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Recommendations for a 'Wellbeing Curriculum' to Mitigate Undergraduate Psychological Distress Associated with Lack of Careers Confidence and Poor University Engagement

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Abstract

To foster a 'wellbeing curriculum' in a climate with an increasingly competitive graduate jobs market, we believe it is critical to support undergraduate career development and to develop positive peer and educator relationships, particularly for non-vocational degree programs. However, these relationships between undergraduate wellbeing and their career development or peer/educator relationships have not been specifically examined. This study used a mixed methods approach to examine if poor career development or university engagement (quality of relationships with peers or educators, use of the university careers and counselling services, time studying) were associated with psychological distress for students in non-vocational degree programs. Undergraduates (biomedical science; n=1100) from five Australian universities participated in a survey to investigate relationships between psychological distress, as determined by their responses to the Depression, Anxiety and Stress Scales, and their career development or university engagement. Almost half of the students lacked confidence in their 'future employment and job prospects'. Students' psychological distress was significantly correlated with lack of confidence with their career development, poor relationships with their peers and educators and little use of the counselling service. Further exploration of these factors in student focus groups highlighted stress associated with academic competition between students and a critical need for undergraduate career development, especially industry placements. We provide pivotal recommendations to promote undergraduate and educator wellbeing, by developing a 'wellbeing curriculum' that supports career development and positive relationships between students and their peers and educators, particularly vital for non-vocational degrees.

Keywords: wellbeing, undergraduate, career development, engagement

1. Introduction

University students are increasingly experiencing poor wellbeing, with significantly higher levels of mental health issues than age-matched people from the wider community (Hernández-Torrano et al., 2020; Larcombe et al., 2016; Locke et al., 2012). The psychological wellbeing of university students further deteriorated during the COVID-19 pandemic, particularly with the isolation and anxiety of remote learning (Dodd et al., 2021). Prior to the pandemic, research demonstrated that undergraduate psychological distress was significantly correlated with the academic and time pressures of university study, too much time spent caring for family, extensive workforce participation or little time engaged with studying (Larcombe et al., 2016; Said et al., 2013). As students experiencing psychological distress and associated poor mental health can adversely affect their peers and their university teaching staff, it is imperative that we understand factors that contribute to undergraduate

psychological distress, so appropriately targeted support can be provided (Riva et al., 2020).

Self-determination theory (SDT) provides a framework to investigate factors that contribute to undergraduate psychological distress (Deci and Ryan, 2000). According to SDT, relatedness, competence and autonomy are core conditions for psychological wellbeing. These core conditions of SDT have been applied to career development, with psychological wellbeing associated with career relatedness (social interactions and connections in career situations), career competence (capabilities and skills for effective career development) and career autonomy (career interest and self-identity, career decision making; Chen, 2017). Previous studies support an interrelationship between engagement with career development and students' psychological wellbeing (Zunker, 2008), with undergraduate career indecision and negative attitudes to careers linked to depression (Walker and Peterson, 2012), and anxious students less likely to engage with their career development (Deer et al., 2018). However, correlations between undergraduate career development and their psychological wellbeing have not been specifically investigated. Providing clarity about career pathways and engaging students with their career development is particularly important for students undertaking non-vocational degree programs, as they do not lead to a specific occupation, rather prepare graduates for diverse career options (Forster and Bol, 2018). Students in these non-vocational programs, such as biomedical science, arts and psychology, experience high levels of stress and anxiety which are likely to be associated with uncertain career pathways (Larcombe et al., 2016; Strapp et al., 2018). This present study therefore focussed on investigating correlations between career intentions, career development and psychological distress for undergraduates from 'non-vocational' biomedical programs.

