WHO-5 Wellbeing Index	Topp et al., 2015
	• Cohort-specific stressors	Hope et al., 2005, cited in Bickerdike et al., 2023
	• Sleep quality during previous 30 days	Single item adapted from Buysse et al., 1989
	• Habitual sleep duration per nights during weekdays and at weekends	Mac Neela et al., 2012, cited in Bickerdike et al., 2023

ND= Newly devised, SES= socio-economic status, *= included in STUDENT instrument only, #= included in STAFF instrument only. Unless otherwise indicated, all other measures included in both instruments.

Notable measures included the World-Health Organization's (WHO) Alcohol Use Disorders Identification Test (AUDIT-10), a validated set of 10 questions designed to identify harmful and/or problematic drinking typologies (Babor et al., 2001). Possible AUDIT-10 scores range from 0 to 40, with 0–7 indicating 'low risk drinking', 8–15 'increased risk', 16–19 'high risk', and ≥20 suggesting alcohol dependence (Babor et al., 2001). Items 1-3 of the AUDIT constitute a distinct 'hazardous drinking' sub-scale (AUDIT-C, possible scores 0-12), with higher scores indicative of more hazardous drinking typologies. In the current analysis, an AUDIT-C threshold score of ≥5 was applied to identify hazardous drinking amongst both students and staff (Babor et al., 2001).

Wellbeing was measured using the World Health Organization-Five (WHO-5) Well-Being Index (Topp et al., 2015). This is a five-item measure, upon which participants indicate on a Likert scale, ranging from 'At No Time' [0] to 'All of the Time' [5], the frequency with which they experienced a specific feeling during the previous two-weeks (i.e., feeling (i) cheerful and in good spirits, (ii) calm and relaxed, (iii) active and vigorous, (iv) fresh and rested, and (v) that daily life was filled with things of interest). Raw cumulative scores (0-25) were transformed in accordance with standard protocol (multiplying by four) to generate a WHO-5 wellbeing score between 0-100, with higher scores indicative of more favourable wellbeing (Topp et al., 2015).

Data Analysis

Fully anonymised questionnaire data were stored on the Qualtrics platform and exported both as CSV/Microsoft Excel files and to IBM Statistical Package for the Social Sciences (SPSS) for data cleaning and subsequent analysis. Blank/spoiled cases were removed at the outset, and additional data cleaning encompassed a manual review of all missing data points and outlier values (as appropriate). Given that the core objective of the QUAN phase was to explore the association between self-reported health indicators and subjective mental wellbeing amongst both students and staff, only cases with fully completed WHO-5 wellbeing scales were included in the current analysis (n=1,246 students, n=862 staff).

Where relevant, categorical variables were analysed using relative frequencies, stratified by gender. Numeric data were tested for normality and subsequently described using either median/interquartile ranges or means/standard deviations, as appropriate. BMI was calculated from self-reported height and body mass values using the standard formula, and subsequently characterised in accordance with WHO criteria (<18.5 kg/m^2 = underweight, 18.5-24.9 kg/m^2 = normal weight, 25.0-29.9 kg/m^2 = overweight, and ≥30.0 kg/m^2 = obese). As outlined above, validated scales (AUDIT-10, AUDIT-C, WHO-5 wellbeing scale) were scored using standardised protocols. Given the non-parametric distribution of the data, Kruskall-Wallis Tests (with appropriate post-hoc analyses) were used to investigate whether there were significant differences between gender groups in BMI and WHO-5 scores. For both students and staff, WHO-5 scores were divided into equal quartiles (Q1-Q4), whereby the lowest Quartile 1 encompassed participants with the poorest wellbeing, and Quartile 4 comprised respondents with the highest wellbeing. Cross-tabulation descriptive analyses were thereafter used to examine relevant demographic and health-related variable distributions across the WHO-5 wellbeing score quartiles.

2.2.4 QUAL Strand: Focus Groups

A sample of relevant university stakeholders were invited to take part in one of two focus groups (one at each institution). Both focus groups were held in person on campus at the respective institutions, on Friday 12th May 2023 (UCC) and Friday 23rd June 2023 (MTU), respectively.

A purposive criteria sampling approach was used to select information-rich cases with knowledge/experience of services related to health and wellbeing at their respective institution. This included representatives from a range of departments/divisions comprising Student and Staff Health & Wellbeing services, Buildings and Estates, Access & Disability services, the Students' Union, Adult Education, Chaplaincy, and the Green Campus Teams. Potential focus group participants were initially invited via institutional email. At all stages, stakeholders were reassured that participation was voluntary, and that all data provided would be anonymised. All participants were required to sign an Informed Consent Form prior to commencement of the focus group. A semi-structured topic guide was used to guide the process (see Appendix F). This topic guide included questions on participants' views on the 'Healthy Campus' concept, current services and facilities at respective institutions (including potential gaps), and perceived barriers and facilitators of the HEA Healthy Campus Framework.

Qualitative Analysis

Focus groups were audio-recorded, transcribed verbatim, and thereafter imported into NVivo for analysis. Data were coded using a deductive approach, which was rooted in the core components of the 'whole-campus' approach as articulated in the HEA Healthy Campus Framework (Leadership, Strategy and Governance; Campus Environment [Facilities and Services]; Campus Culture and Communications; and Personal and Professional Development).

2.2.5 QUAL Strand: Ecological Reach Mapping

Desk research was also undertaken to identify and map a subset of current services and facilities related to health and wellbeing at each respective institution. This involved a review of institutional websites in the first instance, and further supplemented by discourse from staff participants in each of the focus groups. Services were mapped thematically across six key action areas that align with the broader 'Healthy Ireland' strategy, and which are mentioned specifically within the HEA Healthy Campus Framework (mental health, physical activity, obesity, tobacco, sexual health, alcohol/drugs).

Mapped services/initiatives were classified using an empirically informed system developed by Bickerdike et al. (2023), which serves as a mechanism of quantifying potential 'Ecological Reach'. This cumulative scoring system is defined according to four main domains of ascending ecological influence, namely (1) individual-level behavioural domains, (2) the campus environment, (3) relationships and role modelling on campus (3), and (4) macro-level or structural approaches to alleviate stress. The domains were summated to arrive at an overarching Ecological Reach Score (ERS) for each service/initiative, with greater scores indicative of a greater potential magnitude of ecological reach. Two researchers (VO, SC) conducted the initial desk search. A third researcher (AB) later reviewed the preliminary ERS classifications and arrived at the final consensus decision in the case of any discrepancies.



3.1 Findings: Strand — Quantitative

3.1.1 Student Survey Instrument

Initial Response Rates

In total, 2,043 responses were recorded on the Qualtrics platform (response rate 5.5%). Following the removal of blank and spoiled data, 1,939 cases were retained within an initial student masterfile for preliminary analysis. However, the current report includes only cases for whom complete WHO-5 Wellbeing Index data was available, which was a sample of 1,246 students. Median completion time was 11.5 mins (IQR 10.4 mins).

Demographic Characteristics and Mental Wellbeing

With regard to gender, 69.5% identified as female, 26.3% as male, 3.0 % as non-binary, and 1.1% preferred not to say. Students' self-reported ages ranged from 18 to 71 years, with a median age of 22.0 (IQR ± 6.0). In total, 35.3% (n=440) were aged ≤20, 31.8% (n=396) were 21-23, and 32.9% (n=409) were aged ≥24 years. The majority (91.3%, n=1,138) were full time students, and 65.8% reported that they were either in their first (37.8%, n=470) or second (28.0%, n=348) year of study. The full demographic characteristics of the student sample, stratified by gender, are presented in **Table 3.**



Table 3

Demographic characteristics of student sample, stratified by gender

Variable	Full Sample n = 1,246		Males n = 328		Females n = 866		Non-binary n = 38		Prefer not to answer n = 14	
	n	%	n	%	n	%	n	%	n	%
General Health										
≤ 20 years	440	35.3	111	33.9	311	35.9	14	36.8	4	28.6
21–23 years	396	31.8	103	31.5	227	32.0	11	28.9	5	35.7
≥ 24 years	409	32.9	113	34.6	278	32.1	13	34.2	5	35.7
Total	**1,245***		**327***		**866**		**38**		**14**	
Registration Status										
Full time	1138	91.3	298	90.9	794	91.7	33	86.8	13	92.9
Part time	108	8.7	30	9.1	72	8.3	5	13.2	1	7.1
Total	**1,246**		**328**		**866**		**38**		**14**	
Year Group										
1st year	470	37.8	118	36.0	330	38.2	15	39.5	7	50.0
2nd year	348	28.0	89	27.1	246	28.4	10	26.3	3	21.4
3rd year	240	19.3	62	18.9	168	19.4	9	23.7	1	7.1
4th year	150	12.0	44	13.4	100	11.6	3	7.9	3	21.4
≥ 5th academic year	37	3.0	15	4.6	21	2.4	1	2.6	0	0.0
Total	**1,245***		**328**		**865***		**38**		**14**	
Mode of study										
Undergraduate	947	76.1	259	79.2	648	74.8	29	76.3	11	78.6
Postgraduate: Taught Programme	173	13.9	41	12.5	123	14.2	7	18.4	2	14.3
Postgraduate: Research Programme	125	10.0	27	8.3	95	11.0	2	5.3	1	7.1
Total	**1,245***		**327***		**866**		**38**		**14**	
Citizenship										
Irish	975	78.3	262	80.1	685	79.1	22	57.9	6	42.9
International	270	21.7	65	19.9	18.1	20.9	16	42.1	8	57.1
Total	**1,245***		**327***		**866**		**38**		**14**	
Accommodation at University										
Student accommodation or renting	670	53.8	166	50.6	476	55.0	22	57.9	6	42.9
Live with parents or other family member(s)/ Homeowner	563	45.2	160	48.8	383	44.3	13	34.2	7	50.0
No fixed abode	12	1.0	2	0.6	6	0.7	3	7.9	1	7.1
Total	**1,245***		**328**		**865***		**38**		**14**	

Relative frequencies are expressed in relation to the total valid responses to each item.
* = Missing data points.

Table 4

WHO-5 item responses and quartile distributions amongst the current student sample (n= 1,246)

The WHO-5 wellbeing scale demonstrated high internal consistency amongst the student sample (Cronbach's Alpha 0.87). Calculated scores ranged from 0-100, with a median score of 52.0 (IQR ± 32.0). Individual WHO-5 item responses and quartile score ranges for the sample (n=1,246) are presented in **Table 4.**

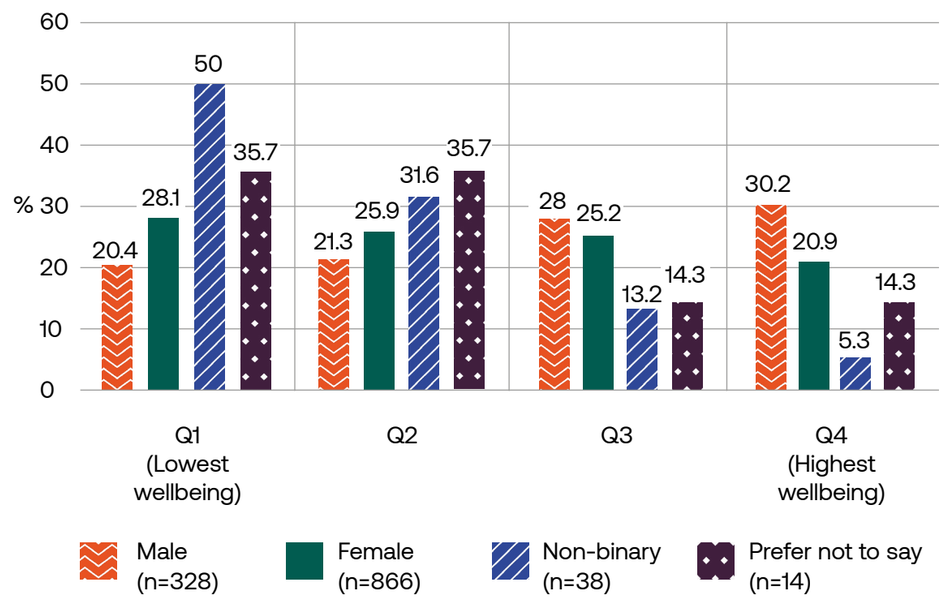
WHO-5 Item	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
	%	%	%	%	%	%
I have felt cheerful and in good spirits	4.3	36.0	30.3	15.6	12.2	1.6
I have felt calm and relaxed	3.8	28.8	25.9	19.3	17.8	4.4
I have felt active and vigorous	3.1	23.3	22.5	26.6	18.4	6.1
I woke up feeling fresh and rested	2.6	16.4	19.0	22.5	23.8	15.8
My daily life has been filled with things that interest me	7.6	29.2	23.7	14.9	20.4	4.2

WHO-5 Quartile Score Distributions	WHO-5 Score Range:	%
[Q1]: Quartile 1 (lowest wellbeing)	0-36	26.8
[Q2]: Quartile 2	37-52	25.0
[Q3]: Quartile 3	53-68	25.4
[Q4]: Quartile 4 (highest wellbeing)	69-100	22.8

A Kruskall-Wallis test revealed significant differences in WHO-5 wellbeing scores between male (Md. 60.0, n=328), female (Md. 52.0, n=866), and/or non-binary students (Md. 38.0, n=38) ($\chi 2$ [2, n= 1,232] = 34.3, p=<0.001). All post-hoc analyses were significant, indicating that WHO-5 scores of males were significantly higher than both females, and non-binary students. In addition, WHO-5 scores of female students were also significantly higher than non-binary students. A greater proportion of male students were also within the highest (i.e., most favourable) WHO-5 wellbeing score quartile (Q4) relative to both female and non-binary students (see **Figure 3**). Although the absolute proportion of non-binary students was 3.0% of the total sample, 50% of this cohort (n=19) were within the lowest wellbeing quartile.

Gender and Wellbeing

Figure 3: Distribution of students' gender groups across wellbeing quartiles



In terms of living arrangements whilst at university, 53.8% (n=670) reported living in either designated student accommodation (21.8%, n=272) or another form of rented accommodation (32.0%, n=398). An additional 36.9% (n=460) reported living with parents, 8.3% (n=103) reported that they were homeowners, and 1.0% (n=12) reported being of no fixed abode (of whom 41.7% were within the lowest WHO-5 wellbeing quartile [**Figure 4**]).

Living Arrangements and Wellbeing

Figure 4: Distribution of students' accommodation status across wellbeing quartiles

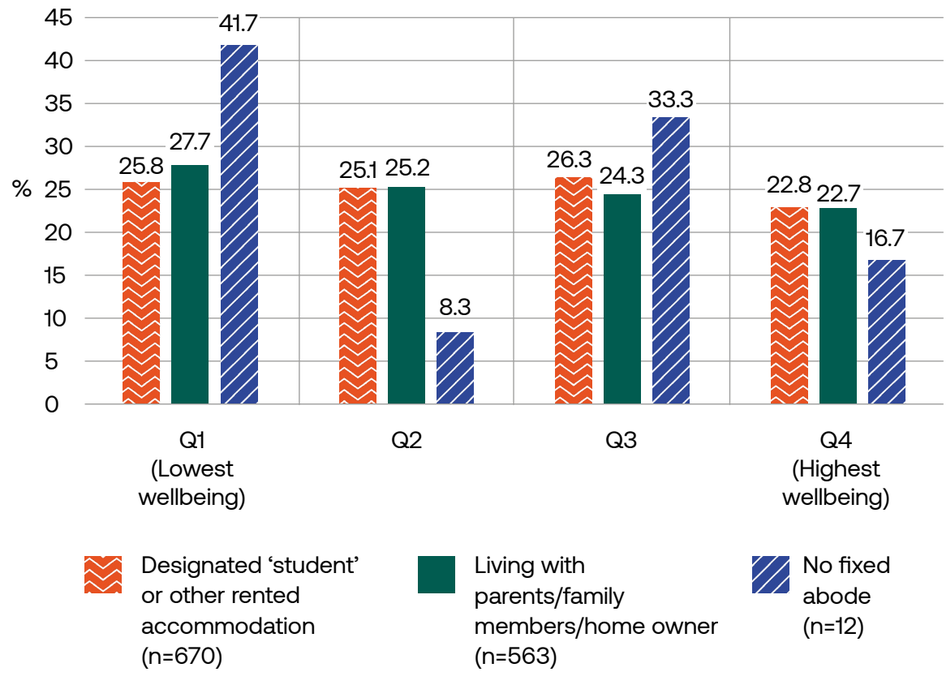
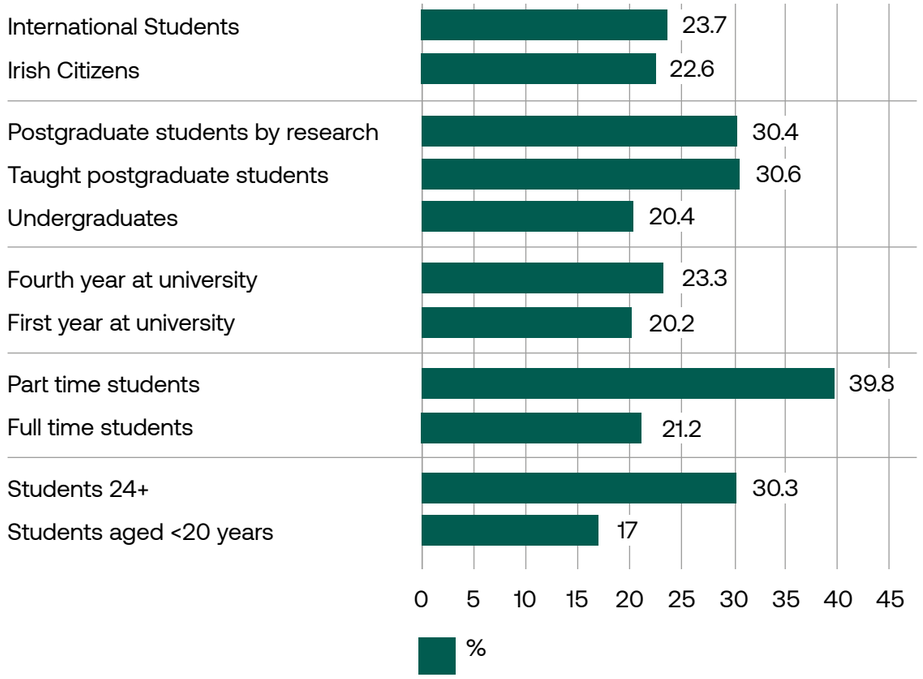


Figure 5 summarises the relative proportions of demographic sub-cohorts within the student sample who were within the highest WHO-5 wellbeing quartile (Q4). A higher proportion of part time students were observed within Q4, relative to full time students (39.8% vs 21.2%). In addition, 30.2% of students aged 24 years or older were deemed to reside within Q4, relative to 17.0% of students aged ≤ 20 years old.

Proportion Within Highest Wellbeing Quartile (Q4)

Figure 5: Proportion of each demographic sub-cohort within the highest WHO-5 wellbeing quartile (student sample)

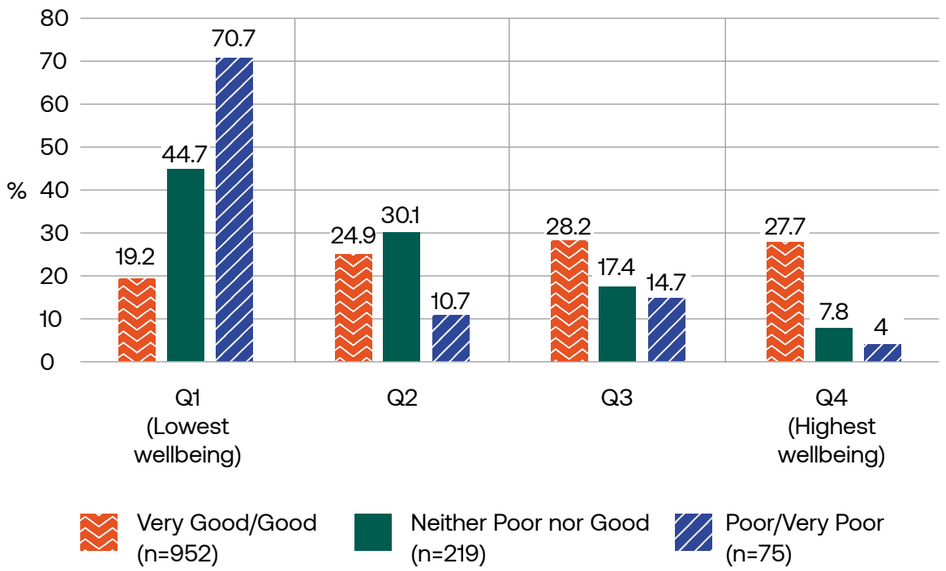


Self-Perceived General Health

In total, 76.4% (n=952) of students rated their general health (GH) as either 'Good' (53.9%, n=672) or 'Very Good' (22.5%, n=280). Males appeared to rate GH more favourably (80.8% as Good/Very Good) relative to both female (75.5%) and non-binary (60.5%) students. Less favourable perceptions of GH appeared congruent with lower wellbeing status (**Figure 6**), whereby 70.7% of students who rated their general health as 'Poor' or 'Very Poor' were within the lowest wellbeing quartile. A more divergent pattern was exhibited amongst students with more favourable (Good/Very Good) GH perceptions, of whom 19.2% were in the lowest wellbeing quartile (Q1), 24.9% in Q2, 28.2% in Q3, and 27.7% in Q4 (**Figure 6**).

Self Perceived General Health Across Wellbeing Quartiles

Figure 6: Distribution of students' general health perceptions across wellbeing quartiles



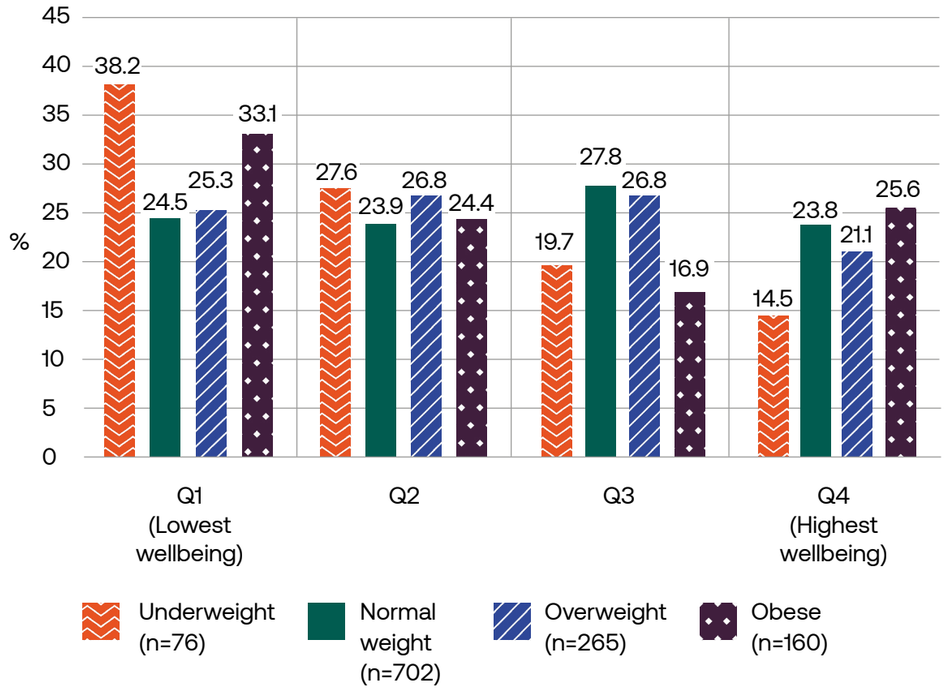
Body Mass Index (BMI)

Amongst students who elected to self-report height and body mass (n=1,203), BMI calculations classified 6.3% (n=76) as 'underweight', 58.4% (n=702) as 'normal weight', 22.0% (n=265) as 'overweight', and 13.3% (n=160) as 'obese'. Calculated BMI values ranged from a minimum of 12.8 kg/m^2 to a maximum of 57.1 kg/m^2, with a median of 23.4 kg/m^2 (IQR ± 5.5), and the prevalence of overweight/obesity across gender groups was 40.2% amongst males, 33.6% amongst females, and 38.9% amongst non-binary students. A Kruskall-Wallis test revealed a significant difference in BMI between gender groups (males n=321, females n=832, non-binary n=36), $\chi 2$ (2, n=1,203) = 17.6, p<0.001). Post-hoc analyses (with a Bonferroni adjustment to account for multiple comparisons) revealed that male students reported a significantly higher BMI (Md. 24.1 kg/m^2) than female students (Md. 23.0kg/m^2, p<0.001). There were no other significant differences in calculated BMI between gender categories (i.e., male vs non-binary, or female vs non-binary).

With regard to body habitus and wellbeing, 38.2% (n=29) of students with an 'underweight' BMI, and 33.1% (n=53) of students with an 'obese' BMI were within the lowest wellbeing quartile (Q1). This exceeded the proportions of students within the 'normal weight' and 'overweight' ranges (24.5% and 25.3%, respectively) (**Figure 7**).

Students' Calculated BMI

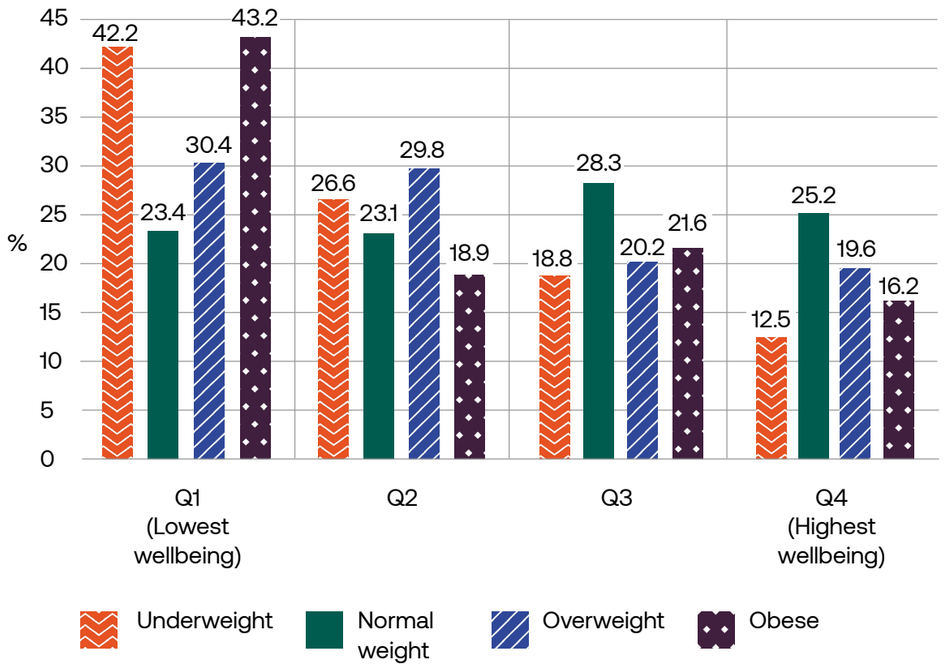
Figure 7: Distribution of students' calculated BMI categories across wellbeing quartiles



In relation to self-perceived BMI status, 3.0% self-identified as 'obese', 27.0% as 'overweight', 64.9% as 'normal weight', and 5.1% as 'underweight'. Self-perceived BMI status appeared to vary across wellbeing quartiles, and higher proportions of students who perceived themselves as either 'underweight' or 'obese' were within the lowest wellbeing quartile [Q1] (**Figure 8**).

Students' Self-Perceived BMI

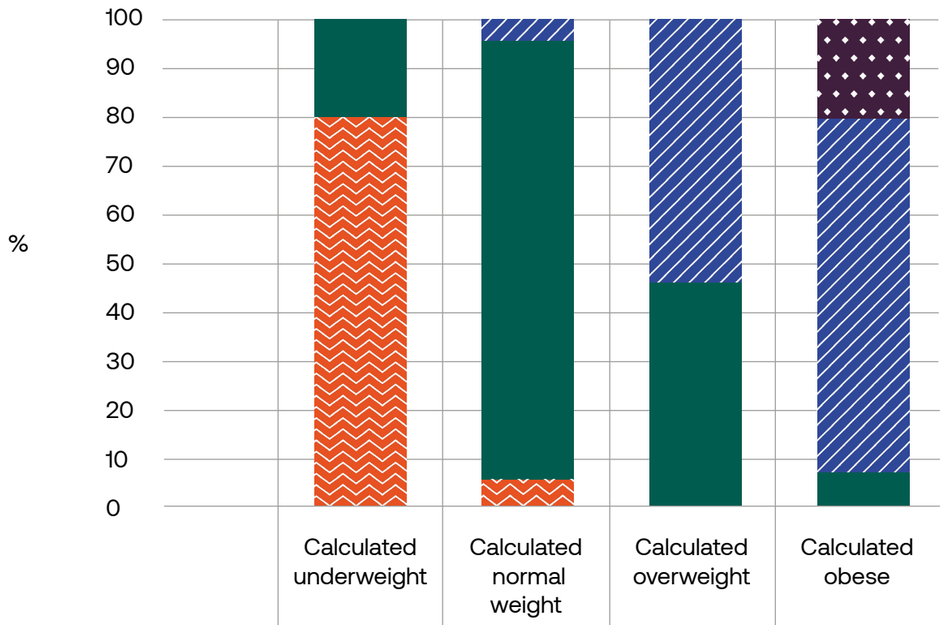
Figure 8: Distribution of students' self-perceived BMI status across wellbeing quartiles



A comparative 'perceived vs calculated' sub-analysis was conducted amongst students who self-reported both height and body mass, in addition to self-perceived BMI status (n=1,203). Only 18.8% of students whose BMI values exceeded the obesity threshold (>30 kg/m^2) concurrently self-identified as 'obese.' The remainder underestimated BMI status (8.8% self-identified as 'normal weight', 71.9% as 'overweight', and one student identified as 'underweight'). When stratified by gender, substantial proportions of both male (79.5%) and female (82.0%) students appeared to underestimate obesity (**Figure 9** and **Figure 10**).

Calculated vs Perceived BMI (male students, n=321)

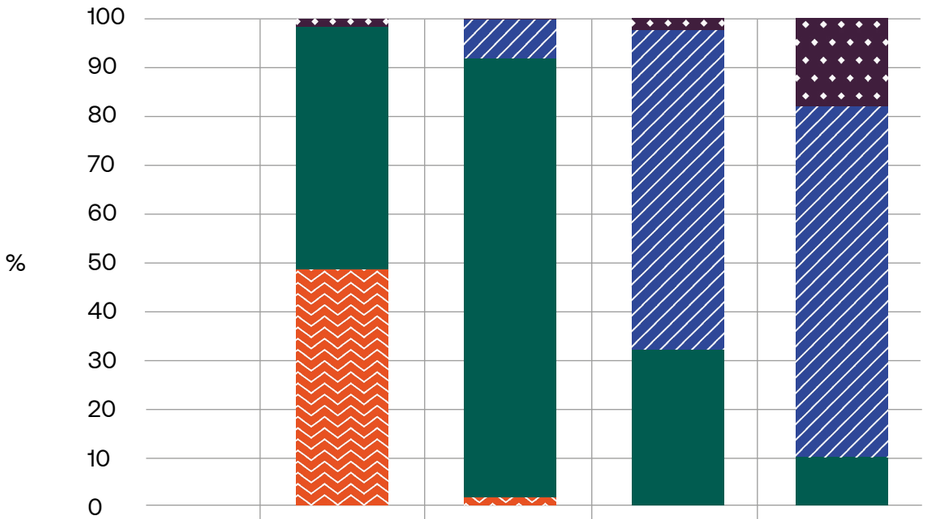
Figure 9: Calculated vs perceived BMI (male students)



	Calculated underweight	Calculated normal weight	Calculated overweight	Calculated obese
Self-perceived obese	0.0	0.0	0.0	20.5
Self-perceived overweight	0.0	4.4	54.1	72.7
Self-perceived normal weight	20.0	90.1	45.9	6.8
Self-perceived underweight	80.0	5.5	0.0	0.0

Calculated vs Perceived BMI (female students, n=832)

Figure 10: Calculated vs perceived BMI (female students)



	Calculated underweight	Calculated normal weight	Calculated overweight	Calculated obese
Self-perceived obese	1.6	0.002	2.4	18.0
Self-perceived overweight	0.0	8.0	65.7	72.1
Self-perceived normal weight	50.0	90.2	32.0	9.9
Self-perceived underweight	48.4	1.6	0.0	0.0

Physical Activity

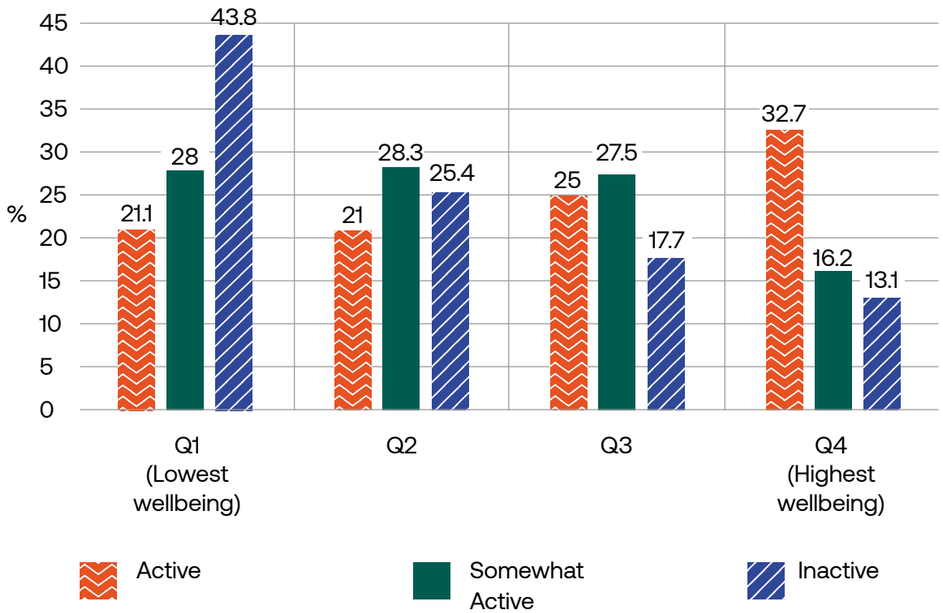
Higher proportions of male students were classified as 'active' (i.e., physically active for ≥30 mins on ≥5 days during recall of past 7 days) on the Sport Ireland M1 Physical Activity item (52.4% males, 38.6% females, 31.6% of non-binary students). A higher proportion of male students reported playing sport and attending a gym facility (36.9% & 55.0%, respectively) compared to females (22.6% & 44.7%) and non-binary students (18.4% & 36.8%, **Table 5**). Lack of time was reported as the most predominant perceived barrier to becoming more physically active, irrespective of gender (33.2% of males, 36.7% of females, 42.1% of non-binary students). Amongst both male and female students, concurrent barriers to physical activity were perceptions of already taking sufficient exercise (17.1% of males, 13.9% of females), followed by being 'interested but unwilling to spend the time' (14.0% of males, 12.4% of females). Amongst non-binary students, the most common barriers (all reported by 13.2% of non-binary students) were (i) having an injury/disability/medical condition, (ii) being 'interested but unwilling to spend the time', and (iii) a perception of 'not being the sporty type'.

Both physical activity status (**Figure 11**) and sports participation (**Figure 12**) varied across wellbeing quartiles. A higher proportion of 'active' students resided within the highest wellbeing quartile relative to both 'somewhat active' and 'inactive' students (32.7% vs 16.2% and 13.1%, respectively). Notably, 43.8% of 'inactive' students were within the lowest WHO-5 wellbeing quartile. Similarly, higher proportions of students who participated in sport were within the two highest wellbeing quartiles (31.4% vs 23.3% in Q3 and 30.2% vs 20.2% in Q4; **Figure 12**).



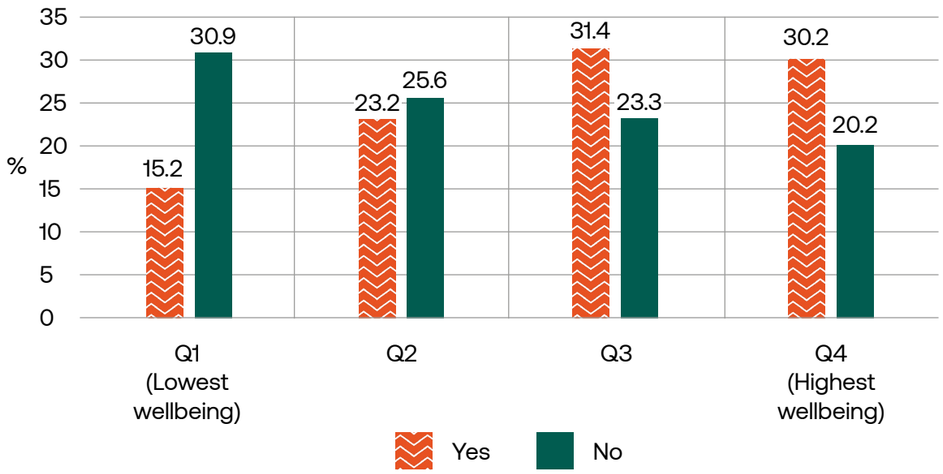
Students' Physical Activity Status

Figure 11: Distribution of students' PA status across wellbeing quartiles



Sports Participation

Figure 12: Distribution of students' sports participation status across wellbeing quartiles



Dietary Behaviours and Perceptions of the Campus Food Environment

In total, 45.2% of students (n=562) reported consumption of ≤2 cumulative servings of fruit and vegetables (F&V) per day. As further depicted in **Table 5**, a lower proportion of male students reported habitual consumption of the recommended five F&V per day (14.7% of males vs 17.2% of females and 15.8% of non-binary students). The majority (94.7%, n=1,179) of students reported most frequently consuming their main daily meal off-campus. More specifically, 48.8% (n=607) reported that they most frequently cooked their main meal within their rented or student accommodation, and a further 26.0% reported that the main daily meal was mostly cooked/provided by a parent within family home, or within accommodation. In terms of perceptions of the campus food environment, 52.0% perceived that campus food and beverage facilities enabled healthy choices (61.5% of males, 48.7% of females, 42.3% of non-binary students).

As an overarching synopsis, **Table 5** presents students' self-rated general health, BMI categories, physical activity status and dietary behaviours by gender and WHO-5 wellbeing quartiles.

> **In total, 45.2% of students reported consumption of ≤2 cumulative servings of fruit and vegetables per day**

> **52.0% perceived that campus food and beverage facilities enabled healthy choices**

Table 5

Students' general health and lifestyle parameters, stratified by gender and WHO-5 wellbeing quartile

Variable	Full Sample n = 1,246		Males n = 328		Females n = 866		Non-binary n = 38		Prefer not to answer n = 14	
	n	%	n	%	n	%	n	%	n	%
General Health										
Good or very good	952	76.4	265	80.8	654	75.5	23	60.5	10	71.4
Neither good nor poor	219	17.6	48	14.6	159	18.4	8	21.1	4	28.6
Poor or very poor	75	6.0	15	4.6	53	6.1	7	18.4	0	0.0
Calculated BMI										
Underweight	76	6.3	10	3.1	64	7.7	1	2.8	1	7.1
Normal weight	702	58.4	182	56.7	488	58.7	21	58.3	11	78.6
Overweight	265	22.0	85	26.5	169	20.3	9	25.0	2	14.3
Obese	160	13.3	44	13.7	111	13.3	5	13.9	0	0.0
Self-perceived BMI										
Underweight	64	5.1	19	5.8	41	4.7	3	7.9	1	7.1
Normal weight	809	64.9	213	64.9	560	64.7	23	60.5	13	92.9
Overweight	336	27.0	87	26.5	238	27.5	11	28.9	0	0.0
Obese	37	3.0	9	2.7	27	3.1	1	2.6	0	0.0
Daily F&V										
4 servings or less	1037	83.4	279	85.3	716	82.8	32	84.2	10	71.4
5 or more	207	16.6	48	14.7	149	17.2	6	15.8	4	28.6
Location of main meal										
On campus	66	5.3	26	7.9	38	4.4	1	2.6	1	7.1
Off campus	1179	94.7	302	92.1	827	95.6	37	97.4	13	92.9

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
General Health				
Good or very good	54.8	76.2	84.5	93.0
Neither good nor poor	29.3	21.2	12.0	6.0
Poor or very poor	15.9	2.6	3.5	1.1
Calculated BMI				
Underweight	9.0	4.9	4.9	4.0
Normal weight	53.6	63.3	63.3	60.7
Overweight	20.9	23.1	23.1	20.4
Obese	16.5	8.8	8.8	14.9
Self-perceived BMI				
Underweight	8.1	5.5	3.8	2.8
Normal weight	56.6	60.1	72.2	71.8
Overweight	30.5	32.2	21.5	23.2
Obese	4.8	2.3	2.5	2.1
Daily F&V				
4 servings or less	88.6	84.2	83.2	76.4
5 or more	11.4	15.8	16.8	23.6
Location of main meal				
On campus	5.7	5.2	3.5	7.0
Off campus	94.3	94.8	96.5	93.0

Variable	Full Sample n = 1,246		Males n = 328		Females n = 866		Non-binary n = 38		Prefer not to answer n = 14	
	n	%	n	%	n	%	n	%	n	%
Physical Activity										
Active	523	42.0	172	52.4	334	38.6	12	31.6	5	35.7
Somewhat active	593	47.6	130	39.6	436	50.3	20	52.6	7	50.0
Inactive	130	10.4	26	7.9	96	11.1	6	15.8	2	14.3
Sports Participation										
Yes	328	26.3	121	36.9	196	22.6	7	18.4	4	28.6
Gym Attendance										
Yes	586	47.1	180	55.0	387	44.7	14	36.8	5	35.7

*All % reported relative to the valid n for each item. Individual column totals may vary due to missing data points

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Physical Activity				
Active	33.2	35.4	41.3	60.2
Somewhat active	49.7	54.0	51.4	33.8
Inactive	17.1	10.6	7.3	6.0
Sports Participation				
Yes	15.0	24.4	32.5	34.9
Gym Attendance				
Yes	36.2	46.6	55.2	51.2

Alcohol Consumption

Overall, 83.9% (n=1,045) reported drinking alcohol (14.7% at a frequency of '2-3 times per week', and 1.7% '≥ 4+ times per week'). Moreover, 77.8% (n= 809) reported engaging in binge drinking (BD), with 26.2% exhibiting this behaviour 'monthly', 9.5% 'weekly', and 0.2% 'daily/almost daily'. A higher proportion of male students reported BD monthly or more, relative to female counterparts (47.1% vs 32.4%). Students' scores on the AUDIT 10-Item scale, in addition to its AUDIT-C subscale (Items 1-3), are presented in **Table 6**.

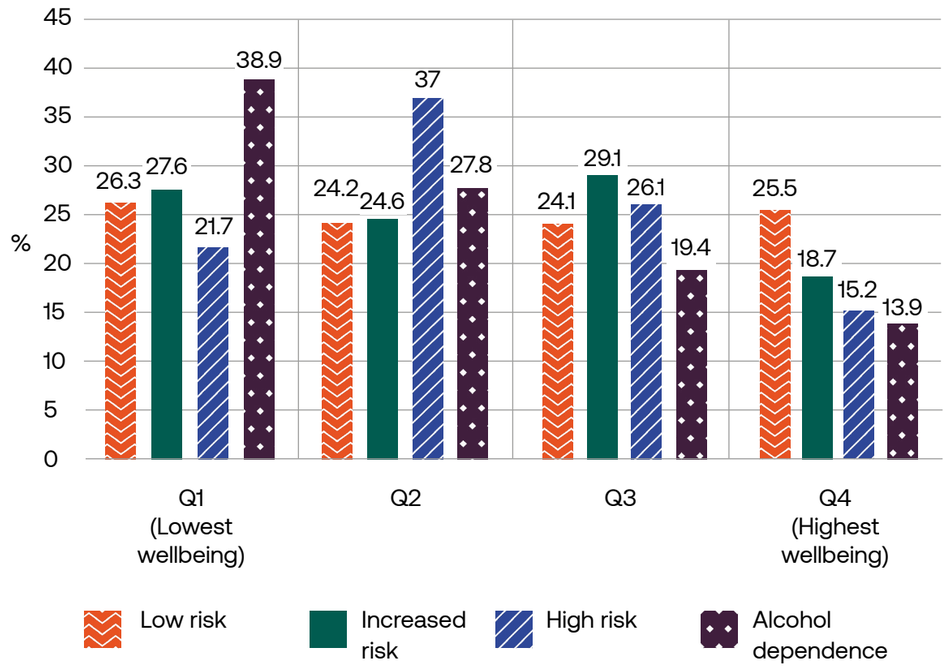
Table 6: Students' AUDIT-10 and AUDIT-C scores and classifications by gender

	Full Sample		Males		Females		Non-binary		Prefer not to answer	
	n	%	n	%	n	%	n	%	n	%
AUDIT-10	**1,238**		**32.6**	**26.3**	**860**	**69.5**	**38**	**3.1**	**14**	**1.1**
Min score	0	-	0	-	0	-	0	-	0	-
Max score	33	-	33	-	29	-	18	-	8	-
Mean	6.2	-	6.8	-	6.1	-	4.8	-	2.6	-
SD	5.6	-	6.2	-	5.4	-	4.5	-	2.6	-
Median	5.0	-	6.0	-	5.0	-	4.0	-	2.5	-
IQR	7.0	-	8.0	-	7.0	-	7.0	-	5	-
Low risk	819	66.2	202	62.0	576	67.0	28	73.7	13	92.9
Increased risk	337	27.2	94	28.8	233	27.1	9	23.7	1	7.1
High risk	46	3.7	16	4.9	29	3.4	1	2.6	0	0.0
Alcohol dependence	36	2.9	14	4.3	22	2.6	0	0.0	0	0.0
AUDIT-C	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Min score	0	-	0	-	0	-	0	-	0	-
Max score	12	-	12	-	12	-	10	-	8	-
Mean	3.8	-	4.3	-	3.7	-	3.0	-	2.3	-
SD	2.7	-	3.1	-	2.5	-	2.6	-	2.3	-
Median	4.0	-	4.0	-	4.0	-	3.0	-	2.0	-
IQR	5.0	-	5.0	-	4.0	-	4.0	-	4.0	-
Hazardous Drinking	485	39.1	160	48.9	315	36.6	9	23.7	1	7.1

It appeared that higher proportions of students who exhibited hazardous alcohol consumption patterns reported lower subjective wellbeing (**Figure 13**). Of specific note, although the absolute proportion was low (2.9%, n=36), 38.9% of students whose AUDIT-10 scores indicted possible alcohol dependence reported wellbeing scores within the lowest wellbeing quartile.

AUDIT-10 Classification and Wellbeing

Figure 13: Distribution of students' alcohol consumption typologies across wellbeing quartiles



Students reported both ‘primary’ (due to one’s own drinking), and ‘secondary’ (due to another’s drinking) alcohol-related harms, as outlined in **Table 7**. The most commonly reported primary harm was ‘regretting something said or done’ (52.2%), followed by ‘getting sick’ (47.9%).

With the sole exception of the secondary harm of being a passenger with a drunk driver, the prevalence of all other alcohol related harm(s) was lower amongst students in the highest WHO-5 wellbeing quartile [Q4] relative to students in the lowest quartile [Q1] (**Table 7**).