The 'relatedness' component of self-determination theory, or the development of positive relationships in the university teaching and learning environment, helps students to develop a sense of community, feelings of belonging and supports their wellbeing (Cicognani et al., 2008; Gillen-O'Neel, 2019). The social connections with friends and staff (academics or faculty) are considered the most important factor for students' sense of belonging at university (Van Gijn-Grosvenor and Huisman, 2020), with negative peer relations and feelings of not belonging predictors for undergraduate psychological distress (Larcombe et al., 2021). Undergraduates will therefore experience wellbeing in university environments that foster student engagement, or involvement with activities that support their learning and an environment that encourages relationship-building and achievement (Coates and McCormick, 2014). We thus investigated correlations between the quality of the relationships with peers or teaching staff and psychological distress for undergraduates. We also included student use of the university careers and counselling services and time spent studying as aspects of university engagement. As with career development, correlations between these aspects of students' engagement and their psychological wellbeing have not been explicitly examined.

The aim of this study was to determine if careers uncertainty, lack of confidence in career development and poor university engagement correlated with psychological distress for undergraduates in non-vocational degree-programs. Aligning with the research literature on undergraduate mental health, psychological distress was defined as 'severe' or 'extremely severe' symptoms of depression, anxiety and stress for the Depression, Anxiety and Stress Scales (DASS; Lovibond and Lovibond, 1995). Students' career intentions after graduation, their confidence with their career development and their university engagement were investigated using an anonymous survey. Relationships between these factors and students' self-ratings of their psychological distress levels were established. Key outcomes of these quantitative data informed the questions for student focus groups. We sought to determine if unclear career pathways or poor student engagement contributed to undergraduate psychological distress, and thus to provide recommendations for appropriate support pathways for students. This support of student wellbeing is essential to enable universities to achieve their core mission of providing students with high-quality educational experiences.

2. Method

2.1 Participants and Context

This study involved Bachelor of Biomedical Science students from five Australian universities. The different university student cohorts ranged in size from 90-550 across each year level of the three-year degree programs. One university was excluded from the analysis of the quantitative survey data due to a poor survey response rate (10%). This university was, however, included in the qualitative analysis (focus groups).

2.2 Research Design

A mixed methods approach was used for this research, with quantitative (student survey) and qualitative data (student focus groups). The student survey contained questions and statements about demographics and career development. It was administered electronically via their online learning system through an embedded link. The

survey was housed on Survey Monkey and the responses were anonymous. Students were invited to complete the survey early in the 2017 academic year. Fifty-dollar gift vouchers were offered through a random draw, one for each participating university. Data were pooled across universities to determine factors affecting the wellbeing of all biomedical science students, rather than comparing factors across participating institutions.

2.2.1 Student Survey Part 1: Demographics, Careers and University Engagement Statements

Demographic information collected included participant age, international/domestic student, year level and the average hours per week spent studying. Career intentions (after graduation from biomedical science) were evaluated by asking students to rank their top career priorities (from 1-5) from a list of ten career outcomes. Career awareness and careers confidence were investigated through eight career development statements, answered with a five-point Likert scale from strongly disagree to strongly agree. These statements were used in previous undergraduate careers publications (Choate et al., 2019). The university engagement statements used were from the Australasian Survey of Student Engagement (Coates, 2009). For analysis of these Likert scale data, responses were allocated the relevant ordinal values from 1 to 5 or 7, then a non-parametric Kruskal-Wallis H test (i.e. one-way ANOVA on ranks) was used to determine if there were statistically significant differences between large and small cohorts for each statement.

2.2.2 Student Survey Part 2: Psychological Distress

Students' forms and levels of psychological distress associated with negative mental health were measured using the 21-item Depression, Anxiety and Stress Scales (DASS; Lovibond and Lovibond, 1995). DASS assesses the severity of symptoms associated with three 'scales', depression, anxiety and stress, for the week before the students complete the survey. The scores on the DASS scales were calculated and collated into five severity categories that indicate the level of relevant symptoms for depression, anxiety and stress (normal, mild, moderate, severe and extremely severe). DASS scores for each severity category were calculated for each scale according to the protocols in the DASS manual (Lovibond and Lovibond, 1995); students with scores in the severe to extremely severe range were considered 'psychologically distressed'. Survey respondents were excluded from a DASS scale if they had not completed all of the statements for a scaling (as all statements are required for the calculations). Information about counselling and support services available to students experiencing mental health difficulties was included in the Explanatory Statement and repeated during the survey, regardless of how they responded.