77.8% (n= 809) reported engaging in binge drinking (BD), with 26.2% exhibiting this behaviour ‘monthly’, 9.5% ‘weekly’, and 0.2% ‘daily/almost daily’

Table 7: Students’ experiences of alcohol related harms by gender and wellbeing quartiles

Variable	Total		Males		Females		Non-binary		Prefer not to say	
	n	%	n	%	n	%	n	%	n	%
Primary Harms										
Regretting something said or done	531	52.2	127	48.8	388	53.7	11	40.7	5	55.6
Missing lectures	381	37.3	90	35.0	283	38.9	8	28.6	0	0.0
Getting sick	491	47.9	117	45.3	356	48.8	14	50.0	4	44.4
Falling down or staggering	284	28.1	57	22.5	219	30.4	5	18.5	3	33.3
Blacking out	235	23.3	63	24.8	164	22.8	7	25.9	1	11.1
Secondary Harms										
Family problems/ relationship difficulties	240	20.0	53	16.8	175	21.0	7	18.9	5	35.7
Passenger with drunk driver	53	4.4	16	5.1	35	4.2	2	5.4	0	0.0
Financial trouble	46	3.9	16	5.1	29	3.5	1	2.7	0	0.0
Had property vandalised	91	7.6	24	7.7	63	7.6	4	11.4	0	0.0

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Primary Harms				
Regretting something said or done	55.5	58.1	55.0	37.7
Missing lectures	44.2	38.4	36.9	28.0
Getting sick	54.5	51.2	45.1	39.3
Falling down or staggering	30.9	25.7	27.8	28.0
Blacking out	27.4	25.2	22.2	17.2
Secondary Harms				
Family problems/ relationship difficulties	24.2	21.3	18.3	15.3
Passenger with drunk driver	7.1	2.6	4.9	2.6
Financial trouble	7.5	3.0	1.5	3.9
Had property vandalised	11.8	6.0	6.6	5.6

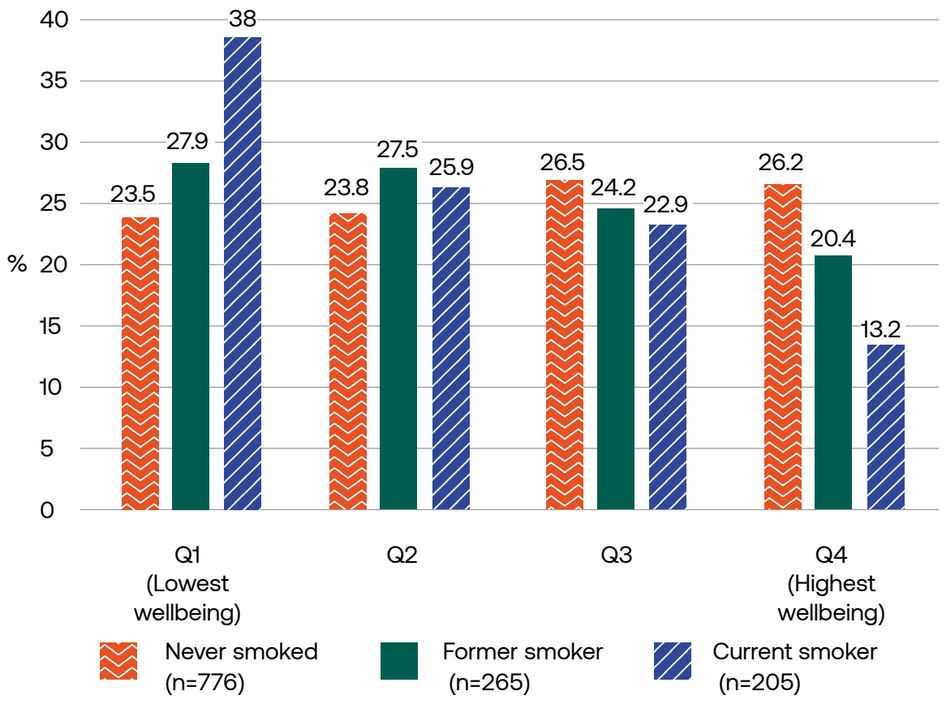
Tobacco and Drug Use

In total, 16.5% (n=205) of the current student sample reported smoking tobacco. An additional 21.3% (n=265) were former smokers, and 62.3% (n=776) were non-smokers ('never smoked'). Of note, 24.7% (n=308) reported using e-cigarettes or 'vapes'. Whilst there was little variance between genders in the prevalence of e-cigarette use (25.0% of male students, 25.0% of females, and 21.1% of non-binary students), a greater proportion of both male and non-binary students reported smoking tobacco relative to female counterparts (21.0% of males, 26.3% of non-binary students, 14.3% of female students).

Higher proportions of students who reported tobacco smoking and using e-cigarettes ('vapes') were within the lowest wellbeing quartile (**Figure 14** and **Figure 15**). Overall, 38.0% of students who smoked tobacco were within Q1, relative to 27.9% of former smokers and 23.5% of students who had never smoked tobacco. Similarly, 34.7% of students who smoked e-cigarettes were in the lowest wellbeing quartile, relative to 24.2% of those who did not.

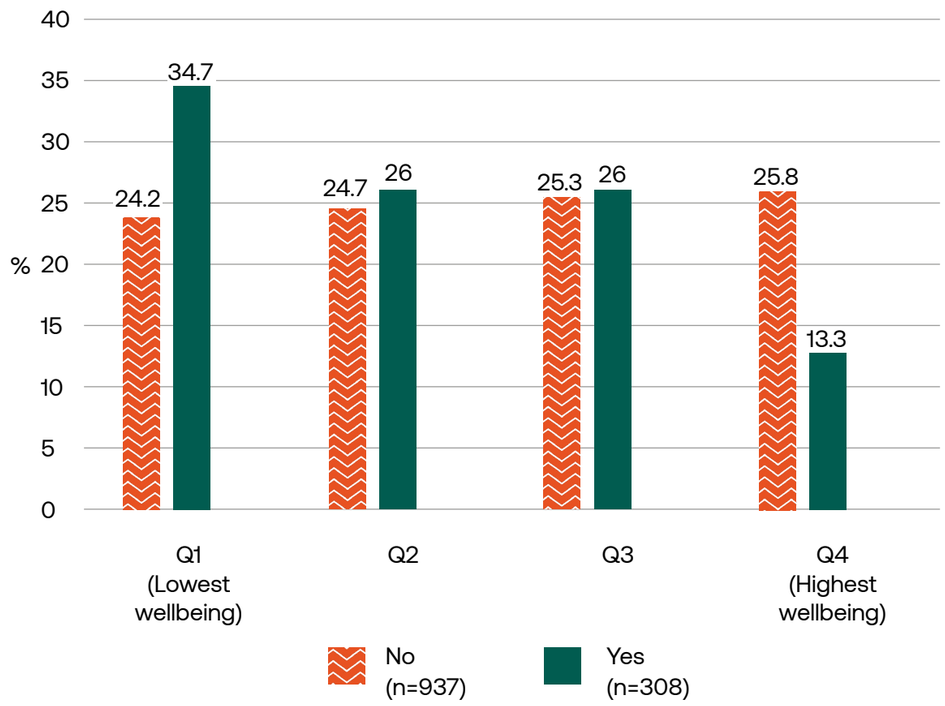
Tobacco Smoking and Wellbeing

Figure 14: Distribution of students' tobacco smoking status across wellbeing quartiles



Use of E-Cigarettes ('vapes') and Wellbeing

Figure 15: Distribution of students' use of e-cigarettes across wellbeing quartiles.

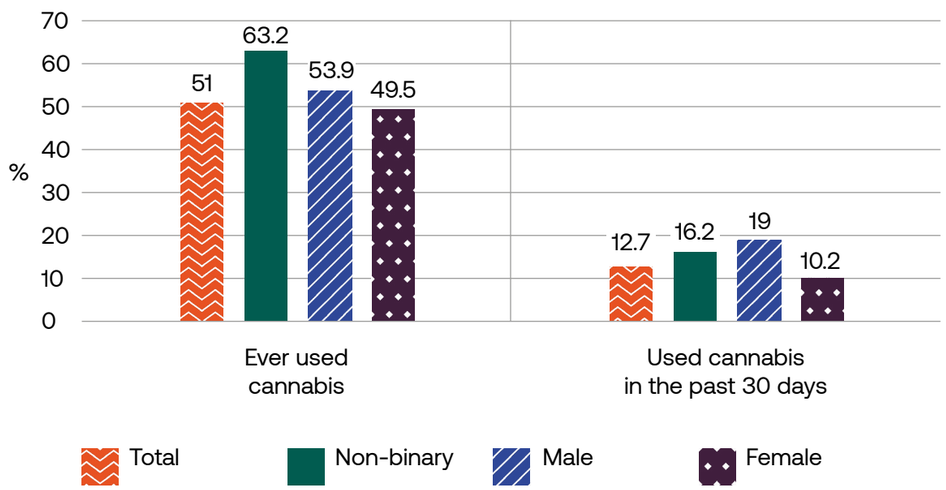


Higher proportions of students who reported tobacco smoking and using e-cigarettes ('vapes') were within the lowest wellbeing quartile

In terms of illicit drug use patterns, both male and non-binary students reported (i) more frequent use of cannabis (**Figure 16**), and (ii) lifetime use of several illicit drugs such as cocaine and ecstasy/MDMA (**Figure 17**). Overall, 51.0% of students reported lifetime cannabis use, and almost one in five male students (19.0%) had used cannabis within the 30 days prior to data collection.

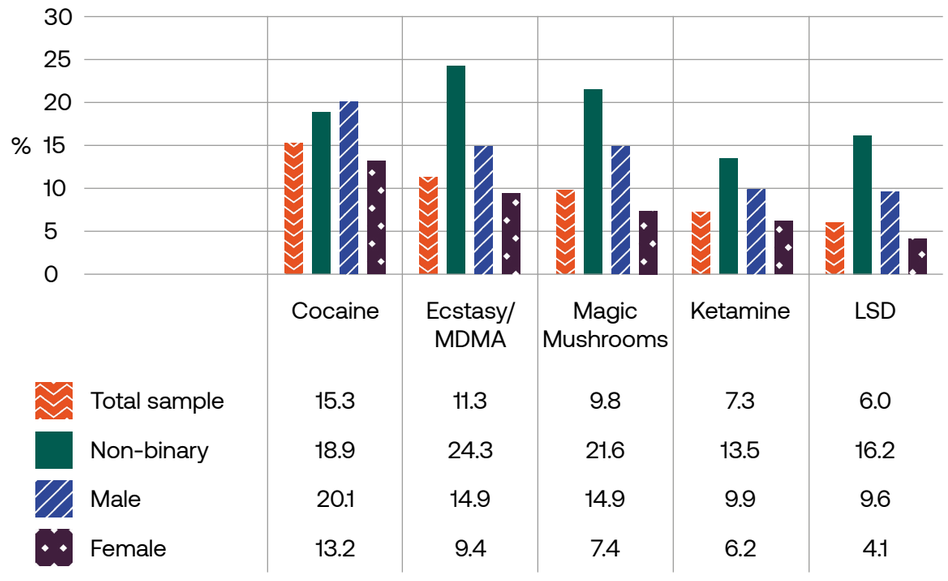
Lifetime Use of Cannabis by Gender

Figure 16: Students' self-reported lifetime use of cannabis by gender

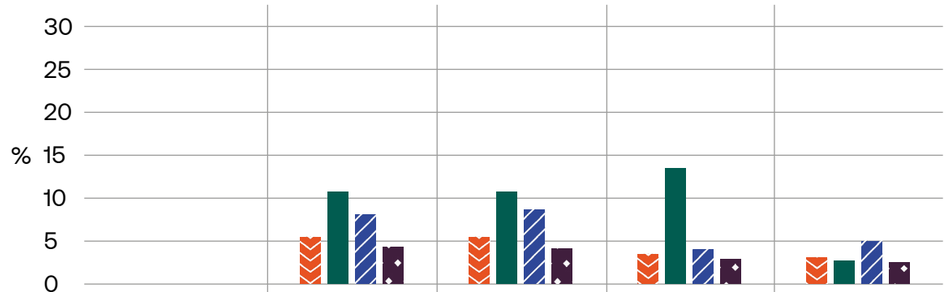


Lifetime Use of Illicit Drugs by Gender

Figure 17: Students' self-reported lifetime drug use by gender (all figures % prevalence)



	Cocaine	Ecstasy/ MDMA	Magic Mushrooms	Ketamine	LSD
Total sample	15.3	11.3	9.8	7.3	6.0
Non-binary	18.9	24.3	21.6	13.5	16.2
Male	20.1	14.9	14.9	9.9	9.6
Female	13.2	9.4	7.4	6.2	4.1



	Amphetamines	Tranquilisers	Headshop products	Solvents
Total sample	5.5	5.5	3.5	3.1
Non-binary	10.8	10.8	13.5	2.7
Male	8.1	8.7	4.0	5.0
Female	4.3	4.1	2.9	2.5

Table 8: Students' use of tobacco, e-cigarettes, and drugs by wellbeing quartile

	Total		Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	n	%	%	%	%	%
Tobacco (current)	205	16.5	23.4	17.0	14.8	9.5
E-cigarette/vapes (current)	308	24.7	32.0	25.7	25.2	14.5
Cannabis use:						
Lifetime	620	51.0	53.7	54.0	51.4	44.0
In past 12 months	347	30.6	34.7	31.1	32.3	23.4
In last 30 days	142	12.7	14.3	14.3	12.7	8.8
Lifetime use of:						
Cocaine	188	15.3	17.4	16.1	15.0	12.2
Ecstasy/MDMA	138	11.3	13.5	11.9	11.5	7.5
Magic Mushrooms	120	9.8	12.3	10.4	9.0	7.1
Ketamine	91	7.4	9.5	6.5	8.7	4.6
LSD	74	6.0	8.3	6.8	4.8	3.9

Sexual Health

In total, 71.4% of the sample reported being sexually active. Students reported generally favourable perceptions in terms of sexual health and information and services on campus (with 84.7% perceiving them as adequate). A lower proportion of non-binary students perceived that they had access to adequate sexual health information/services relative to both male and female students (76.7% vs 85.8% of males and 84.7% of females, respectively). **Table 9** outlines students' sexual orientation and sexual activity status, stratified by gender.

Table 9: Students' sexual orientation and activity status by gender

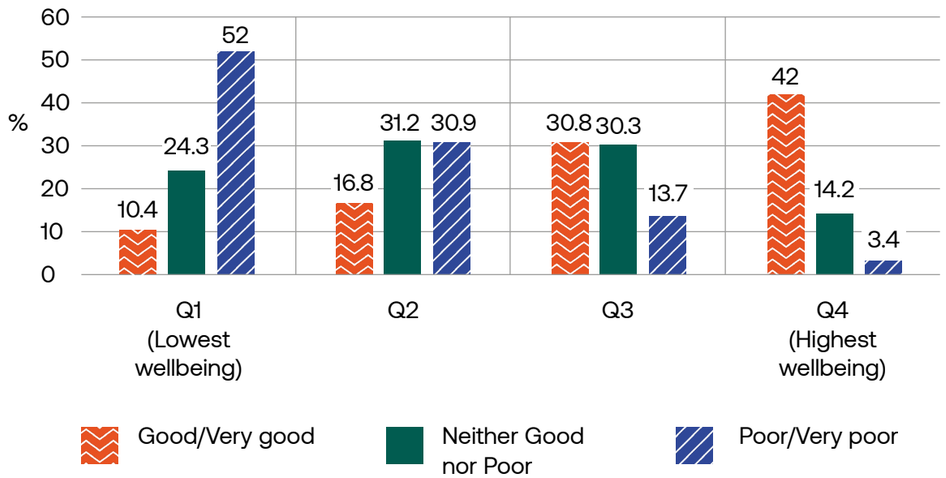
Variable	Full Sample n = 1246		Males n = 328		Females n = 866		Non-binary n = 38		Prefer not to say n = 14	
	n	%	n	%	n	%	n	%	n	%
Sexual orientation										
Heterosexual	909	73.2	251	77.0	656	75.9	0	0.0	2	14.3
Homosexual	63	5.1	34	10.4	22	2.5	5	13.2	2	14.3
Bisexual	178	14.3	25	7.7	134	15.5	13	34.2	6	42.9
Pansexual, asexual or other	92	7.4	16	4.9	52	6.0	20	52.6	4	28.6
Sexually active	**888**	**71.4**	**236**	**72.2**	**615**	**71.2**	**25**	**65.8**	**12**	**85.7**

Sleep

In total, 57.5% of students rated their recent sleep quality as 'Neither Good nor Poor' (27.1%, n=337), or 'Poor/Very Poor' (30.4%, n=379). On comparable single-item Likert scales (ranging from 'Very Good' to 'Very Poor'), it was notable that a higher proportion of students rated their recent sleep quality as 'Poor/Very Poor' versus both general health and mental health (30.4% [Sleep quality] vs 6.0% [general health] and 22.2% [mental health]). Non-binary students appeared to exhibit the least favourable perceptions of sleep quality (55.3% 'Poor/Very Poor'). In addition, substantial proportions of students reported sub-optimal habitual sleep durations on week nights (only 38.5% ≥7 hours), coupled with extant tendencies 'catch up' at the weekends (66.6% ≥ 7 hours).

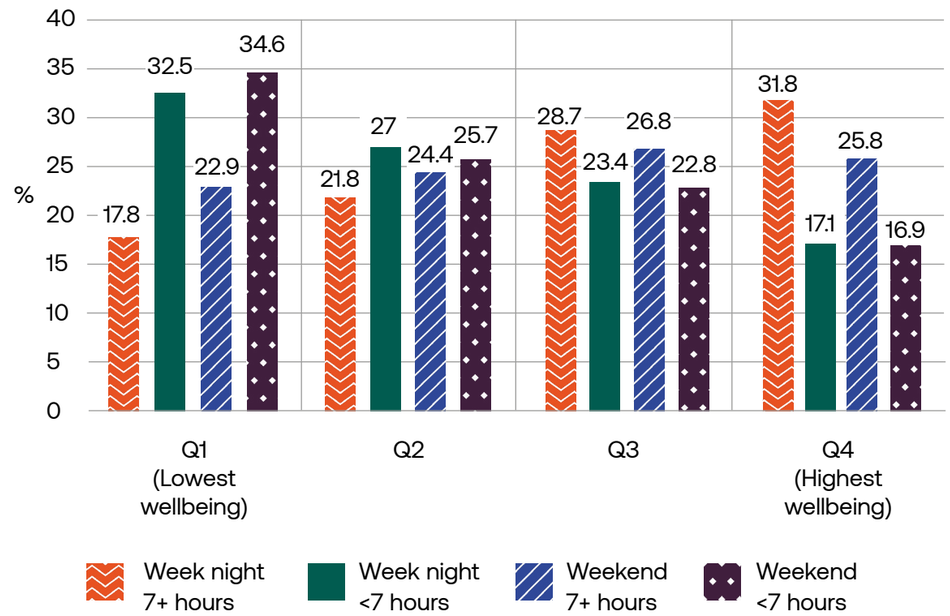
Recent Sleep Quality and Wellbeing

Figure 18: Distribution of students' perceived sleep quality across wellbeing quartiles



Sleep Duration and Wellbeing

Figure 19: Distribution of students' habitual sleep duration across wellbeing quartiles



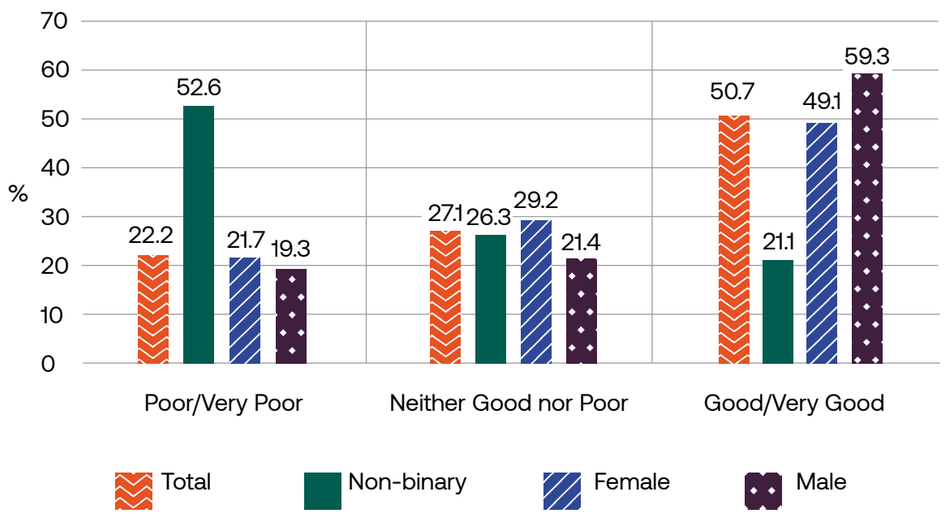
57.5% of students rated their recent sleep quality as 'Neither Good nor Poor' (27.1%, n=337), or 'Poor/Very Poor' (30.4%, n=379)

Mental Health and Stress

In total, 50.7% (n=631) rated their mental health as 'Good/Very Good', 27.1% (n=271) as 'Neither Good nor Poor', and 22.2% (n=277) as 'Poor/Very Poor'. Non-binary students exhibited less favourable perceptions of mental health, relative to both female and male counterparts (**Figure 20**). A higher proportion of students with 'Poor/Very Poor' mental health resided within the lowest WHO-5 wellbeing quartile (**Figure 21**).

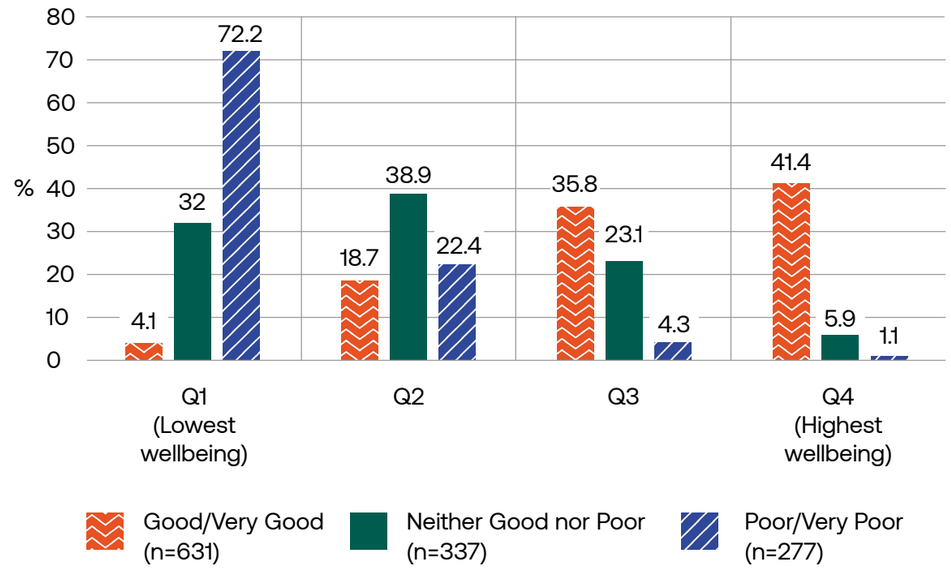
Self-Rated Mental Health by Gender

Figure 20: Students' self-rated mental health by gender



Self-Rated Mental Health Across Wellbeing Quartiles

Figure 21: Distribution of students' self-rated mental health across wellbeing quartiles



The most common stressors were 'college workload' (72.0%, n= 891) 'studies in general' (71.6%, n= 887), and 'exams' (69.3%, n=854). Of note the prevalence of perceived stress (i.e., proportion of students who reported being 'highly/often stressed') in response to all of the listed stressors was highest amongst students within the lowest wellbeing quartile (Q1), as presented in **Table 10**. Students in the lowest WHO-5 wellbeing quartile reported the highest levels of stress in response to 'studies in general' (82.0% of students in Q1 vs 54.8% of students in Q4), 'college workload' (81.7% in Q1 vs 57.3% in Q4), and 'exams' (77.6% in Q1 vs 57.2% in Q4).

Table 10: Psychological stressors ('highly/often stressed') by gender and wellbeing quartiles (student sample)

Psychological Stressor ('Highly/Often Stressed')	Total		Male		Female		Non-binary	
	n	%	n	%	n	%	n	%
Exams	854	69.3	207	63.5	612	71.6	26	68.4
College workload	891	72.0	206	63.2	642	74.7	32	84.2
Studies in general	887	71.6	204	62.4	643	74.8	30	78.9
Financial situation	645	52.2	147	45.2	462	53.8	27	71.1
Pressure to work outside college	739	59.7	160	49.1	543	63.2	27	71.1
Competition at college	377	30.6	83	25.5	276	32.3	12	31.6
Living situation	430	34.8	117	35.9	289	33.7	17	44.7
Family situation	353	28.6	78	23.9	250	29.1	18	47.4
Relationships/sexuality	311	25.2	96	29.4	198	23.1	13	34.2
Illness	283	22.9	55	16.9	210	24.5	5	35.7
Circle of friends	279	22.6	62	19.0	206	24.0	6	15.8
Social Media	188	15.2	41	12.6	137	16.0	8	21.1

Psychological Stressor ('Highly/Often Stressed')	WHO-5 Wellbeing Quartile			
	Q1	Q2	Q3	Q4
	%	%	%	%
Exams	77.6	73.5	66.9	57.2
College workload	81.7	78.7	68.3	57.3
Studies in general	82.0	79.3	67.9	54.8
Financial situation	69.0	53.7	45.6	38.1
Pressure to work outside college	70.9	67.0	56.2	42.5
Competition at college	39.6	34.3	25.5	21.6
Living situation	48.2	37.5	29.2	22.2
Family situation	42.8	32.7	20.6	16.1
Relationships/sexuality	39.5	23.9	21.9	13.3
Illness	33.6	28.5	18.4	9.0
Circle of friends	38.6	23.3	16.1	10.1
Social Media	18.7	16.5	14.0	11.1

3.1.2 Staff Survey Instrument

Initial Response Rates

In total, 1,095 responses were recorded on the Qualtrics platform (response rate 22.3%). Following the removal of blank and spoiled data, 1,063 cases were retained within an initial staff masterfile for preliminary analyses. Median completion time was 13.2 mins (IQR 8.7 mins). However, the current report includes only cases for whom complete WHO-5 Wellbeing Index data was available, which was a sample of 862 staff.

Demographic Characteristics and Mental Wellbeing

In total, 70.2% (n=605) of the current staff sample identified as female, and 61.9% (n=534) of the sample were aged ≥45 years. The most common sub-category was 'clerical/support/other' (44.5%, n=313) followed by 'academic' (43.8%, n= 377) which constituted both teaching and/or research related duties. In terms of tenure status, 76.6% were employed on either a permanent contract (65.0%, n=559) or contract of indefinite duration (11.6%, n=100). A further 22.1% were employed on either a fixed term or special purpose contract, and 1.3% were engaged in casual and/or hourly-paid work. The majority (87.6%, n=753) of respondents worked on a full-time basis. The full demographic characteristics of the sample of respondents are outlined in detail in **Table 12**.

As the core measure of subjective wellbeing, the WHO-5 scale exhibited high internal consistency within the sample (Cronbach's Alpha 0.89). Calculated WHO-5 scores ranged from 0-100 amongst the current sample of staff, with a median value of 64.0 (IQR ± 28). Responses to each scale item and the overall WHO-5 quartile score distributions are summarised in **Table 11**. A Kruskall-Wallis test revealed no significant difference in WHO-5 wellbeing scores between male (Md. 68.0), female (Md. 64.0), and/or non-binary staff (Md. 52.0) (Males n=249, Females n=605, Non-Binary/Prefer not to say n=8, $\chi 2$ [2, n= 862] = 4.02, p=0.13).

> **As the core measure of subjective wellbeing, the WHO-5 scale exhibited high internal consistency within the staff sample (Cronbach's Alpha 0.89)**

Table 11: Summary of WHO-5 itemised responses and quartile distributions amongst staff (n=862)

WHO-5 Item	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
	%	%	%	%	%	%
I have felt cheerful and in good spirits	6.7	53.4	24.8	7.2	7.3	0.6
I have felt calm and relaxed	3.4	41.6	30.5	12.5	10.1	1.9
I have felt active and vigorous	4.2	36.4	25.2	16.8	13.1	4.3
I woke up feeling fresh and rested	2.9	26.9	25.4	20.3	15.9	8.6
My daily life has been filled with things that interest me	10.3	41.1	24.7	10.3	12.3	1.3

WHO-5 Quartile Score Distributions	WHO-5 Score Range:	%
[Q1]: Quartile 1 (lowest wellbeing)	0-48	26.9
[Q2]: Quartile 2	49-64	25.6
[Q3]: Quartile 3	65-76	26.3
[Q4]: Quartile 4 (highest wellbeing)	77-100	21.1

Table 12: Demographic characteristics of staff participants by gender and wellbeing quartile

Variable	Full Sample n = 862		Males n = 249		Females n = 605		Non-binary or prefer not to say n = 38	
	n	%	n	%	n	%	n	%
Age								
18–34 years	125	14.5	28	11.2	94	15.5	3	37.5
35–44 years	203	23.5	55	22.1	148	24.5	0	0.0
45–54 years	302	35.0	76	30.5	223	36.9	3	37.5
55 years or older	232	26.9	90	36.1	140	23.1	2	25.0
Total	**862**		**249**		**605**		**8**	
Nationality								
Irish citizen	752	87.3	212	85.1	535	88.6	5	62.5
International	109	12.7	37	14.9	69	11.4	3	37.5
Total	**861***		**249**		**604***		**8**	
University Role								
Academic (teaching and/or research)	377	43.8	122	49.0	252	41.8	3	37.5
Management	100	11.6	33	13.3	66	10.9	1	12.5
Clerical/Support/ Other	383	44.5	94	37.8	285	47.3	4	50.0
Total	**860***		**249**		**603***		**8**	
Tenure								
Permanent or contract of indefinite duration	659	76.6	200	80.6	454	75.2	5	62.5
Fixed-term contract	190	22.1	44	17.5	143	23.7	3	37.5
Casual/Hourly paid	11	1.3	4	1.6	7	1.2	0	0.0
Total	**860***		**248**		**604**		**8**	

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Age				
18–34 years	15.5	14.9	14.5	12.6
35–44 years	26.3	27.1	23.8	15.4
45–54 years	34.1	34.8	32.2	40.1
55 years or older	24.1	23.1	29.5	31.9
Nationality				
Irish citizen	84.1	85.5	88.9	91.8
International	15.9	14.5	11.1	8.2
University Role				
Academic (teaching and/or research)	36.6	48.0	47.6	43.3
Management	11.2	10.9	10.1	15.0
Clerical/Support/ Other	52.2	41.2	42.3	41.7
Tenure				
Permanent or contract of indefinite duration	75.0	75.0	76.5	80.8
Fixed-term contract	24.1	23.6	22.6	17.0
Casual/Hourly paid	0.9	1.4	0.9	2.2

Variable	Full Sample n = 862		Males n = 249		Females n = 605		Non-binary or prefer not to say n = 38	
	n	%	n	%	n	%	n	%
FT/PT Status								
Full-time	753	87.6	239	96.4	508	84.1	6	75.0
Part-time	107	12.4	9	3.6	96	15.9	2	25.0
Total	**860**		**248**		**604**		**8**	
Level of education								
Primary, Secondary or Leaving Certificate	39	4.6	14	5.7	25	4.1	0	0.0
Post-graduate diploma	77	9.0	13	5.3	64	10.6	0	0.0
Undergraduate degree	152	17.7	33	13.4	116	19.2	3	42.9
Masters' degree	309	36.1	74	30.0	233	38.6	2	28.6
PhD	280	32.7	113	45.7	165	27.4	2	28.6
Total	**857***		**247***		**603***		**7***	

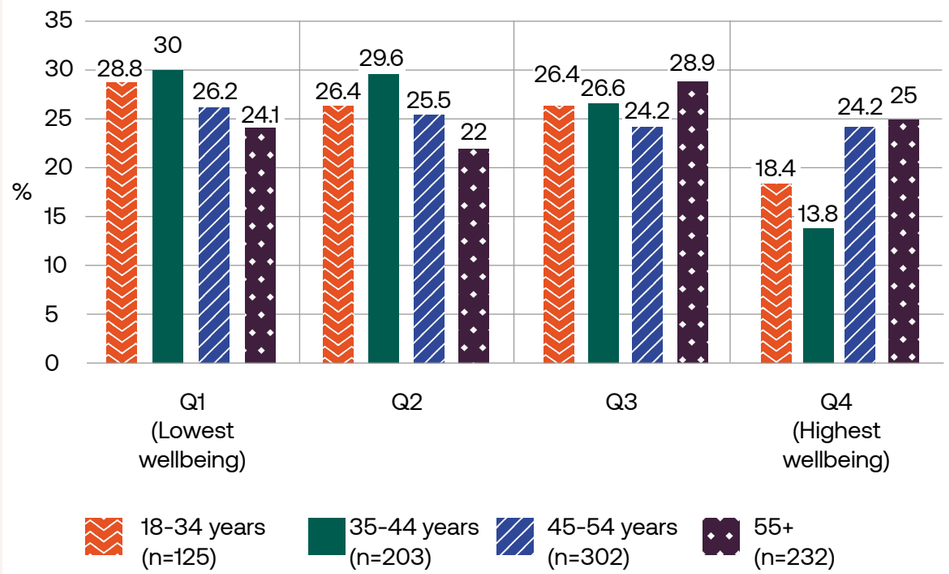
All relative frequencies expressed in terms of valid n to each item. * individual item n reduced due to missing data point(s)

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
FT/PT Status				
Full-time	90.9	85.9	87.2	85.7
Part-time	9.1	14.1	12.8	14.3
Level of education				
Primary, Secondary or Leaving Certificate	6.5	3.6	4.0	3.9
Post-graduate diploma	11.3	4.5	8.0	12.7
Undergraduate degree	16.5	22.2	16.4	15.5
Masters' degree	36.1	36.7	36.0	35.4
PhD	29.6	33.0	35.6	32.6

In terms of demographic characteristics and wellbeing, 23.3% (n=58) of male and 20.5% (n=124) of female respondents were within the most favourable WHO-5 wellbeing quartile (Q4, WHO-5 score of between 77-100). Although the absolute proportion within the total sample was low (0.9%, n=8), 50.0% (n=4) of those who were either non-binary or preferred not to report gender were within the lowest WHO-5 wellbeing quartile. Conversely, greater proportions of staff aged ≥45 years were within the highest quartile (24.2% of those aged 45-54, and 25.0% of staff aged 55+ vs 13.7% of those aged 35-44), as depicted in **Figure 22**.

Staff Age Categories and Wellbeing Quartiles

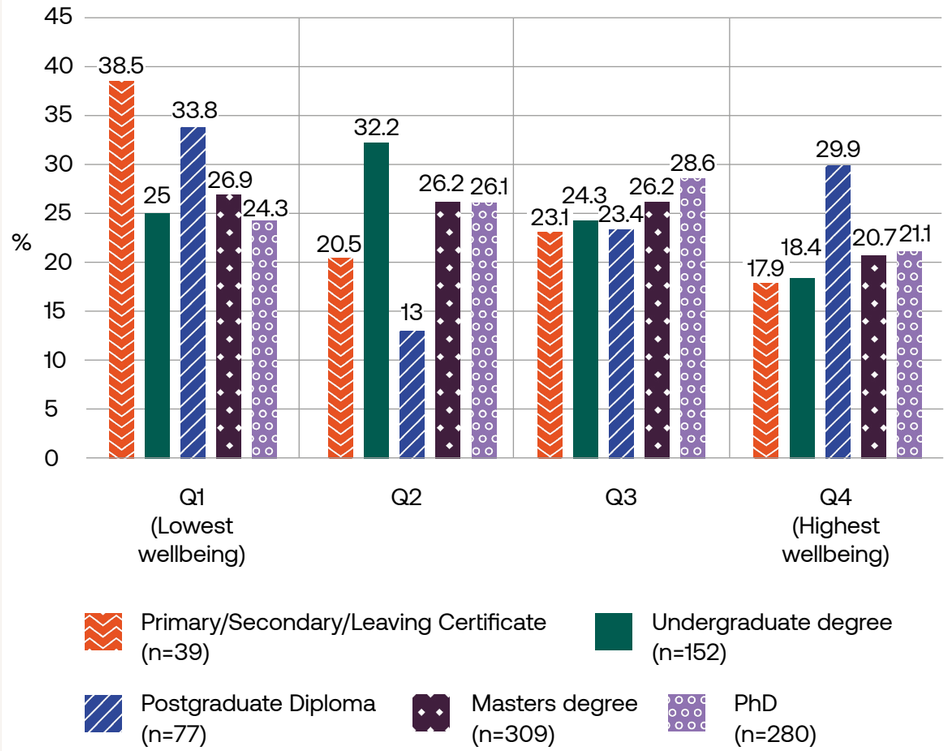
Figure 22: Staff age category distributions across wellbeing quartiles



As a proxy indicator of socio-economic status, higher proportions of staff who were educated to Primary/Junior Certificate/Leaving Certificate level were within the lowest wellbeing quartile, relative to staff who were educated to PhD level (38.5% vs 24.3%, **Figure 23**).

Educational Attainment and Wellbeing Quartiles

Figure 23: Distribution of educational attainment across staff wellbeing quartiles

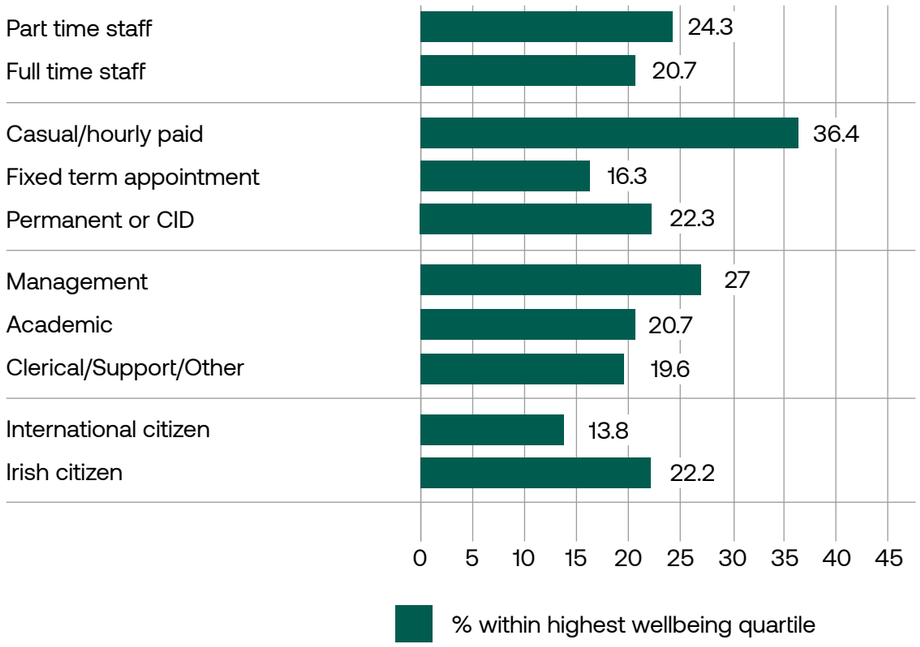


Furthermore, higher proportions of permanent employees resided within the highest WHO-5 wellbeing quartile relative to those on fixed term contracts (22.3% vs 16.3%, **Figure 24**). Interestingly, 36.4% of those who reported casual and/or hourly paid roles also resided within the highest wellbeing quartile, although the absolute proportion within the sample was low (1.3%).

Higher proportions of 'management' staff also resided within the highest quartile relative to both 'clerical/support/other' and 'academic' staff (27.0% vs 20.7% and 19.6%, respectively). Finally, only 13.8% of those who reported international citizenship were within the highest wellbeing quartile, relative to 22.2% of Irish citizens.

Proportion Within Highest Wellbeing Quartile

Figure 24: Proportion of each demographic sub-cohort within the highest WHO-5 wellbeing quartile (staff sample)



Self-Perceived General Health and Quality of Life

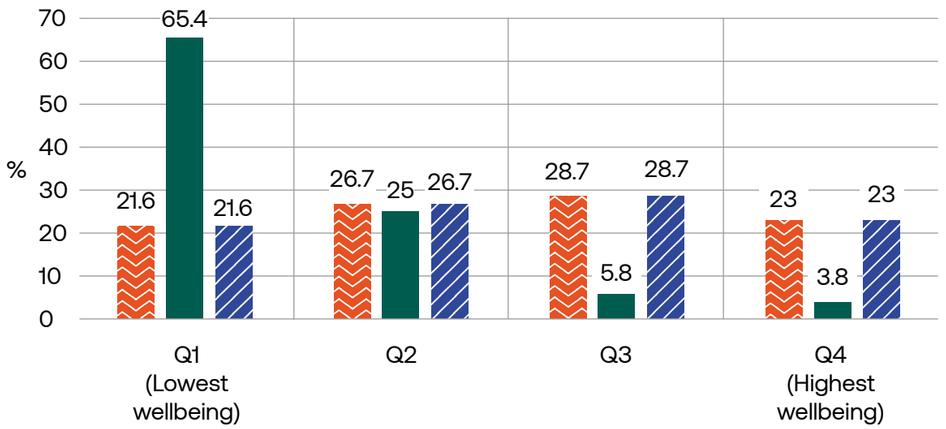
Overall, 86.0% (n=741) of staff rated their general health (GH) as either 'Good' (52.8%, n=455) or 'Very Good' (33.2%, n=286). Staff also exhibited positive perceptions of overall quality of life (QoL), with 90.5% (n=778) rating this parameter as either 'Good' (53.7%, n=432) or 'Very Good' (36.7%, n=316).

Less favourable perceptions of either GH and/or QoL were more prevalent within the lower wellbeing quartiles. For example, 96.7% of staff with Poor/Very Poor QoL (**Figure 25**), and 64.5% with Poor/Very Poor GH (**Figure 26**) concurrently resided within the lowest WHO-5 wellbeing quartile. However, similarly to the pattern observed amongst the student sample (**Figure 6**), the wellbeing status of staff who exhibited more favourable perceptions of either GH or QoL was somewhat more variable (i.e., 21.9% of those with Good/Very Good GH, and 21.6% of those with Good/Very Good QoL also resided within the lowest WHO-5 wellbeing quartile).

Staff also exhibited positive perceptions of overall quality of life (QoL), with 90.5% (n=778) rating this parameter as either 'Good' (53.7%, n=432) or 'Very Good' (36.7%, n=316)

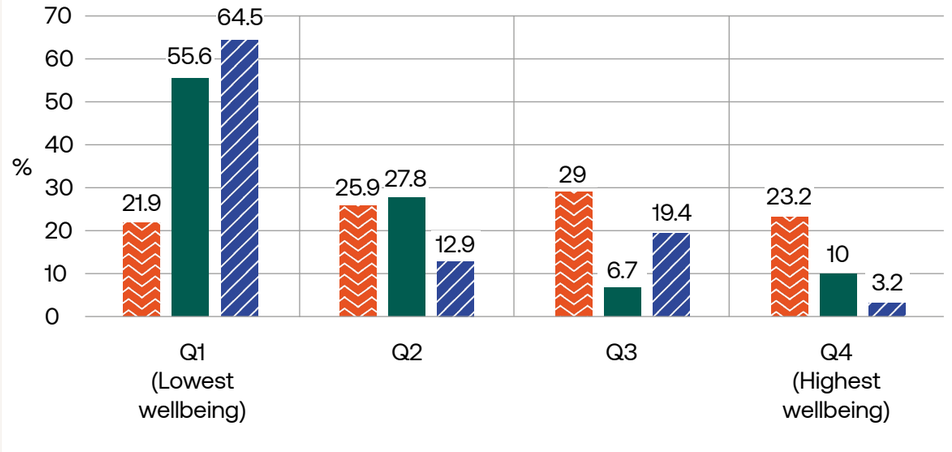
Self-Perceived Quality of Life (QoL) and Wellbeing Quartiles

Figure 25: Self-perceived Quality of Life (QoL) across staff wellbeing quartiles



Self-Perceived General Health (GH) and Wellbeing Quartiles

Figure 26: Self-perceived General Health (GH) across staff wellbeing quartiles



In terms of self-reported symptomatology and/or medical history during the 12 months prior to data collection (**Table 13**), the most prevalent conditions/ symptoms were (i) 'back or neck pain' (66.6%), (ii) 'frequent headaches' (50.7%), (iii) 'anxiety or depression' (42.5%), and (iv) 'allergic conditions' (40.4%). These symptoms were most prevalent amongst staff within the lowest wellbeing quartile, and the prevalence appeared to reduce incrementally across Q2-Q4. Notable between-quartile differences were observed between the lowest (Q1) and highest (Q4) quartile with regard to back/neck pain (82.5% Q1 vs 49.2% Q4), frequent headaches (67.0% Q1 vs 25.7% Q4), and anxiety/depression (67.4% Q1 vs 14.4% Q4).

Table 13: Self-reported general health by gender and wellbeing quartile (staff sample)

Variable	Full Sample n = 862		Males n = 249		Females n = 605		Non-binary or prefer not to say n = 8	
	n	%	n	%	n	%	n	%
Self-rated General Health								
Good or very good	741	86.0	206	82.7	530	87.6	5	62.5
Neither good nor poor	90	10.4	33	13.3	56	9.3	1	12.5
Poor or very poor	31	3.6	10	4.0	19	3.1	2	25.0
Self-rated Quality of Life								
Good or very good	778	90.5	222	89.2	552	91.5	4	50.0
Neither good nor poor	52	6.0	19	7.6	32	5.3	1	12.5
Poor or very poor	30	3.5	8	3.2	19	3.2	3	37.5
Medical History within Past 12 Months*								
Back or neck pain condition	451	66.6	123	66.8	323	66.3	5	83.3
Arthritic condition	88	16.7	23	17.0	64	16.5	1	25.0
Allergic condition	232	40.4	53	35.1	175	41.9	4	80.0
Respiratory problems (bronchitis/ emphysema)	64	12.2	22	15.5	42	11.1	0	0.0
Asthma	90	16.9	26	18.2	63	16.3	1	20.0
Diabetes	16	3.2	8	6.0	8	2.2	4	50.0
High or low blood pressure	146	25.8	50	31.8	95	23.5	1	25.0
Cardiovascular disease	22	4.4	11	8.3	9	2.5	2	40.0
Cancer	15	3.0	6	4.5	9	2.5	4	100.0
Frequent headaches	295	50.7	69	45.7	223	52.3	3	60.0
Anxiety or depression	249	42.5	52	33.8	193	45.2	4	80.0
Injury due to an accident	74	14.1	23	16.4	49	12.9	2	50.0

* All % reported relative to the valid n for each item. Individual column totals may vary due to missing data points

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Self-rated General Health				
Good or very good	69.8	86.9	94.7	94.5
Neither good nor poor	21.6	11.3	2.6	4.9
Poor or very poor	8.6	1.8	2.6	0.5
Self-rated Quality of Life				
Good or very good	72.7	94.1	98.2	98.9
Neither good nor poor	14.7	5.9	1.3	1.1
Poor or very poor	12.6	0.0	0.4	0.0
Medical History within Past 12 Months*				
Back or neck pain condition	82.5	64.7	63.3	49.2
Arthritic condition	17.5	19.3	11.0	19.3
Allergic condition	47.1	42.9	38.4	30.8
Respiratory problems (bronchitis/ emphysema)	16.4	13.2	9.5	8.7
Asthma	24.2	9.8	17.4	14.4
Diabetes	2.9	5.3	0.8	3.9
High or low blood pressure	29.0	24.7	25.0	24.1
Cardiovascular disease	7.9	5.3	1.5	2.0
Cancer	1.5	2.3	4.5	3.9
Frequent headaches	67.0	57.1	41.7	25.7
Anxiety or depression	67.4	43.4	29.4	14.4
Injury due to an accident	12.9	14.7	12.6	16.8

Body Mass Index (BMI)

Overall, 847 staff self-reported their height and body mass, from which BMI was calculated. Calculated BMI values ranged from 12.8 – 48.2 kg/m^2, with a median value of 25.1 kg/m^2 (IQR ± 6.0). A Kruskall Wallis test revealed a significant difference in BMI by gender (males n=247, females n=592, non-binary/prefer not to say n=8, $\chi 2$ [2, n= 847] = 8.4, p=0.02). Specifically, male staff reported a significantly higher median BMI (Md. 26.3 kg/m^2) relative to female counterparts (Md. 24.8 kg/m^2). The cumulative calculated prevalence of overweight/obesity was 51.8% (58.7% of males, 48.8% of females, **Table 14**).