2.3 Survey Analysis: The Relationships between Psychological Distress and Career Confidence or University Engagement

A series of logistic regression models was used to determine associations between students' responses to the university engagement statements, their top career intention, demographic factors and their self-ratings of psychological distress (i.e. DASS scale score). The regression models were informed by the quantitative student survey results. We report estimated odds ratio(s) with a 95% confidence interval and a p-value for a test of the null hypothesis that the true odds ratio is one. To test the relationship between students' responses to the eight career statements and their severity category of psychological distress a series of pairwise two-proportion Z-tests was conducted to compare the proportions of students indicating agreement with a particular career statement, across three severity category levels for each DASS scale.

2.4 Qualitative Data: Student Focus Groups

To further explore the key results that emerged from the initial student survey, facilitated student focus group discussions were conducted by a research assistant. The focus groups had these starter questions:

What are your experiences of the cohort?

What are your current career intentions?

What are your experiences of the University Careers Service?

What do you think the university can do to support your career development or wellbeing?

Audio recordings of the focus groups were transcribed verbatim by a commercial provider. Two research assistants independently thematically analysed the transcripts, using a systematic approach involving data familiarisation, coding, theme development and review (Braun and Clarke, 2006). Following the initial coding process, researchers had an iterative discussion to reach a consensus on the codes and to categorise them into themes.

2.5 Analysis Software and Ethics

SPSS (version 25) was used for data and statistical analysis. Excel (2010) was used for graphing. For inclusion in the analysis, survey respondents needed to complete at least one DASS scale in full and answer at least 75% of all survey questions. This project was approved by the Monash University Human Research Ethics Committee and ratified by the Human Research Ethics committees of the other four participating institutions.

3. Results

3.1 Survey Response Rates and Participants Characteristics

The total student survey response rate for the four universities included in the quantitative analysis was 29% (of the total enrolled students), with individual university response rates of 18%, 24%, 33% and 43%. There were 1100 completed surveys received from students of these four universities. The demographic characteristics of the analysis sample aligned with that for the total cohorts and are summarised in Table 1.

Table 1. Demographic information for survey respondents (n=1100)

Variable	Category	%
Age group	<20 years old	56
	20-21 years old	35
	22+ years old	9
Gender	Female	63
	Male	36.5
	Other	0.5
Year level	1st year	40
	2nd year	30
	3rd year	30
Average time spent on study per week	<5 hours	4
	5-9 hours	15
	10-14 hours	30
	15-19 hours	22
	>19 hours	29

3.2 Students' Top-rated Career Intentions

The most common top-ranked career intention was graduate medicine at 59%. Graduate studies in allied health, entering the workforce and research (honours then PhD) were the next most common top-ranked career intentions, albeit with much lower values. These findings were similar between the students in years 1, 2 and 3 of the degree programs.