Table 14: Calculated and self-perceived BMI amongst staff

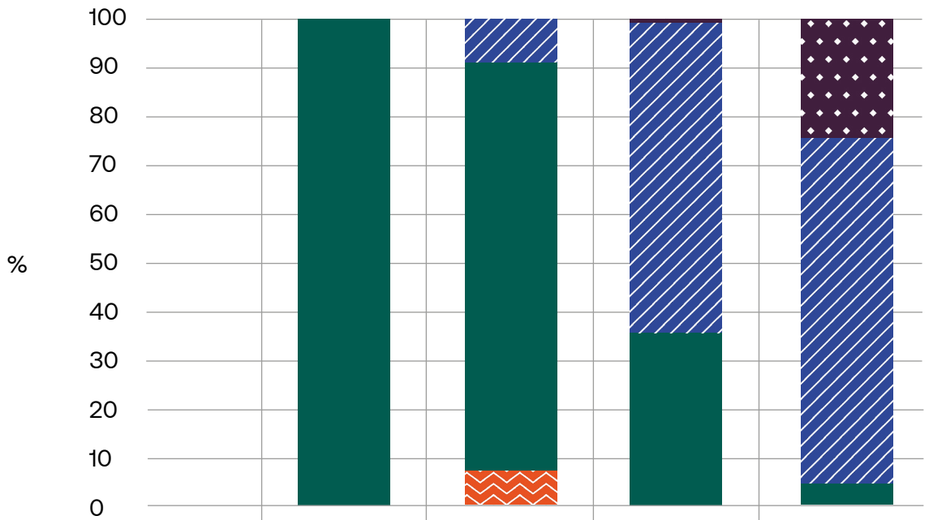
Variable	Full Sample		Males		Females		Non-binary or prefer not to say	
	n	%	n	%	n	%	n	%
Calculated BMI								
Underweight	10	1.2	2	0.8	8	1.4	0	0.0
Normal weight	398	47.0	100	40.5	295	49.8	3	37.5
Overweight	271	32.0	100	40.5	167	28.2	4	50.0
Obese	168	19.8	45	18.2	122	20.6	1	12.5
Total	**847**		**247**		**592**		**8**	
Self-perceived BMI								
Underweight	15	1.7	7	2.8	8	1.3	0	0.0
Normal weight	435	50.5	124	50.0	306	50.6	5	62.5
Overweight	350	40.7	105	42.3	243	40.2	2	25.0
Obese	61	7.1	12	4.8	48	7.9	1	12.5
Total	**861**		**248**		**605**		**8**	

A comparative analysis was conducted amongst staff who provided both self-reported height/body mass, in addition to a self-perceived BMI category (n=846). This revealed an under-recognition of obesity whereby only 33.3% of staff who were calculated to be 'obese' concurrently self-identified within this category. The remainder identified as either 'overweight' (64.3%, n= 108), 'normal weight' (1.8%, n=3), or 'underweight' (n=1). Although the absolute proportion was low, calculated 'underweight' (n=10) was also somewhat under-recognised. Only 4 staff correctly self-identified within this category, and the remaining 6 identified as 'normal weight'. A greater proportion of male staff underestimated their BMI (35.4% underestimated 'overweight', and 75.5% underestimated 'obesity' [**Figure 27**]). Amongst females, the magnitude of underestimation of both 'overweight' and 'obesity' was comparatively lower (25.7%, and 63.9%, respectively [**Figure 28**]).

> **This revealed an under-recognition of obesity whereby only 33.3% of staff who were calculated to be obese concurrently self-identified within this category**

Calculated vs Perceived BMI Categories (male staff, n=246)

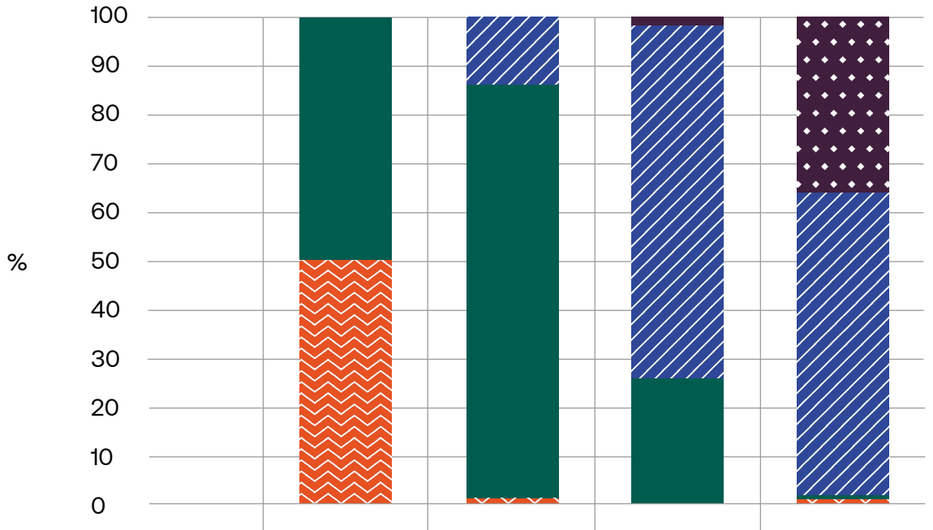
Figure 27: Calculated vs perceived BMI status amongst male staff



	Calculated underweight	Calculated normal weight	Calculated overweight	Calculated obese
Self-perceived obese	0.0	0.0	1.0	24.4
Self-perceived overweight	0.0	9.0	63.6	71.1
Self-perceived normal weight	100.0	84.0	35.4	4.4
Self-perceived underweight	0.0	7.0	0.0	0.0

Calculated vs Perceived BMI Categories (female staff, n=592)

Figure 28: Calculated vs perceived BMI status amongst female staff



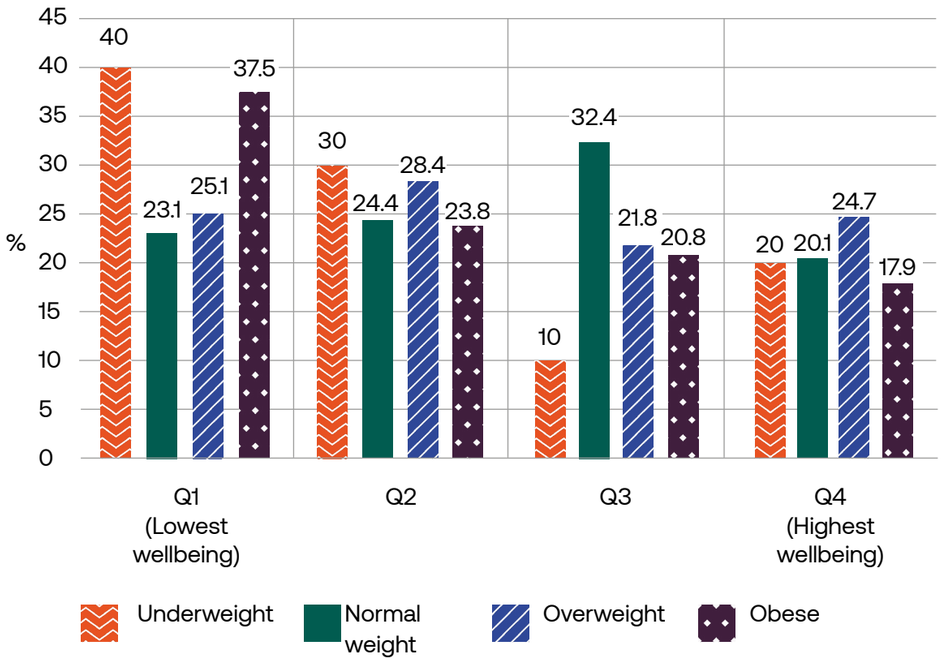
	Calculated underweight	Calculated normal weight	Calculated overweight	Calculated obese
Self-perceived obese	0.0	0.0	1.8	36.1
Self-perceived overweight	0.0	13.9	72.5	62.3
Self-perceived normal weight	50.0	85.1	25.7	0.8
Self-perceived underweight	50.0	1.0	0.0	0.8

Of note, a greater proportion of staff whose (i) calculated, and/or (ii) self-perceived BMI resided within either the 'underweight' or 'obese' ranges were within the lowest WHO-5 wellbeing quartile. In this regard, 37.5% of staff whose calculated BMI values were within the 'obese' range were in Q1, relative to 23.1% of staff who were categorised as 'normal weight' (**Figure 29**).

Moreover, 54.1% of staff who self-identified as 'obese' were within the lowest WHO-5 wellbeing quartile, relative to 21.1% of those who perceived themselves as 'normal weight' (**Figure 30**).

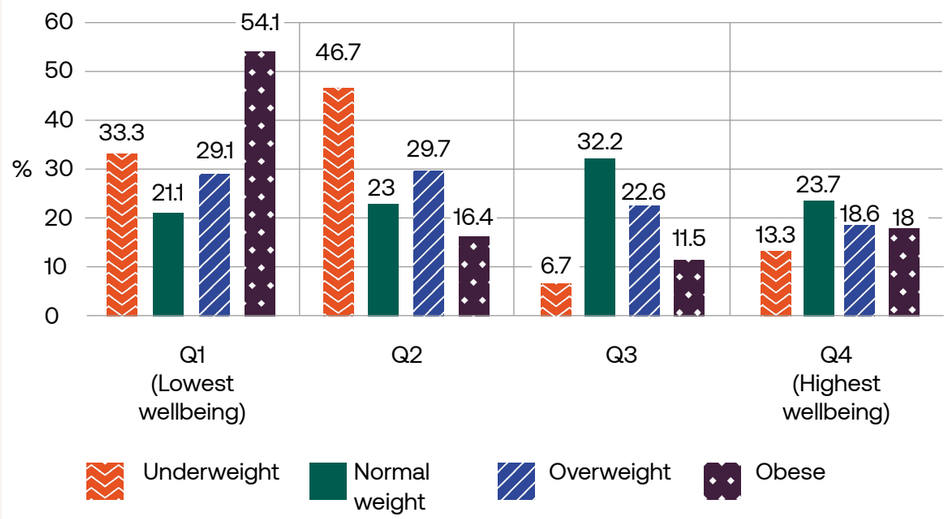
Calculated BMI and Wellbeing

Figure 29: Distribution of calculated BMI categories across wellbeing quartiles (staff participants, n=847)



Self-Perceived BMI and Wellbeing

Figure 30: Distribution of self-perceived BMI categories across wellbeing quartiles (staff participants, n=862)



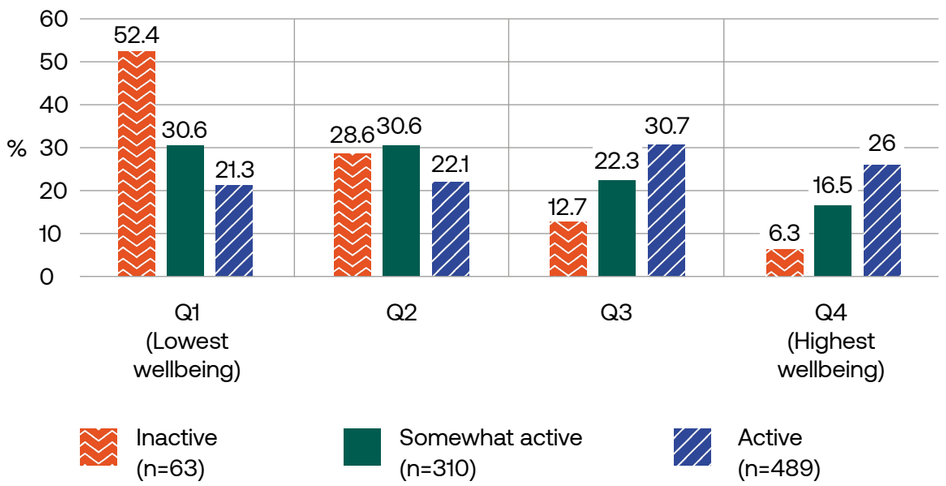
Physical Activity

With regard to physical activity participation, 56.7% (60.2% of males vs 55.4% of females) were classified as 'active' (i.e., reported being physically active for at ≥30 minutes on ≥5 out of the 7 days prior to data collection). A further 36.0% (33.3% of males, 36.9% of females) were classified as 'somewhat active' (active for ≥30 mins. on 2-4 days) and 7.3% (6.4% of males, 7.8% of females) as 'inactive' (active for 0-1 day). Overall, 24.3% (n=209) reported participation in sport (33.3% of males, 20.6% of females), and 29.0% attended a gym facility (29.4% of males, 28.7% of females). Similarly to the student sample (Section 3.1.1), the most common perceived barrier to becoming more physically active was a lack of time, which was reported by 35.5% (37.4% of males, 34.3% of females).

Notably, the proportion of 'inactive' staff within the lowest WHO-5 wellbeing quartile (52.4%) was higher than 'active' staff (21.3%). Concurrently, only 6.3% of 'inactive' staff exhibited wellbeing scores within the most favourable quartile (**Figure 31**). Similar patterns were observed amongst those who participated in sport, and attended a gym (**Figure 32** and **Figure 33**).

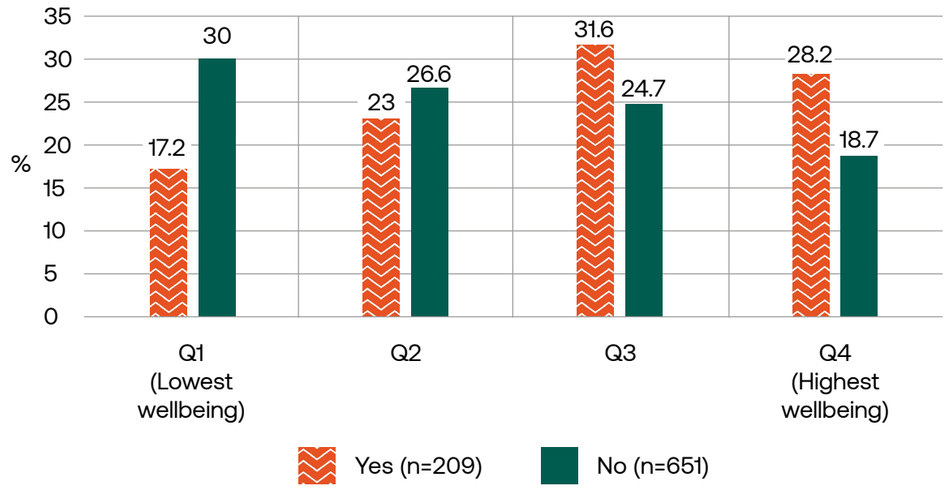
Physical Activity and Wellbeing

Figure 31: Physical activity status of staff across wellbeing quartiles



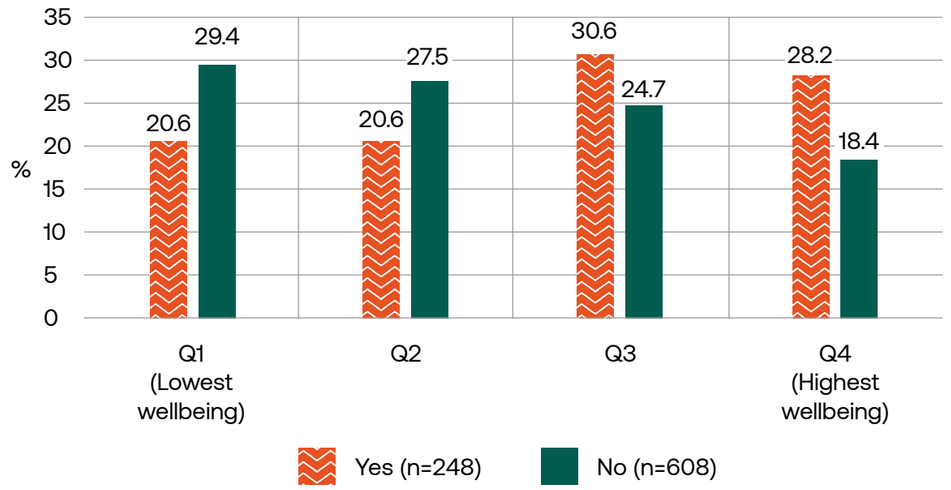
Sports Participation and Wellbeing

Figure 32: Sports participation status of staff across wellbeing quartiles

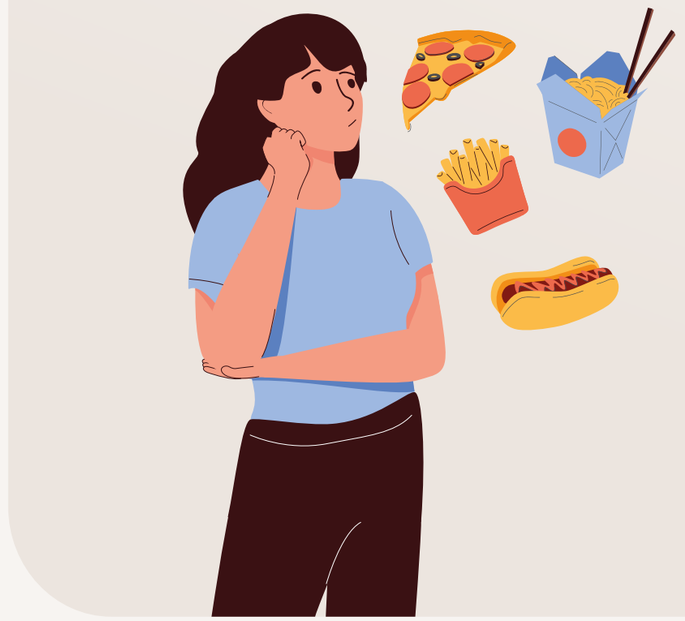


Gym Attendance and Wellbeing

Figure 33: Gym attendance status of staff across wellbeing quartiles



Dietary Behaviours and Perceptions of the Campus Food Environment



Overall, 74.8% (n=645) reported habitual consumption of <5 servings of fruit and vegetables (F&V) per day. As depicted in **Table 15**, F&V consumption appeared to be higher amongst staff in the most favourable wellbeing quartile (e.g., 27.5% of staff in Q4 consumed ≥5 daily servings vs 19.8% in Q1). Perceptions of the campus food environment were mixed, with 51.4% of the total sample perceiving that the food and beverage facilities on their campus enabled healthy choices (59.7% of male staff vs 48.5% of female staff). A higher proportion of those in the highest WHO-5 wellbeing quartile perceived the campus F&B facilities to enable healthy choices (59.2% of staff in Q4 vs 44.4% of staff in Q1).

Table 15: F&V servings amongst staff by gender and across wellbeing quartiles

Variable	Full Sample	Males	Females	Non-binary or prefer not to say
	n (%)	n (%)	n (%)	n (%)
Daily F&V				
4 servings or less	645 (74.8)	190 (76.3)	449 (74.2)	6 (75.0)
5 servings or more	217 (25.2)	59 (23.7)	156 (25.8)	2 (25.0)
Perceive that campus F&B facilities enable healthy choices	**374 (51.4)**	**120 (59.7)**	**252 (48.5)**	**2 (28.6)**

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Daily F&V				
4 servings or less	80.2	76.5	69.6	72.5
5 servings or more	19.8	23.5	30.4	27.5
Perceive that campus F&B facilities enable healthy choices	**44.4**	**46.7**	**56.7**	**59.2**

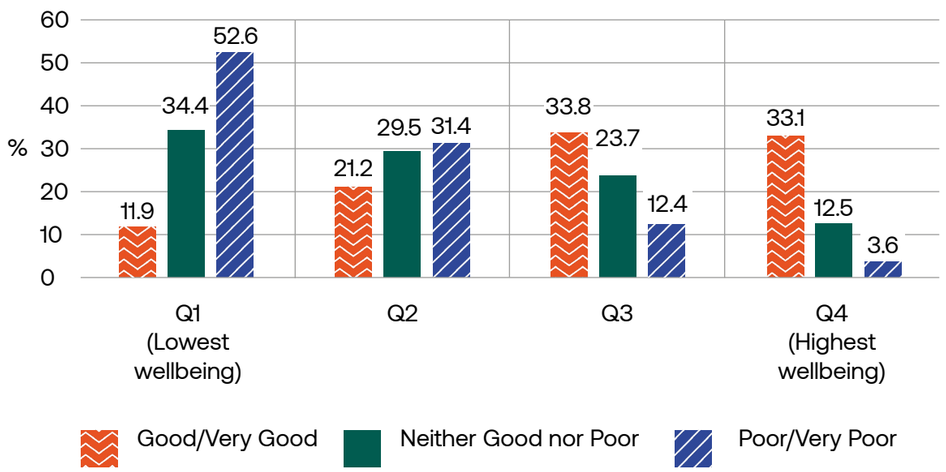
* All % reported relative to the valid n for each item. Individual column totals may vary due to missing data points

Sleep

Only 51.5% of the staff sample self-rated their recent sleep quality as either ‘Good’ (39.2%, n=338) or ‘Very Good’ (12.3%, n=106). Conversely, 22.5% rated this parameter unfavourably, as either ‘Poor’ (18.9%, n=163) or ‘Very Poor’ (3.6%, n=31) (**Table 16**). Of note, 52.6% of staff who reported ‘Poor/Very Poor’ sleep quality were within the lowest WHO-5 wellbeing quartile, relative to only 11.9% who rated sleep quality as ‘Good/Very Good’ (**Figure 34**).

Recent Sleep Quality and Wellbeing

Figure 34: Distribution of self-rated sleep quality amongst staff across wellbeing quartiles



In terms of sleep duration, 44.8% of staff reported habitually sleeping for <7 hours per night during the week, with a relative tendency to ‘catch up’ at the weekends (**Figure 35**).