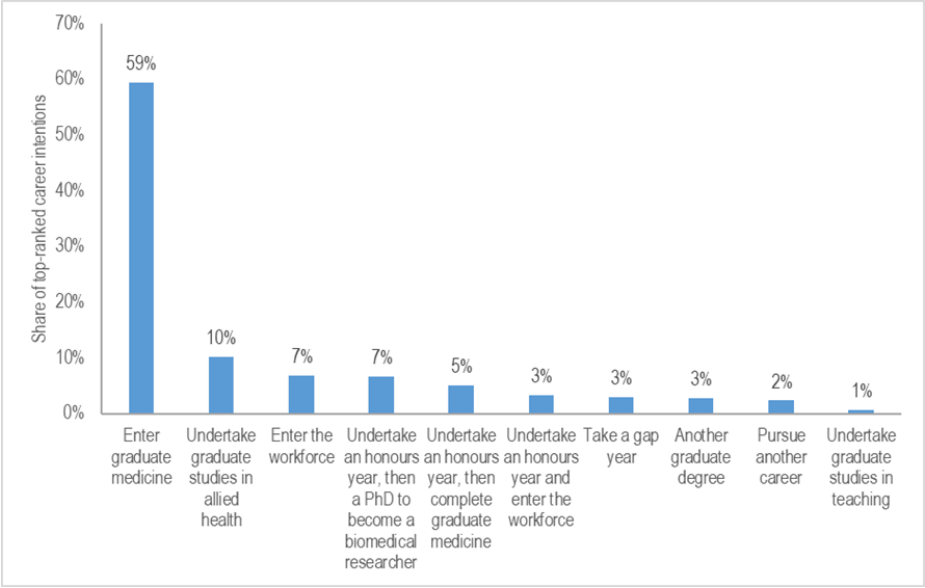

Figure 1. Students top-rated career intentions (n=1100)

3.3 Students' Careers Confidence

Two-thirds of students agreed that they knew what was required of them to pursue a career of their choosing after graduation (67%; statement 1 in Table 2), with slightly fewer agreeing that their degree would provide them with all the skills and knowledge they needed to gain employment in their chosen field (58%, statement 2). About half of the students agreed with statements 3-7. Students were least confident about their future employment prospects (39%; statement 8). When the responses to the career statements were compared across the year levels, there was a significant increase in careers confidence for year three students ($p < 0.01$ statements 1, 4 and 5 for year 3 versus year 1 or 2).

Table 2. Student agreement rates for the career statements (n = 999)

Career statement	% Rated agree & strongly agree
1. I know what is required of me to pursue a career of my choosing after graduation	67
2. I believe that my degree will provide me with all the skills and knowledge I require to gain employment in my chosen field at the end of my degree	58
3. I am aware of the career options available to me after I complete my degree	56
4. I am certain of what career path I want to pursue when I graduate from Biomedical Science	54
5. I know how to develop experience and skills in preparation for my career	49
6. I am confident of my ability to communicate my current skills, knowledge and abilities to potential employers	49
7. I am confident of my ability to independently manage my career development	47
8. I am confident about my future employment and job prospects (after graduation)	39

3.4 Student Engagement (Relationships with Peers and Educators, Use of University Careers and Counselling Services)

Most students (64%, Figure 2) found other students at their university friendly and supportive, whereas only half (53%) considered their teaching staff to be available, helpful and sympathetic. Two of the smaller cohort universities (< 200 students in each year level) had significantly higher ratings for the statement, "quality of your relationships with your teaching staff" than the larger cohort universities (> 400 students in each year level). Notably, very few students had used the careers (8%) or counselling (6%) services.