Figure 35: Self-reported habitual sleep duration (i) on week nights, and (ii) per night at the weekend (n=862)

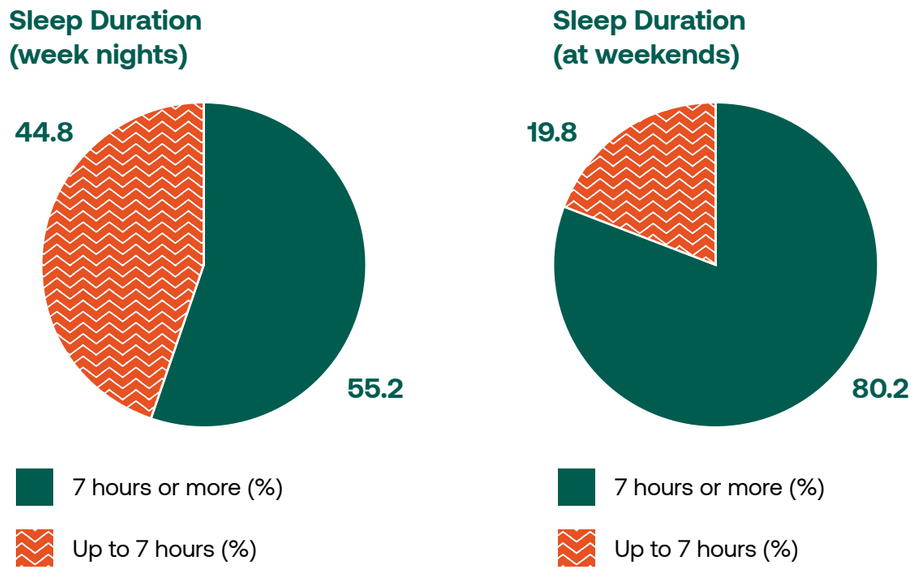


Table 16: Sleep quality and duration by gender (staff sample)

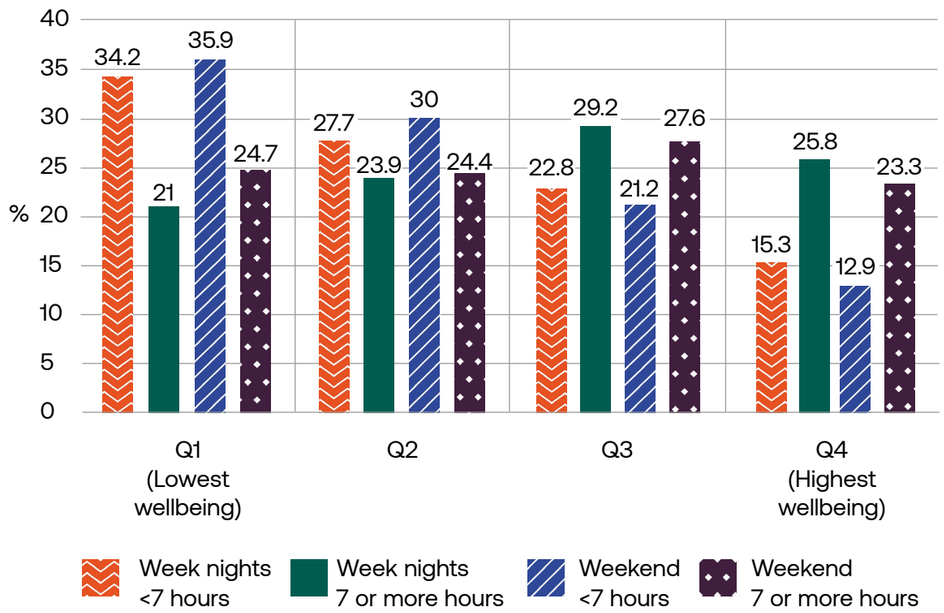
Variable	Full Sample (n=862)	Males (n=249)	Females (n=605)	Non-binary or prefer not to say (n=8)
	n (%)	n (%)	n (%)	n (%)
Self-rated sleep quality during the last 30 days				
Good or very good	444 (51.5)	125 (50.2)	313 (51.7)	6 (75.0)
Neither good nor poor	224 (26.0)	64 (25.7)	160 (26.4)	0 (0.0)
Poor or very poor	194 (22.5)	60 (24.1)	132 (21.8)	2 (25.0)
Sleep duration				
≥ 7 hours (week nights)	476 (55.2)	136 (54.6)	335 (55.4)	5 (62.5)
≥ 7 hours (at the weekend)	688 (80.2)	184 (74.8)	496 (82.1)	8 (100.0)

* All % reported relative to the valid n for each item. Individual column totals may vary due to missing data points

Whilst patterns were somewhat mixed, higher proportions of staff who reported attaining ≥7 hours of sleep during week nights and/or at the weekend were within the highest wellbeing quartile (**Figure 36**).

Sleep Duration and Wellbeing

Figure 36: Self-reported sleep duration across staff wellbeing quartiles



Alcohol Consumption

Overall, 84.1% (n=724) of staff reported drinking alcohol. In terms of frequency, 30.2% consumed alcohol '2-3 times per week', and 7.0% '≥4+ times per week'. Furthermore, 62.4% (n= 451) reported engaging in binge drinking (BD) in the 12 months prior to data collection (15.8% 'monthly', 6.4% 'weekly', and 0.3% 'daily/ almost daily'). A higher proportion of male staff reported BD monthly or more, relative to female colleagues (33.0% vs 18.0%). Summary scores on the AUDIT 10-Item scale, in addition to the related AUDIT-C subscale (Items 1-3), are outlined in **Table 17**. Of note, 41.1% of males (n=102) were classified as hazardous drinkers. From a campus health promotion perspective, 76.6% of the sample (n=465) stated that they would welcome initiatives aimed at reducing alcohol consumption amongst staff (70.6% of males, 79.3% of females).



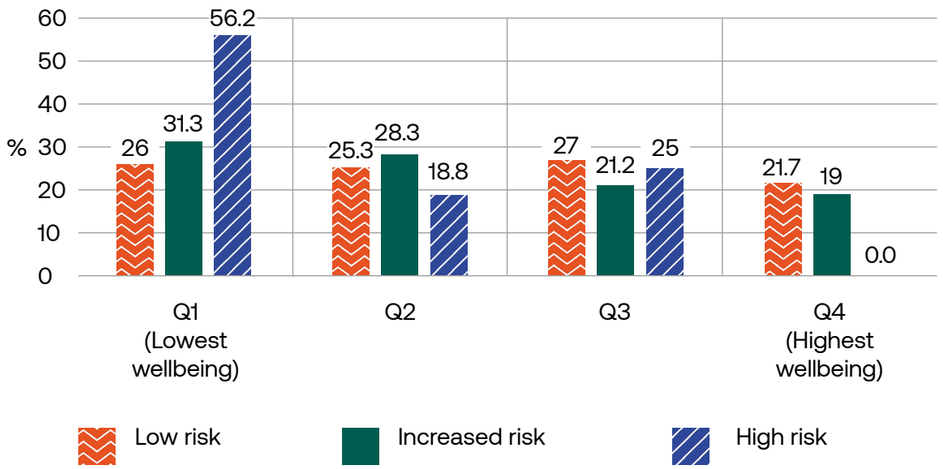
Table 17: Staff AUDIT-10 and AUDIT-C descriptives and classifications by gender

Variable	Full Sample		Males		Females		Non-binary or prefer not to say	
	n	%	n	%	n	%	n	%
AUDIT-10	**849**	**-**	**245**	**-**	**596**	**-**	**8**	**-**
Min score	0	-	0	-	0	-	0	-
Max score	23	-	23	-	19	-	19	-
Mean	4.2	-	4.9	-	3.9	-	5.8	-
SD	3.6	-	4.2	-	3.2	-	7.5	-
Median	4.0	-	4.0	-	3.0	-	2.5	-
IQR	5.0	-	6.0	-	5.0	-	13	-
Low risk	732	86.2	192	78.4	534	89.6	6	75.0
Increased risk	99	11.7	45	18.4	54	9.1	0	0.0
High risk	16	1.9	6	2.4	8	1.3	2	25.0
Alcohol dependence	2	0.2	2	0.8	0	0.0	0	0.0
AUDIT-C	**855**	**-**	**248**	**-**	**599**	**-**	**8**	**-**
Min score	0	-	0	-	0	-	0	-
Max score	12	-	12	-	10	-	7	-
Mean	3.3	-	3.9	-	3.1	-	2.9	-
SD	2.4	-	2.8	-	2.2	-	2.6	-
Median	3.0	-	4.0	-	3.0	-	2.5	-
IQR	4.0	-	5.0	-	4.0	-	5.0	-
Hazardous Drinking	**256**	**29.9**	**102**	**41.1**	**152**	**25.4**	**2**	**25.0**

Of note, the majority of staff who were classified as 'high-risk' drinkers on the basis of the AUDIT-10 were within the lowest wellbeing quartile (56.2%), and there were no 'high-risk' drinkers within the highest wellbeing quartile (**Figure 37**).

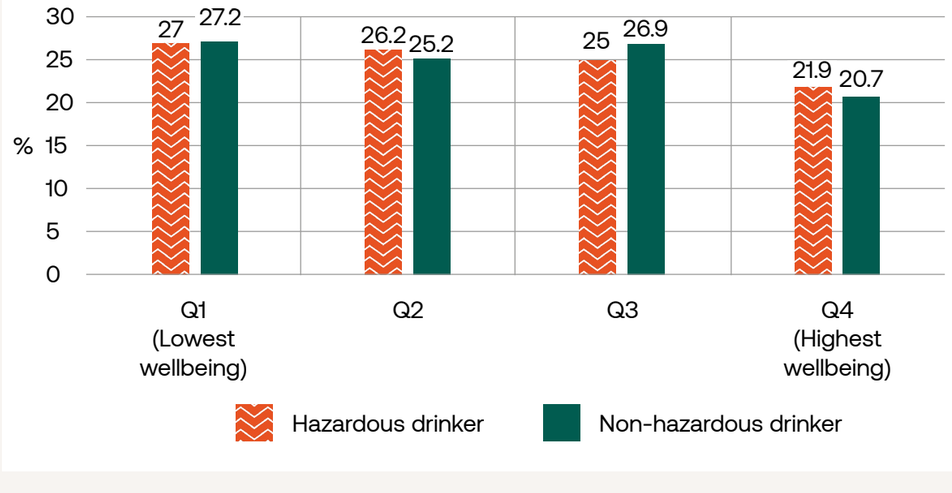
AUDIT-10 Classification and Wellbeing

Figure 37: Distribution of AUDIT-10 drinking typologies of staff respondents across wellbeing quartiles



AUDIT-C Subscale and Wellbeing

Figure 38: Distribution of AUDIT-C subscale typologies of staff respondents across wellbeing quartiles



62.4% (n=451) reported engaging in binge drinking in the 12 months prior to data collection

Table 18: Alcohol-related harms reported by staff (stratified by gender and wellbeing quartiles)

Variable	Full Sample		Males		Females		Non-binary or prefer not to say	
	n	%	n	%	n	%	n	%
Primary Harms								
Regretting something said or done	108	16.0	29	15.2	77	16.1	2	40.0
Missing work	11	1.6	3	1.5	8	1.7	0	0.0
Getting sick	92	13.5	13	6.8	77	16.0	2	40.0
Injury or fall	18	2.6	4	2.1	12	2.5	2	40.0
Blacking out	24	3.5	11	5.7	13	2.7	0	0.0
Secondary Harms								
Family problems/ relationship difficulties	113	13.9	20	8.6	90	15.8	3	37.5
Passenger with drunk driver	10	1.2	3	1.3	7	1.2	0	0.0
Financial trouble	7	0.9	2	0.9	4	0.7	1	16.7
Vandalism of property	15	1.9	6	2.6	8	1.4	1	16.7

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Primary Harms				
Regretting something said or done	23.1	14.6	14.3	10.9
Missing work	1.6	2.3	1.7	0.7
Getting sick	15.9	12.6	12.6	12.8
Injury or fall	3.3	3.4	2.3	1.4
Blacking out	6.6	4.0	0.6	2.7
Secondary Harms				
Family problems/ relationship difficulties	18.3	14.6	9.8	12.8
Passenger with drunk driver	1.8	0.0	1.9	1.2
Financial trouble	1.8	0.5	0.0	1.2
Vandalism of property	2.3	2.0	2.4	0.6

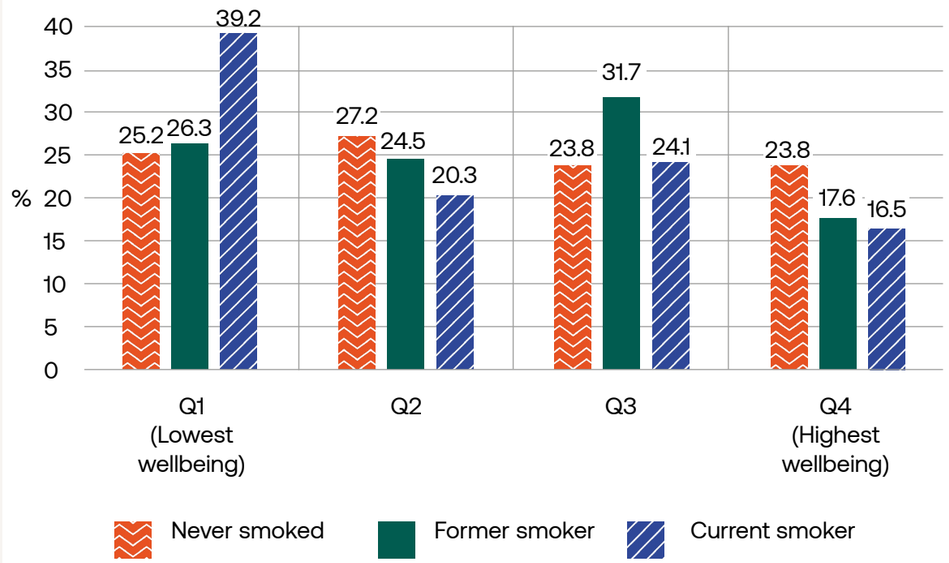
Tobacco Smoking

In total, 9.2% (n=79) of the sample reported that they were tobacco smokers at the time of data collection. An additional 32.3% (n=278) were 'former smokers', while 58.5% (n=504) reported as 'non-smokers/never smoked'. The majority (87.0%, n=687) of staff respondents stated that they would be in favour of a 'smoke free' campus policy.

Similarly to the pattern observed amongst the student cohort (Section 3.1.1), a higher proportion of 'current smokers' were within the lowest WHO-5 wellbeing quartile (39.2%), relative to either those who had never smoked (25.2%) and former smokers (26.3%) (**Figure 39**).

Tobacco Smoking and Wellbeing

Figure 39: Distribution of tobacco smoking status (staff) across wellbeing quartiles

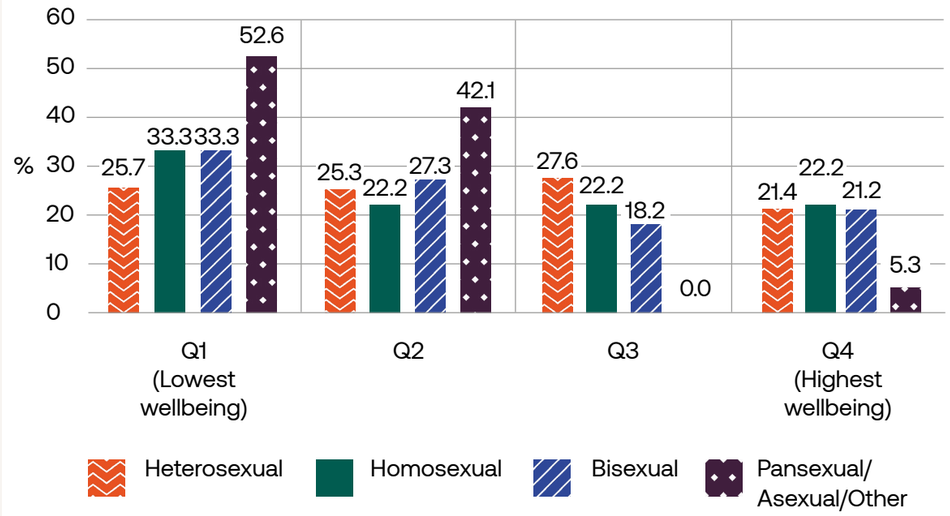


Sexual and Reproductive Health and Wellbeing

Overall, 90.8% (n=779) of the sample identified as 'heterosexual', 3.8% as 'bisexual', 3.1% as 'homosexual', and 2.2% as 'pansexual/asexual/other'. Whilst the absolute proportions were low in the context of the full sample, 52.6% of those who reported being 'pansexual/asexual/other' were within the lowest wellbeing quartile (**Figure 40**).

Sexual Orientation and Wellbeing

Figure 40: Distribution of sexual orientation data across staff wellbeing quartiles



In terms of sexual and reproductive health and wellbeing supports, 64.6% reported a perceived need for greater menopause-related supports, 50.7% for information and advice in relation to the prevention of testicular cancer, and 45.7% for counselling and support services for pregnancy loss (**Table 19**).

Table 19: Sexual orientation and perceptions regarding campus supports, stratified by gender and wellbeing quartiles Q1-Q4

Variable	Full Sample (n=862)		Males (n=249)		Females (n=605)		Non-binary or prefer not to say (n=8)	
	n	%	n	%	n	%	n	%
Sexual orientation								
Heterosexual	779	90.8	226	91.5	549	91.0	4	50.0
Homosexual	27	3.1	11	4.5	16	2.7	0	0.0
Bisexual	33	3.8	8	3.2	23	3.8	2	25.0
Pansexual, asexual or other	19	2.2	2	0.8	15	2.5	2	25.0
Would welcome:								
Information services on STI prevention	245	31.5	69	30.0	171	31.5	5	83.3
Counselling and support services for pregnancy loss	358	45.7	83	36.2	270	49.4	5	71.4
Menopause information and support services	520	64.6	82	36.3	432	75.5	6	85.7
Breast feeding support and advice	326	41.7	73	32.3	249	45.3	4	66.7
Information and advice on testicular cancer prevention	398	50.7	161	67.9	233	43.0	4	66.7

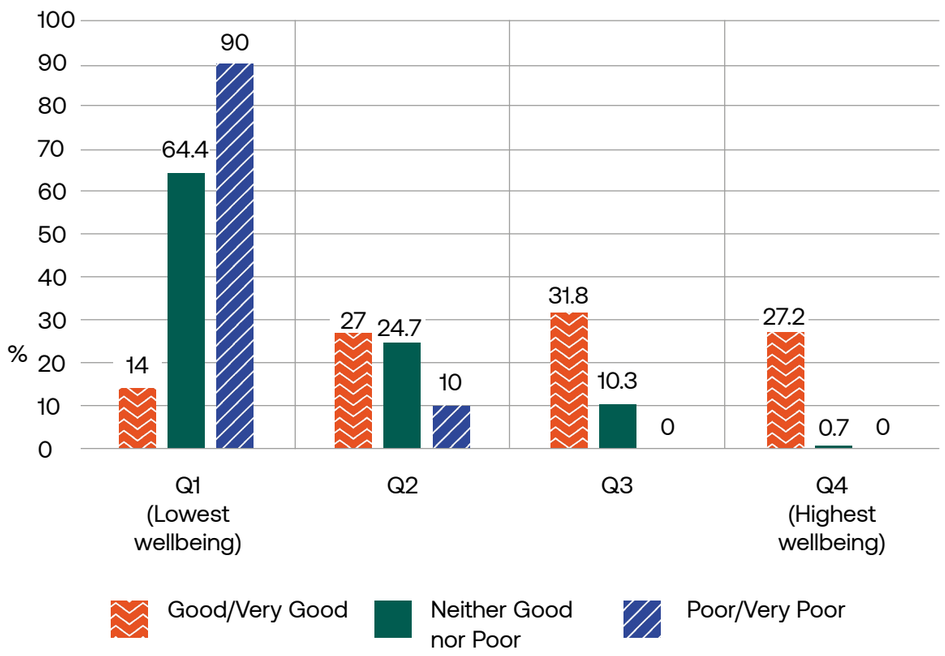
Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Primary Harms				
Heterosexual	87.0	89.5	94.7	92.3
Homosexual	3.9	2.7	2.6	3.3
Bisexual	4.8	4.1	2.6	3.9
Pansexual, asexual or other	4.3	3.6	0.0	0.6
Would welcome:				
Information services on STI prevention	38.0	33.0	25.1	29.6
Counselling and support services for pregnancy loss	53.6	47.5	39.0	42.2
Menopause information and support services	75.1	64.9	58.1	58.8
Breast feeding support and advice	46.6	42.9	35.7	41.7
Information and advice on testicular cancer prevention	58.7	49.7	46.0	47.9

Mental Health and Stress

Overall, 77.3% (n=666) perceived their mental health as either ‘Good’ (52.6%, n=453) or ‘Very Good’ (24.7%, n=213). Stratified by gender, 76.3% of male (n=190), 78.0% of female (n=472) and 50.0% of non-binary staff (n=4) rated their mental health as ‘Good/Very Good’. Similarly to the patterns observed for self-rated general health, less favourable perceptions of mental health were congruent with lower levels of wellbeing, and 90.0% of staff who rated their mental health as ‘Poor/Very Poor’ were within the lowest wellbeing quartile (**Figure 41**).

Self-Rated Mental Health Across Wellbeing Quartiles

Figure 41: Distribution of self-rated mental health across staff wellbeing quartiles



‘Workload’ (59.5%, n=509), ‘Pressure to work outside of normal hours’ (33.3%, n=283), and ‘Family situation’ (32.1%, n=273) were the most commonly perceived psychological stressors. As indicated in **Table 20**, the extent of perceived stress (i.e., ‘Highly/Often stressed’) in response to each stressor was highest amongst staff within the lowest wellbeing quartile, and lowest amongst staff in the highest (i.e., most favourable) WHO-5 wellbeing quartile. **Figures 42-45** indicate the wellbeing quartile distributions for occupational stressors. Across all four listed stressors, lower proportions of staff who reported being ‘Highly/Often stressed’ resided within the highest wellbeing quartiles.



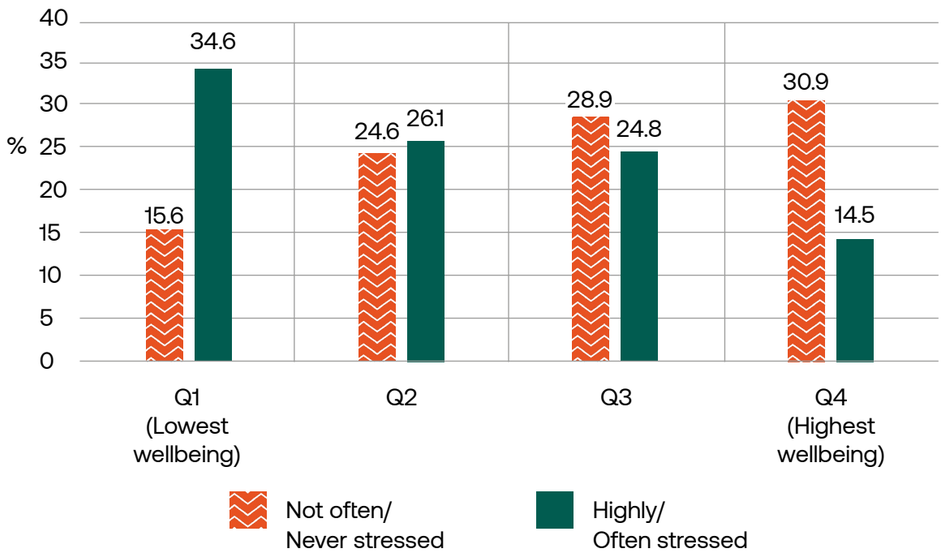
Table 20: Psychological stressors ('highly/often stressed') of staff, stratified by gender and wellbeing quartiles Q1-Q4

Variable	Total		Male		Female		Non-binary or prefer not to say	
	n	%	n	%	n	%	n	%
Workload	509	59.5	138	56.1	366	60.9	5	62.5
Lack of job security	169	20.0	42	17.4	125	20.9	2	25.0
Financial situation	257	30.2	69	28.4	185	30.8	3	37.5
Pressure to work outside of normal hours	283	33.3	85	34.7	195	32.6	3	37.5
Bullying/harassment at work	100	11.8	38	15.6	59	9.9	3	37.5
Living situation	158	18.7	35	14.5	122	20.5	1	12.5
Family situation	273	32.1	63	25.8	207	34.6	3	37.5
Relationship issues	171	20.2	37	15.2	132	22.1	2	25.0
Illness	143	16.9	36	14.8	102	17.1	5	62.5
Substance use issues	22	2.6	5	2.1	15	2.5	2	25.0

Variable	Q1 Lowest wellbeing	Q2	Q3	Q4 Highest wellbeing
	%	%	%	%
Workload	76.5	61.0	55.8	40.9
Lack of job security	24.9	24.1	18.4	10.7
Financial situation	45.7	37.3	20.1	14.4
Pressure to work outside of normal hours	45.4	36.4	28.3	20.1
Bullying/harassment at work	20.0	9.8	8.5	7.8
Living situation	32.8	21.1	12.0	6.2
Family situation	46.1	37.8	26.1	15.1
Relationship issues	32.2	22.2	12.9	11.7
Illness	28.3	17.6	11.6	7.9
Substance use issues	3.1	3.7	2.2	1.1