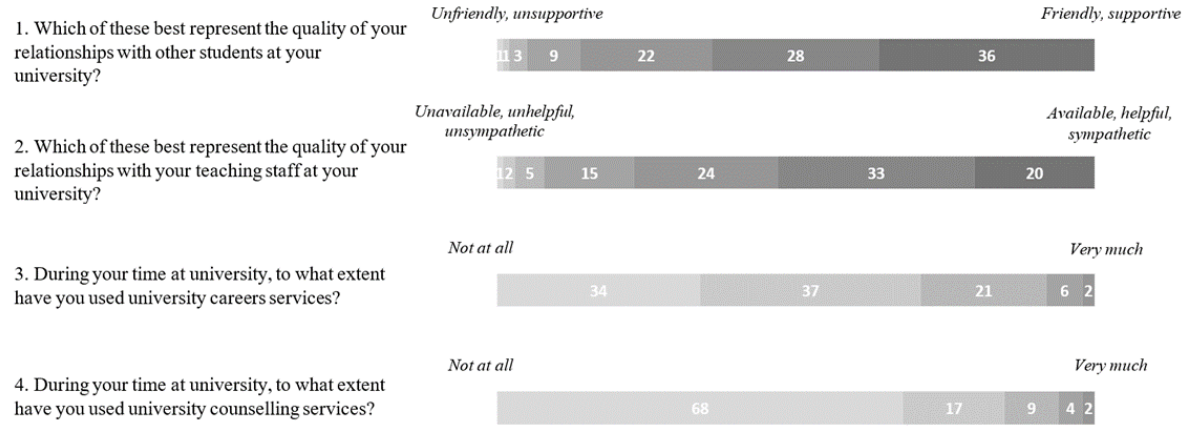

Figure 2. Student responses to university engagement statements. Data represent the percentage of students responding at each point on a 7- point (statements 1 & 2) or 5- point (statements 3 & 4) Likert scale. The specific extremes are shown for each response scale (n = 983)

3.5 Factors Associated with Psychological Distress

Severe or extremely severe categories for depressive symptoms, stress and anxiety were reported in 14%, 13% and 20% of the survey respondents, respectively. Logistic regression analysis was used to examine associations between students' self-rated psychological distress and their level of university engagement (quality relationships with peers or teachers, use of the careers or counselling services, hours of studying), the top career intention of graduate medicine, as well as age and year level (see table 3). Odds ratio for the effects were generated, with a

positive (>1) or negative (<1) association. Students who studied less than 5 hours per week were 3.092 times more likely to self-report severe or extremely severe depression than those who studied 10-14 hours per week (table 3). In contrast, students who had quality relationships with their teachers were less likely to report severe or extremely severe depression (than students with poor quality relationships with their teachers), with an odds ratio of 0.511. There were further negative associations between students' self-rated psychological distress and quality relationships with fellow students (severe depression or anxiety), use of the counselling service (severe depression and anxiety) and with graduate medicine being a top career priority (severe anxiety).

Table 3. Logistic regression models for factors associated with severe or extremely severe depression, anxiety or stress

	Dependent variables (odds ratios)		
Category	**Depression**	**Anxiety**	**Stress**
Age <20 years old	1.726	1.058	1.833
Age 20-21 years old	1.515	1.318	1.468
Year 2	0.783	0.854	1.046
Year 3	1.878	0.925	1.720
Study <5 hours per week	**3.092***	**3.042***	1.993
Study 5-9 hours per week	0.660	0.937	0.451
Study 15-19 hours per week	0.714	1.165	0.803
Study >19 hours per week	0.625	1.073	1.221
Quality relationship with students	**0.428***	**0.655***	0.744
Quality relationship with teachers	**0.511***	0.723	0.663
Used the university careers service	1.331	1.388	1.509
Used the university counselling service	**0.573***	**0.454***	0.625
Graduate medicine top-rated career intention	0.658	**0.647***	0.959
Observations (n)	823	822	823
Pseudo R-squared	0.069	0.048	0.038

*Notes: Logistic regression analysis (odds ratios). Dependent variables are defined as severe or extremely severe (1) and normal, mild or moderate (0) depression, anxiety or stress. For each dependent variable, a reference category of the group expected to be at lowest risk for severe or extremely severe depression, anxiety and stress was chosen, against which other categories within each variable were compared. These omitted reference categories are: age >21 years old; year 1; study 10-14 hours per week; poor quality relationship with students; poor quality relationship with teachers; not using the careers or counselling service; graduate medicine not the top-rated career intention. Quality relationship with students and teachers was defined as a self-rating of 6 or 7 on a scale from 1 (Unfriendly, unsupportive, Sense of alienation) to 7 (Friendly, Supportive, Sense of belonging). For each other category, the odds of reporting severe or extremely severe DASS scores were then compared with the odds for the reference category. Bolded text, * = $p < 0.05$.*

To evaluate the relationship between students' confidence in their career development and their psychological distress, pairwise two-proportion Z-tests were used to compare the proportions of students indicating agreement with a particular career statement, across three severity categories of each DASS scale. Students with psychological distress (severe or extremely severe) were less likely to agree with the career statements, relative to students with normal and mild, or moderate levels of depression, anxiety or stress (see table 4).