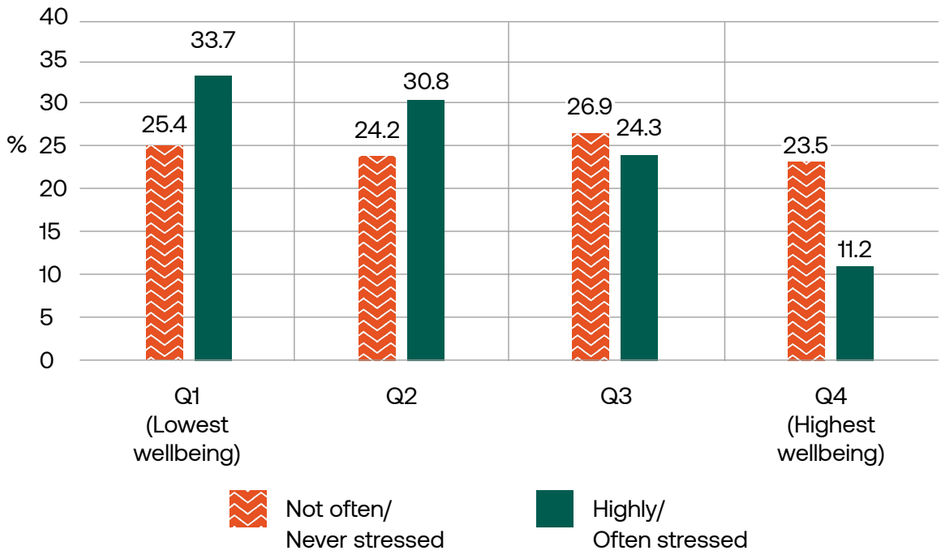
Workload

Figure 42: Perceived stress across staff wellbeing quartiles (workload)



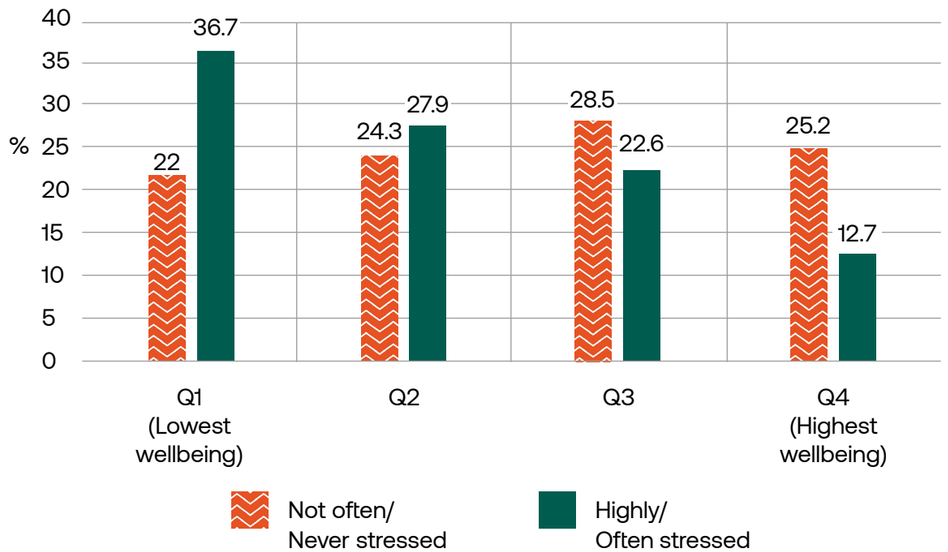
Lack of Job Security

Figure 43: Perceived stress across staff wellbeing quartiles (lack of job security)



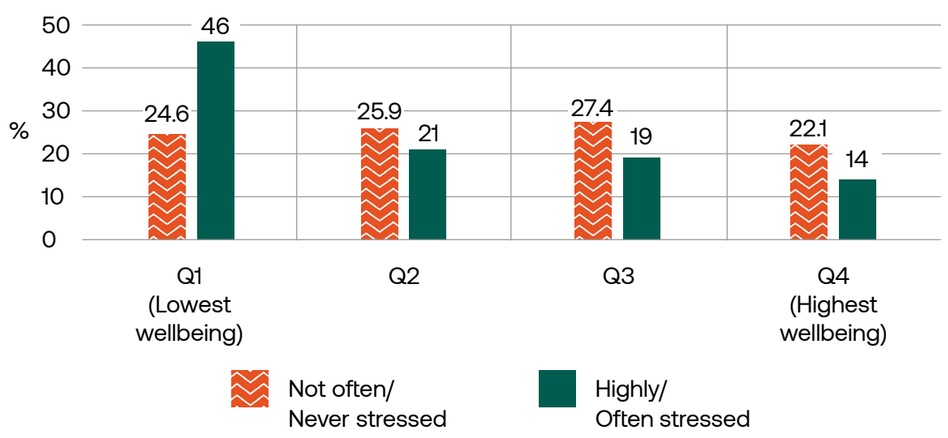
Pressure to Work Outside of Normal Hours

Figure 44: Perceived stress across staff wellbeing quartiles (work >normal hrs.)



Bullying or Harassment at Work

Figure 45: Perceived stress across staff wellbeing quartiles (bullying/harassment)



3.2 Findings
Qualitative Strand

As outlined in Section 2.2, the qualitative strand of the current research encompassed both (i) in-depth focus group sessions, and (ii) desk research to pilot an 'Ecological Reach' evaluation of a subset of services and facilities related to health and wellbeing at each respective institution.

3.2.1 Focus Group Findings

A total of 24 participants took part in the focus groups. The participants encompassed stakeholders with knowledge/experience of services related to health and wellbeing at their institution. This included representatives from a range of departments/divisions including Student and Staff Health & Wellbeing services, Buildings and Estates, Access & Disability services, the Student's Union, Adult Education, Chaplaincy, and the Green Campus Teams. Results of the focus group analysis are expounded under the headings presented below.

> "Like it needs to be really taken on board by the institution, it needs to be given space, needs to be given priority." [P10A]

Leadership, Strategy and Governance

In the qualitative findings, leadership and a strategic approach to the implementation of the HEA Healthy Campus Framework were perceived as important enabling factors for implementation and sustainment.
While focus group participants generally welcomed the introduction of the Healthy Campus initiative, describing it as "a positive step forward" [P2B], university leadership support and buy-in for the framework were deemed critical for its success.

> "Definitely it needs to come from kind of the top down as well as the bottom up. The President you know needs to be talking about this at Town Halls or whatever." [P7A]

Leadership support for health and wellbeing at departmental level was also noted as an important consideration, including departmental managers modelling good-practice behaviour.

> "I think what works well is the modelling. And you see that with some managers are excellent at modelling really good wellbeing practices and it filters down into their staff. I know there's a responsibility on everyone, but that leadership piece is very important." [P12A]

Focus group participants conceded that there were signs of increased commitment to health and wellbeing priorities at senior management level. For example, increased senior management support for staff wellbeing resources was noted as a favourable development, as was their involvement in some of the health-related initiatives already underway. However, there was also a sense that some of the initiatives were somewhat tokenistic or lacked consistency.

> "I think there is a certain amount of box-ticking on it. You might get an email from HR about there's this employee wellbeing thing that you can sign up for. But I don't know if there's an uptake on it... I don't think it's embedded into everyday campus living in our university at all. I think it's just randomly every now and again you get this email about this, like tick that box." [P4B]

> "I think there's a lack of consistency with the actions that we're putting in place." [P5B]

To prevent a proliferation of perceived piecemeal, tokenistic health and wellbeing initiatives, participants emphasised the importance of a strategic approach, whereby the Healthy Campus Framework is appropriately embedded into university practices and policies. For example, establishing Healthy Campus representation across university departments and classes was recommended.

> "So maybe the university could identify people within each class and each department as a representative of this framework. So that everything filters down to as many people as possible." [P8A]

The importance of embedding the Healthy Campus Framework into university policy and guidance documents was also highlighted to ensure consistency and synergy across strategic priorities.

> "One point would be to ensure that all of our guiding documents are all self-referencing one another. So that you pick up one document, you read about another... A lot of things become orphans almost because they're launched in kind of a blaze of glory and are very important for one area. But another area may not understand its importance to it. So I think that a lot of these strategic plans and operational plans, they all need to reference documents like this in order to for it to be – that it's not an independent initiative, it's not an independent framework." [P7A]

Campus Environment (Facilities and Services)

Participant views on the campus environment emerged as a strong finding in the focus groups. Issues raised included shortcomings in the food environment, concerns about insufficient infrastructure to meet demand, and the importance of leveraging the natural environment.

In terms of deficits in the current environment, focus group participants frequently referred to limitations of the campus food environment, particularly the greater availability and cheaper cost of unhealthy food items sold in campus restaurant facilities.

> "I think like for the Healthy Campus to work, you need to … invest in healthier options. You can't promote to eat better if there's not healthier choices." [P11A]

> "One of the big things like they sell is popcorn chicken … And like every student, it's popcorn chicken, these jambons, sausages, like it's pure junk food. And it's because it's cheap and it's accessible and they're walking past it. As the [other participant] said, there's no options for smoothies, for fresh fruit." [P4B]

While some improvements were noted (e.g., opening of a new restaurant and the introduction of market stalls to campus), the need for greater momentum to provide cheaper and more ubiquitous healthy food options on campus was strongly emphasised. Participants also highlighted the lack of facilities for both staff and students to prepare and consume their own food.

> "Just the kitchenette spaces in general for staff and students – like it's grand to be able to heat something up but just to be able to wash something or to cut something or to clean something. To help you prepare. Like there definitely isn't the services or supports that are there to be able to facilitate you …And then you've got signs 'don't bring in your own food' or whatever. So where do people who want to bring in their own food, where should they go to have that healthy lifestyle if that's what they want." [P9B]

Concerns about infrastructural capacity to meet rising student numbers was a further issue raised in the focus groups. For example, participants referred to issues such as lack of space in classrooms and the campus gym along with the limited capacity of sports infrastructure to meet growing demand for services. In this context, it was noted that a potential unintended consequence of the implementation of the HEA Healthy Campus Framework could be to generate resentment if demand was generated (e.g., for sports facilities) but there were insufficient resources to meet this rising demand.

> "So you could create a lot of cynicism with the Healthy Campus Framework because… if you lack, if the demand for services grow and the resources aren't there to meet that, stress will mount up on people and staff to beat the band. And that will create a lot of unhealthy behaviours, tensions, everything like that." [P13A]

In terms of opportunities to enhance health and wellbeing, a key recommendation emanating from the focus groups was to place a greater emphasis on leveraging the natural environment on/surrounding the university campuses. Rather than solely focusing on building expensive infrastructure, it was highlighted that the significant untapped potential to maximise existing natural resources for health and wellbeing should be maximised (e.g., outdoor green spaces on campus or nearby parks and nature walks).

> "I think we could harness the green infrastructure that's on campus that already exists. You know rather than getting students onto artificial pitches or into gyms, get them outside, get them experiencing a feeling of rootedness, of interconnectedness, engagement with the natural environment." [P4A]



Campus Culture and Communications

Regarding the overarching campus culture, participants emphasised a frequently stressful and pressurised working environment for both staff and students at their respective university. The issue of high workload and time pressures experienced by university staff was underlined as a reality that was not ultimately conducive to health and wellbeing.

> "Like that is a barrier to health – you know we deal with a system which expects high productivity, high work output above all else." [P4A]

> "I think we're in this cycle, cultural cycle of working hard, intense kind of academic year." [P9B]

Challenges related to structural change at the university were also raised, including the sense of uncertainty that such change generates for staff and the increased levels of stress arising from this.

> "This is possibly one of the most stressful environments that I've ever worked in… I've just never worked somewhere where there is so much change happening, there's so much information but then a lack of information at the same time. And then there's stuff said and stuff not said, and you feel like you're constantly trying to navigate. Like the image I kept using was like it's Mission Impossible, like there's lasers everywhere, you don't know till you've set one off, okay I've done something wrong again." [P2B]

For students, the campus culture was also perceived as being inherently stressful owing to academic pressure, busy timetables and **"a productivist"** [P4A] mindset. This was further compounded by student-related challenges such as financial pressures and accommodation shortages, and it was noted that a growing number of students are having to commute to university and to work to support their studies.

> **"I've noticed here that a huge amount of students, going back years, are constantly chasing assignments... they are constantly under pressure for time... Then they've got to travel distances to get home and they're pressurised to be ready for the following day."** [P6B]

A rise in mental health issues among students was also noted by participants, particularly in the post-Covid era.

> **"So from our perspective we see an awful lot of students suffering from mental health issues at the moment. They've come out of secondary school not after sitting exams. And now they're probably two-to-three years into university because of Covid, they now have to sit exams face-to-face. And that pressure is enormous on some people."** [P3A]

The pervasive culture of high workload and academic pressure was perceived as having the potential to undermine the objectives of Healthy Campus initiatives. Participants therefore highlighted the importance of ensuring that the implementation of the HEA Healthy Campus Framework was not a superficial initiative but an opportunity for a more meaningful exploration of health and wellbeing.

> **"I would hope that it wouldn't be seen as like a surface fix. So like we put more apples on campus, therefore we are healthier. That there would be a deeper understanding around how do we define health and are we looking at the underlying causes of ill-health, not just for our students but for our staff."** [P2B]

In relation to campus communications, participants emphasised an over-reliance on email, referring to the **"huge volume"** [P8A] or **"avalanche of emails"** [P7A] facing university staff. The limitation of email as a form of communication for students was also underlined, as was the need for more student-appropriate communication channels such as on-trend social media platforms. The use of text-heavy communications and its unsuitability for neurodiverse or neuroatypical students was noted as a further concern. Participants underlined the need for more creative communication platforms such as Town Hall meetings and leveraging social media to communicate with staff and students. Enhancing communications to maintain awareness of services and resources such as student counselling and associated supports was also noted as a challenge, and participants acknowledged the difficulty of sustaining awareness in the long term.

> **"Like a lot of news, it disappears down the list of what's important. And you can't have everything on the first [university] homepage as such."** [P8A]

Personal and Professional Development

Participant views regarding the final category – personal and professional development – pertained mainly to personal development owing to the overarching theme of the focus groups. Notwithstanding the limitations cited above, focus group participants cited positive examples of initiatives aimed at supporting staff wellbeing as well as staff social activities. For instance, progress in the development of a dedicated staff wellbeing service, comprising a range of resources with a holistic focus, was highlighted in one of the focus groups.

> **"I do think that the university offers an array of services. And I think once you become staff in this area, you realise just the array of the different things that are available. So I do think there's such a commitment from the university."** [P14A]

The establishment of Employee Assistance Programmes (EAPs) was noted in both focus groups, providing access to confidential counselling for staff members. Participants also spoke positively about the existence of staff sports and social clubs promoting both physical (e.g., walking groups, athletics) and social (e.g., chess, book clubs) activities. Providing opportunities for family-oriented events was also noted as a favourable aspect of the staff social clubs, **"bringing families together"** [P3A]. The potential benefits of such initiatives for international staff moving to Ireland for the first time was also underlined: **"it's a good way to get to meet people and develop a social network"** [P8A].

Regarding student-specific services aimed at supporting their personal development, participants cited services related to sexual health and personal safety in particular. Promotion of safe sex, provision of sexual health products, and access to testing clinics were listed as ongoing services provided to students at both institutions. Participants also referred to initiatives developed in more recent years around the prevention of sexual violence and harassment, and specific programmes such as the Speak Out Tool, Active Consent training, and the Bystander programme were deemed positive developments. Links with community initiatives such as Safe Gigs Ireland was also highlighted as a welcome development, particularly in light of growing challenges around issues such as the spiking of drinks. Provision of disability support services for students was also cited as a service in both focus groups, along with autism-friendly initiatives such as the Calm Zone.

The range of services described in the focus groups suggests a growing commitment to supporting staff and students' personal development in the university. However, raising awareness of such services and encouraging participation was noted as a challenge among both staff and students.

> "Yes, in staff wellbeing, I'd agree with that as well in that we've loads of resources. But what I find is that staff still don't know what's available until they're sometimes in a crisis." [P14A]

> "But certainly I think as part of this initiative, we could try and push it a bit more, as well get it a bit more subscribed to." [P2A]

Moreover, notwithstanding positive developments in providing personal wellbeing services for university staff, a key criticism highlighted in the focus groups was the lack of onsite health-related services for staff. In particular, participants underlined the lack of on-campus GP and counselling services for staff as a major shortcoming at their institution.

> "I think all of our services are kind of in relation to students being catered for. Like for me if I have to go to a medical appointment, I either have to take time out of my day, a busy day to go and visit my GP or consultant or whoever it might be. So I think we should look at some kind of staff facility there as well that can cater for our medical needs if you like." [P5B]

> "Something that could change is like there's no counselling for staff. I know there's EAP but that's different... you get six sessions with an external counsellor. But that's the employee assistance one, so that's within all organisations really. But there's not specifically [a service] for staff in the campus." [P8B]

3.2.2 Ecological Reach Mapping: Pilot Findings

Table 21 summarises the ecological reach potential, based on the assigned Ecological Reach Score (ERS) of the subset of identified campus services and/or initiatives aligned with key health and wellbeing areas. The allocated ERS values (possible range 0-10) ranged from 1 to 10. Services embedded within campus infrastructure (such as varsity sport and society structures, and interventions embedded within the curriculum) exhibited the highest potential ecological reach. Conversely, although there were legacy health promotion entities within each respective institution, the ecological reach (at the time of data collection) of campus health promotion entities appeared somewhat limited by the lack of ecological integration of same (**Table 21**).

To avoid specific inter-campus comparisons or identification, bespoke internal HEI policies were not included in the evaluation and mapping. However, a desk search indicated multiple direct (i.e., one of the Partner HEIs had a bespoke 'Heath, Wellbeing and Disability' suite of policies), and/or concurrently aligned policies (pertaining to HR, EDI, Fitness to Study) at each of the Partner Institutions, which were of relevance to many core tenets of the 'whole-campus' approach to health (leadership/strategy/governance, campus environment, culture and communications, and personal/professional development of the campus population).



Table 21: 'Ecological Reach' potential of subset of campus services and supports.

Source#	Service	Cohort ~	Campus*	Behaviour (1)	Environment (2)	Relationships/ Role Modelling on Campus (3)	Core Structures (or investment in structural supports) to Alleviate Stress (4)	ERS
Mental Health								
DR	Student Health Service/Medical Centre	1	A, B, C	✓	✓		✓	7
DR	Student Counselling Service	1	A, B, C	✓	✓		✓	7
DR	Disability Support Service	1	A, B, C		✓		✓	6
DR	Chaplaincy Service	1,2	A, B, C	✓	✓		✓	7
DR	Online Self-Help Platform[a]	1,2[b]	A, B, C	✓	✓		✓	7
FG	Library: Bespoke Online Wellbeing Collection	1,2	A, B	✓	✓		✓	7
DR	Bespoke 24-7 Crisis Text Line	1	A, B	✓	✓		✓	7
DR	Student Online Peer-Support Listening Service **Notes:** night-time service ('Niteline')	1	C		✓	✓	✓	9
DR	Student Peer Support Programme	1	C			✓	✓	7
DR	Mindfulness Classes	1,2	C	✓	✓			3
DR	Employee Assistance Programme	2	A, B, C	✓	✓		✓	7
FG	Varsity Clubs & Societies **Notes:** this was suggested at FG for its benefits to social development and wellbeing	1	A, B, C	✓	✓	✓	✓	10
FG	Personal Development 'Digital Badge' Programme **Notes:** enables student to student support, specific content regarding mental health and wellbeing, bystander intervention, active listening, suicide awareness and drugs & alcohol)	1	C	✓	✓	✓	✓	10
DR	Digital Badges to Support Health and Wellbeing ('Everyday Matters', 'Your Brainpower')	1	C	✓	✓	✓	✓	10
FG	Designated Quiet Space for Students	1	C		✓		✓	6

Table 21: 'Ecological Reach' potential of subset of campus services and supports.

Source#	Service	Cohort ~	Campus*	Behaviour (1)	Environment (2)	Relationships/ Role Modelling on Campus (3)	Core Structures (or investment in structural supports) to Alleviate Stress (4)	ERS
Physical Activity (PA)								
DR	Multi-Purpose PA Facility **Notes:** site-specific cost structures Swimming Pool at Facility B & C	1, 2	A, B, C	✓	✓	✓	✓	10
DR	Varsity Sports Clubs	1	A, B, C	✓	✓	✓	✓	10
DR	Outdoor Sports Pitches	1	A, B, C	✓	✓	✓	✓	10
FG	Public Walking Route Accessible Around Campus	1, 2	A	✓	✓	✓		6
DR	Championing of Annual 'Marchathon/ Walktober' Initiatives **Notes:** these are national initiatives (TFI, Transport for Ireland), which are team-based walking challenges.	1, 2	A, C	✓	✓	✓		6
FG	Staff Sport & Social Club **Notes:** • Club B, athletics and recreational ad-hoc team sports (soccer) • Club C encompasses a variety of sport and social events • Nominal fees apply in both contexts	2	B, C	✓	✓	✓	✓	10
Sexual Health								
DR	Student Medical/Health Centre (STI testing, contraception, sexual health promotion and education) **Notes:** • Campus A: HEI subsidised free access to HEI sexual health nurse • Campus B: nominal fee of €10 • Campus C: Free screening for some STIs and access to at home screening tests	1	A, B, C	✓	✓		✓	7

Table 21: 'Ecological Reach' potential of subset of campus services and supports.

Source#	Service	Cohort ~	Campus	Behaviour (1)	Environment (2)	Relationships/ Role Modelling on Campus (3)	Core Structures (or investment in structural supports) to Alleviate Stress (4)	ERS
Sexual Health								
DR	Access to National 'Speak Out' Anonymous Disclosure Platform	1	A, B, C		✓		✓	6
FG	Annual Sexual Health, Awareness and Guide Week	1	A, B, C	✓	✓			3
FG	Sporadic visits of DASH Van (Drugs, Alcohol, & Sexual Health mobile unit, initiative of the Cork Local and Southern Regional Drug & Alcohol Task Forces, and Sexual Health Centre)	1	A, B, C	✓	✓			3
FG	Link to Self-Paced Bystander Intervention Training [c]	2 1,2	A C	✓	✓	✓	✓	10
Obesity								
DR	SU Student Nutrition Guide **Notes:** Link appears inactive		A	✓	✓			NA
DR	Food Environment: Traffic Light Labelling **Notes:** insights from FG suggest initiative no longer operational		C	✓	✓			NA
Drugs and Alcohol [d]								
DR	Student Health Service/Medical Centre	1	A, B, C	✓	✓		✓	7
DR	Student Counselling Service	1	A, B, C	✓	✓		✓	7
FG	Digital Badge Approved Personal Development Programme **Notes:** Focuses on 'student to student' assistance and intervention. Contains content regarding alcohol and drugs.	1	C	✓	✓	✓	✓	10

Table 21: 'Ecological Reach' potential of subset of campus services and supports.

Source#	Service	Cohort ~	Campus*	Behaviour (1)	Environment (2)	Relationships/ Role Modelling on Campus (3)	Core Structures (or investment in structural supports) to Alleviate Stress (4)	ERS
Tobacco Smoking								
DR	Student Medical/Health Centre (smoking cessation advice/services)	1	A	✓	✓		✓	7
Cross-Cutting Health/Wellbeing Resources and Services								
DR	Student Health Service/Medical Centre **Notes:** • Centre A = full-time students only, free consults (Medical Card Holders) or nominal fee • Centre B = nurse-led, nurse consults free • Centre C = free consults	1	A, B, C	✓	✓		✓	7
DR	Campus Health Promotion Entity Legacy model, not core funded at time of data collection) Legacy model, project workers, web-based resources	1,2 1,2	A, B C	✓ ✓	 ✓			1 3
DR	Student/Staff Resource 'Tree'	1, 2	C	✓	✓	✓	✓	10
DR	Staff Wellbeing Programme (resourced specifically within HR)	2	C	✓	✓	✓	✓	10
DR	Online Resource Hub and Social Media (collaborative programme)	1, 2	C	✓	✓	✓	✓	10

= Desk Research (DR) or discussed at Focus Group (FG); ~ 1 = students, 2 = staff; * each distinct letter represents a distinct regional campus (or collection of campuses) i.e., either UCC, MTU Cork, MTU Kerry; a = 'Silvercloud' self-help platform; b = Students & Staff at Campus A/B, Students at Campus C; c = Staff at Campus A, Students & Staff at Campus B; d = Sites A & B do not have bars on campus

4.1 Key Insights and Recommendations

The current research constitutes the first inter-institutional collaboration specifically designed to inform the implementation of the HEA Healthy Campus Framework at University College Cork (UCC) and Munster Technological University (MTU). The mixed methods design, which was informed by empirical work (Bickerdike et al., 2023), will enable future intra-institutional evaluation of health promotion action, in addition to localised monitoring of the core complement of population health indicators that are foci within the overarching 'Healthy Ireland' strategy.