Table 4. Relationship between students agreeing with the career statements and the Depression, Anxiety and Stress severity categories

CAREER STATEMENT	DEPRESSION			ANXIETY			STRESS		
	+	++	+++	+	++	+++	+	++	+++
	(% agreeing or strongly agreeing with career statement)								
1. I know what is required of me to pursue a career of my choosing after graduation	70.4	64.8	**52.9***	68.5	69.9	**58.9***	67.5	64.2	65.1
2. I believe that my degree will provide me with all the skills and knowledge I require to gain employment in my chosen field at the end of my degree	60.0	**43.6***	**37.1***	58.5	**49.7***	**43.8***	57.6	**45.5***	**41.9***
3. I am aware of the career options available to me after I complete my degree	53.0	**41.8***	**40.0***	51.7	49.1	**41.7***	51.9	**41.5***	**41.9***
4. I am certain of what career path I want to pursue when I graduate from Biomedical Science	58.5	53.9	**43.6***	56.1	58.4	51.6	55.7	52.8	58.1
5. I know how to develop experience and skills in preparation for my career	52.1	**37.6***	**35.7***	50.7	45.9	**38.0***	48.7	45.5	41.9
6. I am confident of my ability to communicate my current skills, knowledge and abilities to potential employers	63.9	**44.5***	**47.1***	61.3	60.8	**46.4***	60.8	**47.5***	54.3
7. I am confident of my ability to independently manage my career development	54.9	**37.2***	**35.0***	52.0	52.3	**37.0***	51.5	45.5	**39.5***
8. I am confident about my future employment and job prospects	43.6	**31.5***	**28.1***	41.2	39.9	**33.0***	41.1	37.4	32.0

*Notes: Pairwise two-proportion Z-tests were conducted to compare the percentages of students indicating agreement (agree and strongly agree) with each career statement, across three DASS severity category levels (1 = Normal or mild (+); 2 = Moderate (++); 3 = Severe or extremely severe (+++)), for each DASS scale. Bolded text, * = Agreement percentage is significantly different from that of the 'Normal or mild' cohort ($p < 0.05$) within a particular DASS severity category.*

3.6 Themes from the Student Focus Groups

Twenty-eight students from years 1-3 participated in ten focus groups, across the five universities (two per university). The overarching themes arising from the analysis of the focus groups transcripts were: student stress, particularly associated with competitive behaviours to achieve high grades, and poor career development, with students wanting to be made aware about career options and requesting industry placement opportunities.

3.6.1 Stress and Poor Peer Relations Associated with A Competitive Cohort

Students reported feeling stressed because of the competitive cohort, especially the necessity of academic success in all subjects in order to achieve a high GPA (Grade Point Average) and thus be eligible for an interview for graduate medicine. This stress was exacerbated within large cohorts. They described a lack of community, driven by the intense competition between students and the need to study hard to get a good GPA.

Focus group comment: when I first got into the course and then I realised how competitive it was I felt a bit discouraged. It's very competitive and it's all about the grades. I felt really pressured and I just felt like changing courses.

Focus group comment: Everyone is very focused and aloof. In a way they're just like I'm here to work, I'm not here to make friends.

Focus group comment: They didn't tell other students when the online applications [for graduate medicine] were open - to better their chances of getting in.

3.6.2 There is a Need to Support Students' Career Development and to Determine Graduate Outcomes

Students wanted to be made aware (during their degree-program) of post-biomedical degree careers options,

beyond research and medicine. They wanted career counselling, but most had not used the University Careers Service. Students who had used the Careers Service reported negative experiences, stating that the career advisors were unaware of career pathways for biomedical graduates. Some students thought that the careers counselling should come from their (biomedical) academic staff and that academics and careers staff should be aware of the biomedical graduate outcomes. They also wanted work integrated learning (work experience) or industry placements to be available during their degree-program.

Focus group comment: [University careers service] It's a lot of inconsistent information, I feel like I have to call three times before I get an answer. I've called three times I've got three different answers for things. A lot of them don't know what they're doing.

Focus group comment: I feel like there is little to no information given to 3rd year students about opportunities and pathways after graduation. I feel sorry for all the younger kids who are about to graduate with a huge debt and no idea what their options are for postgraduate study or employment.

Focus group comment: it would be great if there was an opportunity to get hands-on experience in industry.

4. Discussion

Students expressed concerns and poor confidence in their career development, which correlated with their self-rated psychological distress, the first time a research study has explicitly documented this relationship. When examining university engagement, students who felt they did not have quality relationships with their peers or their educators, who did not use the counselling service, and who studied < 5 hours a week, were more likely to be psychologically distressed.

The results for the careers survey indicate that the students in this study who lacked confidence with their career development were more likely to be psychologically distressed, with positive correlations between severe or extremely severe depression, anxiety and stress and poor responses to the career statements. There is no doubt that concerns about post-graduation careers can contribute to psychological distress for students. Post-graduation career planning was a major contributor to stress and anxiety for undergraduates attending the campus mental health services at a college in the United States (Beiter et al., 2015). In our study less than 40% of the biomedical students were confident in their ‘future employment and job prospects’. Reassuringly, year 3 students were more confident with their career development than year 1 students, as you would expect them to be more engaged with their career development in their final year. Our students were also more likely to be severely anxious if they had not selected graduate medicine as their top career intention. Possible explanations are that these students (who did not select graduate medicine as their top career intention) may be anxious because they lack a defined career goal or they may not feel supported to pursue, or are unaware of, non-medical career pathways (Choate et al., 2019).

Our results agree with the idea that students’ engagement with their career development and their mental health are interconnected, with career indecision related to depression and higher anxiety levels leading to decreased engagement in career preparation processes (Deer et al., 2018; Walker and Peterson, 2012; Zunker, 2008). Thus, it would be expected that increasing support for career development should improve student wellbeing. Supporting career development was a key outcome from the focus groups of our study, as well as from a recent study for which biomedical undergraduates were asked what educators could do to support student mental wellbeing (Baik et al., 2019).

Recommendation: career development should be included in undergraduate degree-programs, to support student wellbeing

Students indicated that there was a need to support students’ career development, especially to improve their awareness of careers beyond medicine and research. Meta-analyses of the career outcome literature suggest that engaging students with their career development should promote their wellbeing (Brown and Roche, 2016; Gedye et al., 2004). To be effective career development should be in the curriculum (Bridgstock et al., 2019; Choate et al., 2019), as students do not make use of the extracurricular university careers service, as shown in this present study. The involvement of academic staff with their students’ career development will also enhance student university engagement and student wellbeing (Baik et al., 2019). However, academics are concerned about their lack of knowledge about the graduate outcomes for students from non-vocational degree programs, a factor which could hamper student career development (see Amiet et al., 2020). Therefore, supporting students’ career development should also involve tracking graduate outcomes, and developing educators’ understanding of career pathways for graduates.

We found a significant correlation between students’ self-reported psychological distress and poor relationships

with their peers and teaching staff, aligning with the basic requirement of 'relatedness' for psychological wellbeing according to self-determination theory (Deci and Ryan, 2000). Salzer (2012) also found that high rates of depression for undergraduates were associated with poor interpersonal relationships and less on-campus engagement. In our study, the qualitative data revealed competitive student behaviours (e.g. antisocial, not sharing resources and information), which will contribute to these poor relationships. Recent studies report that student competition for academic success (or for internships, prizes and jobs) was a factor that contributed to poor peer relationships (Bristow et al., 2020; Priestley et al., 2022). Poor student relationships with their peers or teachers may also reflect the growth in student numbers, as many Australian universities now have first year biomedical science enrolments of over 400 students (Victorian Tertiary Admissions Centre, 2018). As reported by Bristow et al., (2020), when students are in larger cohorts, it will more difficult for them to make friends and receive personal support from teaching staff, and thus to develop a sense of belonging. It was thus not surprising that in our study the smaller cohort universities (less than 200 students) had significantly higher ratings for the engagement statement "quality of your relationships with your teaching staff".