The World Health Organization's (WHO) salutogenic perspective of health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" has endured since first encapsulated within the WHO Constitution in 1948. Wellbeing has also been posited as "a positive state experienced by individuals and societies. Similar to health, it is a resource for daily life and is determined by social, economic and environmental conditions." (WHO, 2021, p. 16). Health and wellbeing have permeated throughout strategic actions and discourse within the Irish higher education sector, underpinned by prominent HEA policy drivers such as the Student Mental Health and Suicide Prevention Framework (2020), and the Healthy Campus Framework (2021). A 2021 report commissioned by the Union of Students in Ireland (USI) and the National Forum for the Enhancement of Teaching and Learning in Higher Education (Byrne & Surdey, 2021) further substantiated the intricate alignments between wellbeing, student engagement and performance, and called for 'whole-of-institution' approaches to support student wellbeing. Whilst the direct impacts of settings-based health promotion to support wellbeing within HEI settings are inherently challenging to measure in the short term, the current research has served to yield intricate insights to guide the evolution of initial strategic 'Healthy Campus' objectives within each of the Partner Institutions.

4.2 Key Quantitative Insights

4.2.1 Student Survey

There was an over-representation of female respondents (69.5% of the sample), which aligns with previous research that indicated that female higher education students may be more likely to self-select to participate in survey-based research (Porter & Whitcomb, 2005). A similar over-representation of females was also observed in the Drug Use in Higher Education in Ireland Study [DUHEI] (60.2% vs 53.0% target proportion of female students per HEA data) (Byrne et al., 2022), and also in recent research conducted in MTU that employed a comparable cross-sectional design (Sheedy O'Sullivan et al., 2022).

However, a greater proportion of male students were within the highest wellbeing quartile, relative to both female and non-binary students (30.2% of males vs 20.9% of females vs 5.3% of non-binary students). Non-binary students also reported the least favourable self-perceptions of general health, recent sleep quality, and mental health. Previous literature has reported a high prevalence of mental health issues amongst non-binary higher education students, coupled with apprehension regarding violence, poor support, and misgendering treatment (Goldberg et al., 2019). The current findings further support the urgent rationale for participatory and co-creative approaches to ensure that all 'Healthy Campus' practices, policies, and aligned research studies are gender-sensitive and inclusive by design.

> **"Structural and capacity building supports for student cohorts experiencing socio-economic barriers to health should continuously serve as a fundamental priority"**

Wellbeing quartile distributions of students who reported living in designated student residences or another form of rented accommodation did not appear to differ from students who reported living with family or in their own home. Twelve students in the current sample reported being of 'no-fixed abode' of whom 41.7% were within the lowest wellbeing quartile. Given the design and context of the current research (i.e., convenience sample), it is probable that the actual proportion of students experiencing accommodation crises is under-represented. 'Shelter', 'education' and 'food' are explicit pre-requisites for health, as unequivocally articulated within the Ottawa Charter for Health Promotion (WHO, 1986). Healthy Campus entities should embody a truly ecological and systems-based paradigm to recognise the impact of socio-economic status, and particularly the extant 'cost-of-living' and accommodation crises on contemporary higher education students' health and wellbeing. Structural and capacity-building supports for student cohorts experiencing socio-economic barriers to health should continuously serve as a fundamental priority in any endeavours to implement the core tenets of the Healthy Campus Framework.

Whilst students' self-perceptions of 'general health' (GH) were predominantly favourable (76.4% rated GH as 'Good/Very Good'), concurrent parameters of concern were observed across multiple variables. Overall, 35.3% were calculated to be either 'overweight' (22%) or 'obese' (13.3%), whilst substantial proportions appeared to under-estimate BMI status. Only 20.5% of male students who were categorised as obese accurately identified this, whilst the remainder underestimated their BMI as either 'overweight' (72.7%) or 'normal weight' (6.8%). In terms of physical activity (PA), only 42.0% of the sample (52.4% of males, 38.6% of females, 31.6% of non-binary students) were classified as sufficiently 'active' (i.e., ≥30 minutes' PA on at least 5 days prior to data collection). As a surrogate indicator of dietary quality, it is pertinent to note that only 16.6% reported habitual consumption of five or more servings of fruit and vegetables per day. Interestingly, the majority (94.7%) reported consumption of their 'main' daily meal outside of the remit of the campus food environment. Students rated recent sleep quality less favourably than both 'general health' and 'mental health', and only 38.5% reported habitually attaining 7 or more hours of sleep on a typical weeknight.

One in three students (33.8%) were deemed to exhibit either an 'increased risk' (27.2%), 'high risk' (3.7%) or 'alcohol dependent' (2.9%) typology of alcohol consumption based on the validated AUDIT-10 instrument. Given the reported prevalence of both direct and indirect alcohol-related harm, there remains a need for 'whole-campus' approaches to address the socio-ecological determinants of hazardous drinking within contemporary HEI contexts in Ireland. In this regard, it would be prudent to draw upon intervention protocols previously published in Irish literature, such as the 'REACT' (Responding to Excessive Alcohol Consumption in Third-Level) (Davoren et al., 2018; Carey et al., 2015) programme. Cohesive implementation across all campuses of both MTU and UCC would serve to maximise regional impact.

Self-reported drug use amongst the current student sample was lower than the national DUHEI study (Byrne et al., 2022). In this regard, the reported prevalence of lifetime use of cocaine (15.3% of students in current sample vs >20% in DUHEI), ecstasy/MDMA (11.3% vs >20%), mushrooms (9.8% vs >10%), amphetamines (5.5% vs ~10%), and ketamine (7.3% vs >15%) was lower than DUHEI. However, this is most likely attributable to a combination of both response bias (whereby students who elected to engage with the survey were less likely to use recreational drugs), and/or social desirability bias due to concerns regarding anonymity or perceived repercussions of reporting.

The most prevalent stressors reported by students were intrinsically related to either the delivery or assessment of academic programmes, which is consistent with previous observational research conducted at MTU (Bickerdike et al., 2019; 2023). In terms of mental wellbeing, the World Health Organisation-5 (WHO-5) scale exhibited high internal consistency (Cronbach's Alpha 0.87), amongst the current sample of students. On the six-point Likert scale for each of five items, it was concerning that 15.8% selected 'at no time', when asked to consider how frequently they had woken up 'feeling fresh and rested' during the two weeks' prior to data collection.

Cross-tabulation analysis of WHO-5 score quartiles highlighted notable preliminary patterns between habitual lifestyle behaviours, health parameters, socio-demographic contexts, and mental wellbeing. For example, higher proportions of students who were calculated to reside within either the 'underweight' and 'obese' BMI ranges were also within the lowest WHO-5 wellbeing quartile (38.2% and 33.1% respectively, versus 25.3% of students with 'normal weight'). This pattern was somewhat more pronounced for self-perceived BMI category, whereby 42.2% of students who self-identified as 'underweight', and 43.2% who identified as 'obese' were within the lowest wellbeing quartile (relative to 23.4% of students who identified as 'normal weight'). Intricate associations between psychological wellbeing, dietary behaviours, and BMI have been previously established in international literature (Cedillo et al., 2023). Whilst the cross-sectional design precluded any assessment of causality, the current data substantiate the rationale for initiatives and interventions that support students to engage in behaviours that support the maintenance of a healthy body mass. In alignment with the 'whole-campus' paradigm, such interventions should consider (i) the strategic governance of campus food environments, (ii) the impact of campus cultures on sedentary behaviours, in addition to (iii) the design, implementation, and evaluation of capacity building educational initiatives that would serve to enhance students' awareness of risk-related BMI metrics.

More favourable wellbeing distributions (as indicated by the proportion of students within the highest wellbeing quartile [Q4]), were observed amongst students who:

I. Were deemed 'physically active' (32.7% in Q4 vs 13.1% of inactive students)

II. Participated in sport (30.2% in Q4 vs 20.2% of students who did not participate in sport)

III. Consumed ≥5 servings of fruit and vegetables per day (32.4% in Q4 vs 20.9% of students who consumed <5 daily servings)

IV. Exhibited a 'low risk' drinking typology (25.5% in Q4 vs 15.2% of those who were 'high risk' drinkers)

V. Had never smoked (26.2% in Q4 vs 13.2% of smokers)

VI. Did not use vapes (25.8% in Q4 vs 13.3% who reported using vapes)

VII. Reported 'Good/Very Good' sleep quality (42.0% in Q4 vs only 3.4% of those whose sleep quality was 'Poor/Very Poor')

VIII. Reported ≥7 hours sleep duration during typical weeknights (31.8% in Q4 vs 17.1% of those who slept <7 hours)

In terms of drug use, students in the highest wellbeing quartile (Q4) reported a lower lifetime use prevalence across all listed substances. Furthermore, there were notable discrepancies in the prevalence of all listed stressors in the current study (**Table 10**), whereby stress was consistently lower amongst students in the highest wellbeing quartile (Q4), relative to students in the lowest wellbeing quartile (Q1).

4.2.2 Staff Survey

Given the well-established paucity of data pertaining specifically to HEI staff, quantitative empirical insights are critical to ensure that Healthy Campus initiatives are tailored appropriately to maximise staff engagement and impact (Bickerdike et al., 2023). Overall, 61.9% of the current staff sample were aged ≥45 years, which suggests that age-related health profiles, self-perceptions, core-values, and life perspectives are likely to differ from HEI students. From a pragmatic perspective, the current data indicate that such approaches would be perceived favourably by staff (84.7% of staff reported that they would welcome the implementation of the Healthy Campus Framework). Moreover, substantial proportions of staff (irrespective of gender) reported that they would welcome initiatives/supports pertaining to specific health-related issues such as menopause (64.6%), testicular cancer prevention (50.7%), pregnancy loss (45.7%), and breastfeeding (41.7%). Interestingly, a greater proportion of staff aged ≥45 years were within the highest wellbeing quartile (24.2% of those aged 45-54 vs 13.7% of those aged 35-44). Given the intricate association between subjective wellbeing and health (Steptoe et al., 2015), further investigations are particularly warranted amongst younger staff cohorts to inform the design of tailored interventions and supports.

Whilst entirely speculative, it is possible that lower levels of wellbeing amongst younger staff may be attributable to concurrent 'life-stage' determinants (such as childcare and socio-economic stressors), in addition to stressors associated with lower perceived job security in the contemporary higher education sector. In a general context, precarious employment within the higher education sector in Ireland has gained increased prominence in sectoral discourse. A 2023 report, published by the Irish Federation of University Teachers (2023), outlined that 36% of participants were in precarious roles, which contributed towards considerable stress attributable to job insecurity, and associated socio-economic impacts (IFUT, 2023). In the current sample however, a high proportion (76.6%) of survey respondents were permanent staff, and only 1.3% were employed on a casual or hourly-paid basis. However, the proportion of permanent staff in the highest wellbeing quartile (Q4) was higher than the proportion in the lowest quartile Q1 (80.8% vs 75.0%).

The current sample of staff exhibited markedly favourable perceptions of both 'General Health' (GH) and 'Quality of Life' (QoL) (86.0% and 90.5% rated GH and QoL as 'Good/Very Good', respectively). Concurrently, however, somatic symptomatology appeared more prevalent in the current study, relative to the previous study conducted by Bickerdike et al. (2022) amongst 279 staff at the 'former' CIT (i.e., 'back/neck pain': 66.6% in current sample vs 33.5% pooled prevalence of lower back/neck pain in previous work of Bickerdike et al.). Whilst beyond the direct scope of the current study, it is pertinent to note that somatic symptoms may constitute complex and intricate co-morbidities that manifest alongside psychological stress (Glise et al., 2014). Moreover, the two most predominant 'stressors' reported by the current sample of staff were work-related ('workload' [59.5%] and 'pressure to work outside of normal hours' [33.3%]), followed by 'family situation' (32.1%).

Only 51.5% of staff rated recent sleep quality as 'Good/Very Good', and 44.8% reported a habitual sleep duration of ≤7 hours on a typical week night. The intricate impacts of the higher education environment on sleep and circadian rhythms has been previously acknowledged (Bickerdike et al., 2023). The health-related outcomes of disrupted sleep are well established, and include an adverse upregulation of the stress response, depression, anxiety, and an increased cardio-metabolic risk (Medic et al., 2017). Further to this, disrupted sleep has been posited as a risk factor for cognitive decline, dementia, and Alzheimer's Disease (Spira et al., 2014). Healthy Campus initiatives should adopt a 'whole-campus' paradigm to consider the cultural, environmental, and behavioural determinants of sleep amongst both student and staff cohorts.

Similarly to patterns observed amongst the student cohort, there were multiple health indicators of concern exhibited by substantial proportions of staff across key health-related domains (physical activity, obesity, nutrition, and alcohol consumption), and the distribution of health and wellbeing parameters/behaviours appeared to vary across wellbeing quartiles. Of note, only 56.7% of staff were categorised as sufficiently 'active', and 24.3% reported participation in sport. The prevalence of overweight/obesity was 51.8%, and the majority (74.8%) of staff reported daily consumption of <5 servings of fruit and vegetables. Whilst lower than the student cohort, 13.8% of the staff sample exhibited a risk-related drinking typology (11.7% categorised as 'increased risk', 1.9% as 'high risk', and '0.2%' as 'alcohol dependent').

Whilst the direction of association cannot be determined in the current cross-sectional design, it appeared that higher proportions of staff within the most favourable wellbeing quartile also exhibited healthier characteristics across multiple health and wellbeing parameters, including:

I. Physical activity status: 26% of 'active' staff were in highest wellbeing quartile (Q4) vs only 6.3% of inactive staff

II. BMI: higher proportions of staff who were 'underweight' or 'obese' were in the lowest wellbeing quartile (40% and 37.5%, respectively), relative to staff with 'normal weight' (23.1%)

III. Sleep: 33.1% of staff with 'Good/Very Good' sleep quality were in Q4 versus 3.6% of staff with 'Poor/Very Poor' sleep quality

IV. Tobacco smoking: 23.8% of non-smokers were in Q4 vs 16.5% of current smokers

V. Self-rated mental health: 27.2% of staff with 'Good/Very Good' mental health were in Q4, vs only 0.7% of those who rated mental health as 'Neither Good nor Poor', and 0.0% of those who rated mental health as 'Poor/Very Poor'

4.3 Key Qualitative Insights

Focus group discourse re-enforced the critical role of University Management in the advocacy and meaningful implementation of the Healthy Campus Charter and Framework. Similarly to the organisational role-modelling effect reported in recent research (Bickerdike et al., 2023), the current cohort of focus group stakeholders emphasised how Senior Management created the latent cultural norms that permeated throughout University departments. Therefore, it is imperative that Healthy Campus initiatives, metrics, and activities are continuously reported to Senior Management, and that the potent role modelling effect of Senior Management Champions can be leveraged.

From a policy perspective, both the ecological reach mapping (Section 3.2.2) and focus group discourse indicated the need to more explicitly identify opportunities to communicate how the broader complement of University policies, extraneous to the HEA Healthy Campus Framework itself, can serve to support health and wellbeing. The relatively siloed nature of thematic policies, and the lack of lateral consistency and/or cross-referencing between policies was articulated by one focus group participant, who described how **"... a lot of things become orphans almost because they're launched in kind of a blaze of glory and are very important for one area. But another area may not understand its importance to it" [P7A]**. Therefore, it would be prudent to prioritise more comprehensive intra-institutional policy mapping at local level within each Partner Institution, which would identify opportunities to explicitly embed a consideration for health and wellbeing at next review, and/or to develop internal cross-function collaborations to support health and wellbeing.

As outlined in Sections 4.2.1 and 4.2.2., the quantitative strand of the current research revealed a concerning prevalence of overweight and obesity (35.3% amongst students, and 51.8% amongst staff). Focus group participants expressed dissatisfaction with specific constructs within the campus food environment, particularly the greater availability and cheaper cost of highly processed and calorific food items. A perceived lack of investment in healthier dietary options or viable infrastructure to enable the preparation/consumption of food brought from home were also noted. It is evident that comprehensive assessment of campus food environments should constitute a fundamental 'Healthy Campus' strategic priority. Given the magnitude of HEIs, and the frequency of dietary choices made therein, such an approach would constitute a prudent strategy to positively impact the nutritional status of substantial cohorts of students and staff.

Worryingly, a normative culture of pervasive stress was described during the focus groups. In alignment with previous work (Bickerdike et al., 2023), it appeared that high workloads, semesterised timelines, and resource constraints within the contemporary higher education sector negatively impacted the health and wellbeing of staff. Further, both space and service constraints attributable to increased student numbers were articulated as direct stressors, in addition to constituting possible pragmatic barriers to the implementation of the Healthy Campus Framework. Given the inherent cultural and structural issues described, it is imperative that the implementation of the Healthy Campus Framework gives due consideration to addressing such issues, which may otherwise serve to undermine the spirit and future success of the framework. Moreover, in addressing space and service constraints, it would be prudent to explore untapped opportunities, such as leveraging the surrounding natural environment to enhance the physical and mental health of staff and students.

In terms of campus communications, a cultural reliance on email communications was described, and emails were considered a sub-optimal mechanism of communication. Healthy Campus entities should therefore develop and implement multi-modal and innovative communication strategies to enable greater engagement amongst campus populations. In this regard, aligned frameworks such as the 'Universal Design for Learning' (UDL) should be consulted to ensure that communications enable multiple means of engagement, particularly amongst neurodiverse students and staff.

Finally, participants acknowledged the positive impact of an operational staff wellbeing programme at one Partner Institution, and various staff social activities across both institutions. However, the lack of a designated health service for staff was noted as a distinct structural gap in service provision, and the limitations of outsourced Employee Assistance Programmes (EAPs) were also articulated. Whilst constrained to a pilot review of a subset of services, ecological reach mapping was indicative of a greater volume of designated health supports and services for student cohorts, relative to staff.

> **"Worryingly, a normative culture of pervasive stress was described during the focus groups"**

4.4 Limitations and Interpretive Considerations

This research has yielded critical insights from samples of students and staff at both UCC and MTU. The mixed methods study design will serve to inform strategic 'Healthy Campus' priorities at each respective institution. Moreover, the use of replicable web-based questionnaire instruments and qualitative guides will also enable future waves of data collection, and repeated cross-sectional analyses of key health indicators amongst cohorts of students and staff.

However, the current data should also be interpreted in the context of methodological limitations that may impact upon the generalisability of findings. Firstly, the convenience sampling approach implemented in the quantitative strand appeared to yield samples within which females were over-represented. In addition, the possibility of both response bias and social desirability bias cannot be excluded, and they may have impacted the validity of data pertaining to behaviours such as recreational drug use amongst students, and/or alcohol consumption patterns amongst staff. Timeline constraints logistically restricted elements of the qualitative strand, and therefore it was not possible to conduct local focus groups on all six campuses of MTU. Finally, the Ecological Reach Mapping (ERM) method was merely intended to explore the potential impact of a subset of campus supports, facilities, and/or services on established ecological determinants of health and wellbeing within HEI settings. Whilst the potential ecological reach score assigned to many mapped entries was high, this metric did not account for the 'actual' status of a specific initiative/service/resource (i.e., whether it was active, dormant, obsolete), and/or its financial sustainability.



4.5 Key Recommendations

The current novel collaboration has highlighted both opportunities and challenges that should be considered prior to the implementation of the HEA Healthy Campus Charter and Framework at UCC and MTU. From a pragmatic perspective, this research has exemplified the principle of partnership, and has leveraged inter-institutional synergies to implement complex strands of data collection across multiple campuses. Key policy, practice, and research recommendations arising from this work are outlined below.

4.5.1 Policy and Practice

1. The ecological mapping exercise highlighted legacy campus health promotion entities at both UCC and MTU. However, there is a need for renewed institutional resourcing of the implementation of the Healthy Campus Framework at each institution.

2. Initial foci should centre around (i) resourcing viable intra-institutional operational structures through which to sustain Healthy Campus activities, and (ii) developing cohesive Healthy Campus Strategic Action Plans at each institution. The Strategic Action Plans should specifically acknowledge, and signpost to, the extant complement of policies at each institution that concurrently impact upon facets of health and wellbeing.

3. Healthy Campus Strategic Action Plans should recognise the impact of socio-economic barriers to health and wellbeing. Cross-sectoral partnerships are required to advocate for equity, and to enable students and staff in critical need of supports to access same in a timely manner.

4. The current quantitative data indicate macro-level associations between traditional 'key' health domains (physical activity, BMI, nutrition, alcohol consumption, substance use [assessed amongst students only], sleep, and mental wellbeing). Healthy Campus structures should, therefore, encompass thematic working groups to examine key health areas holistically, and through a 'whole-campus' lens.

5. Comprehensive assessment of, and evidence-based interventions to support healthy dietary choices within, campus food environments are warranted.



6. Given the robust infrastructure available within each institution, in addition to the evident association(s) between physical activity and wellbeing amongst both students and staff, embedding a culture of physical activity should constitute a core thematic priority. This could also serve as a potent initial mechanism of 'high-visibility' implementation of the Healthy Campus Framework at both institutions.

7. Nurturing internal partnerships and increasing engagement with existing campus facilities, interventions, and resources should be prioritised in the first instance. This will reduce the risk of excessive proliferation of siloed and time-limited 'de-novo' initiatives.

8. Healthy Campus initiatives and activities should be co-created with target beneficiaries. Communications should be via multiple methods, such as regular 'Townhall' disseminations and leveraging of media-rich communication channels.

9. HEIs constitute prominent workplaces, and therefore Healthy Campus strategies and actions should encompass an equitable consideration for staff in this regard.

10. Overall, the current findings are indicative of the need to embed 'Healthy Campus' initiatives directly within academic curricula and/or the 'core' working day.

11. Continuous engagement and collaboration with stakeholders such as the HEA Healthy Campus Network, HSE Colleagues within Cork-Kerry Community Healthcare, and local community agencies will serve to increase impact and transfer of the current empirical data to practice.

12. Specific consultation with representatives from the complement of campus services/ supports highlighted in the current Ecological Reach Mapping exercise should be prioritised in the first instance. This will serve to engage potential collaborators and internal partners at the outset.

4.5.2 Future Research

1. In alignment with previous calls for greater national cohesion in the monitoring of key health indicators amongst campus populations (Bickerdike et al., 2023), the current collaboration further substantiates the rationale for a designated national 'Healthy Campus' research strategy. Such a strategy should encompass both process and outcome indicators, and it could be formally aligned with the HEA Healthy Campus Network.

2. The quantitative student/ staff survey instruments should be disseminated every new 4-year academic cycle within each institution. This will enable repeated cross-sectional studies, and the ongoing monitoring of socio-demographic profiles and health indicators. Future waves should consider more intricate sampling strategies (such a probability proportional to size sampling), and/or the application of statistical weightings to increase generalisability of findings.

3. It is imperative that future waves of qualitative data collection aim to capture perspectives from all campuses and stakeholders. Participatory research paradigms should be employed.

4. All future research activities aligned with 'Healthy Campus' activities should adopt multi-modal recruitment strategies, incorporating both digital and traditional (i.e., 'in-person' recruitment) methods. Where possible, in-person recruitment of student participants could be embedded within student induction programmes, which would also serve to increase students' awareness of Healthy Campus entities and initiatives.

5. Embedding a designated research strategy within intra-institutional Healthy Campus Action plans will create opportunities to implement health-enhancing research interventions that inherently align with a multitude of UN Sustainable Development Goals. Innovative, inclusive, and multi-component physical activity (PA) interventions are particularly warranted, to further explore and map the complex relationship between PA and wellbeing. Gender-specific 'champions' and role models should also be considered to increase participation and engagement amongst male students and staff.

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