Developing a sense of belonging, particularly with a large, competitive cohort, may cause students to feel that they risk being further ostracised due to potential stigmatised attitudes related to seeking mental health counselling (e.g. being considered weak or not competent) (Vidoureka et al., 2014). This could explain the positive correlation between not attending the university counselling service and students with severe depression or anxiety in our study. It may also be that these students were from cultural backgrounds where there is stigma attached to using mental health services (Vidourek et al., 2014). It is clear that biomedical program convenors and university counselling staff need to make efforts to encourage students to seek help, particularly given that university counselling services are usually provided free of charge.

We also found that students with poor course engagement, studying fewer than five hours per week, were more likely to have symptoms of depression, echoing the earlier findings of Larcombe et al (2016). Together with other authors (Bexley et al., 2013; James et al., 2010) they suggest that this reduced study time could be attributed to the stress of juggling the commitments of paid work and study. We did not gather data on students' work commitments in our study, so could not determine if this contributed to their limited study time.

Recommendation: develop a 'wellbeing curriculum' to support positive relationships with peers and teaching staff

In response to this correlation of poor-quality peer/staff relationships with students' psychological distress, we recommend that curricula are modified such that they support positive relationships between students and their peers and educators (academics/faculty, tutors, teaching assistants). It is worth noting that for positive student-educator relationships it is essential to support both student and educator workload and wellbeing (see Priestley et al., 2022). There is emerging evidence that curriculum modifications could promote students' relationships with peers and staff and reduce student distress, described as a 'wellbeing curriculum' (Larcombe et al., 2021). Strategies involve providing opportunities for social interactions including: setting up student teams that work together for the semester, team-based student activities and assessments; developing structured online discussion forums; ensuring students interact with the same teaching staff across each semester; aiming for low student to teacher ratios; and educators developing teaching and assessments that promote respectful/inclusive rather than competitive relationships among students (see Kember et al., 2001; Larcombe et al., 2021; Levin et al., 2019). For example, Reed et al., (2011) reported reducing medical student stress and anxiety (associated with competition) by changing from a numerical or letter (A-F) grade student ranking systems to pass/fail grading (Reed et al., 2011).

This study found that 14%, 20% and 13% of the biomedical students had severe or extremely severe symptoms of depression, anxiety, and stress, respectively. These values are similar to those reported for Australian university students across a range of degree programs, including biomedical science (Larcombe et al., 2016; Schofield et al., 2016). This suggests that poor relationships with peers and teachers (university engagement) and careers confidence may also contribute to psychological distress for students in other, non-biomedical, undergraduate degree-programs.

Limitations and future directions:

There are a couple of limitations for this research. First, a significant correlation does not infer causality. The data suggest that limited career development or poor university engagement are driving factors for psychological distress, but other factors such as social equity issues, pressures from work commitments and family (not examined in this study) could also contribute to psychological distress. Second, we were unable to compare international and domestic students as there were insufficient numbers of international students in the

degree-programs (and participating in the study).

This study found positive correlations between students' lack of confidence in their career development and poor relationships with their peers or teaching staff and their self-reported psychological distress. Psychological distress negatively impacts educational outcomes (Rothon et al., 2009). It is thus essential that student career development and relationships with their peers and educators are improved. Key recommendations include embedding career development into the curriculum and modifying the curriculum such that it supports positive relationships between students and their peers and educators. Universities that lead the way in these endeavours are likely to reap the rewards of improved student outcomes and career progression.

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