

**Bangor University**

## **PROFESSIONAL DOCTORATES**

### **Exploring the Effectiveness of Dialectical Behavioural Therapy in University Students**

Johnston, Rachel

*Award date:*  
2022

*Awarding institution:*  
Bangor University

[Link to publication](#)

#### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

#### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 13. Mar. 2024



PRIFYSGOL  
**BANGOR**  
UNIVERSITY

Exploring the Effectiveness of Dialectical  
Behavioural Therapy in University Students

By

Rachel Ellen Johnston

Supervised by

Professor Michaela Swales

Submitted in partial fulfilment of the requirements for the degree of Doctorate of Clinical  
Psychology North Wales Clinical Psychology Programme

## Table of contents

<b>Declaration.....</b>	<b>3</b>
<b>Acknowledgments .....</b>	<b>4</b>
<b>Thesis Summary.....</b>	<b>5</b>
<b>Word Counts .....</b>	<b>Error! Bookmark not defined.</b>
<b>Chapter one-Systematic Literature Review.....</b>	<b>7</b>
Abstract.....	9
Introduction.....	9
Method .....	15
Results.....	17
Discussion .....	32
References.....	38
Appendix A.....	48
Appendix B .....	49
<b>Chapter Two-Empirical Study .....</b>	<b>50</b>
Abstract.....	52
Introduction.....	52
Method .....	57
Results.....	64
Discussion .....	74
References.....	80
Appendix A.....	90
Appendix B .....	94
Appendix C .....	95
Appendix D.....	96
Appendix E .....	98
<b>Chapter Three-Clinical Reflections.....</b>	<b>101</b>
Implications for clinical practice.....	102
Implications for future research and theory development.....	105
Reflective commentary .....	107
References.....	109

### **Declaration**

I hereby declare that this thesis is the results of my own investigations, except where otherwise stated. All other sources are acknowledged by bibliographic references. This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree unless, as agreed by the University, for approved dual awards.

---

Yr wyf drwy hyn yn datgan mai canlyniad fy ymchwil fy hun yw'r thesis hwn, ac eithrio lle nodir yn wahanol. Caiff ffynonellau eraill eu cydnabod gan droednodiadau yn rhoi cyfeiriadau eglur. Nid yw sylwedd y gwaith hwn wedi cael ei dderbyn o'r blaen ar gyfer unrhyw radd, ac nid yw'n cael ei gyflwyno ar yr un pryd mewn ymgeisiaeth am unrhyw radd oni bai ei fod, fel y cytunwyd gan y Brifysgol, am gymwysterau deuol cymeradwy.

Signed:

Date: 31/05/2022

## **Acknowledgments**

I would like to thank my supervisor Professor Michaela Swales for her constant support, enthusiasm and encouragement throughout this project. I am very grateful for your patience and wisdom. I would also like to thank Dr Sarah Plum for her constant support and expertise. To all the participants, thank you for your time and efforts, without you this project would not have been possible.

I would like to thank the Admin team and the North Wales Clinical Psychology Programme Research Team for their support and guidance. Thank you to Dr Chris Saville for his guidance and containment when I was completing the analysis. I would like to thank my fellow Trainees for their friendship and support during the ups and down of a research experience.

Thank you to my family and friends for their endless love and support. To my husband Ross, thank you for your constant support, encouragement and the sacrifices you have made to make my dream a reality. Thank you for being with me at every part of this journey and for always believing in me. Thank you to you and Forrest for making home such an incredible place to be, the motivation to travel back to you both each week was truly fuel for the fire.

## **Thesis Summary**

The aims of the current thesis are to explore the application of Dialectical Behavioural Therapy (DBT) informed interventions to the student population as a direct intervention to mental health needs within student mental health services and as a preventative course module for students designed to build resilience and wellbeing.

Chapter one is a systematic review of the literature that has explored the effectiveness of DBT in reducing mental health distress in students. Whilst DBT is a heavily researched and reviewed intervention, this is the first review to focus exclusively on its application to the needs of students. Sixteen studies were identified and included in the review, these studies included a variety of mental health difficulties including trauma, social anxiety, emotion dysregulation and academic stress. Of the sixteen studies, all but one demonstrated a significant improvement in student mental health, particularly in relation to emotion regulation and mindfulness.

Chapter two is an empirical investigation of the impact of a Wellness and Resilience Course (WRC) on student mental health. The WRC is designed as a 12-week module that is primarily based on DBT with lectures teaching mindfulness, distress tolerance, emotion regulation and interpersonal relationships skills. In comparison to the control group, the intervention group increased in adaptive skills use, acceptance of emotional responses, distress tolerance, mindfulness and life satisfaction. The results of the current study are encouraging for future research to explore the effectiveness of the WRC in improving mental wellbeing in a larger randomised sample of students. However, before future randomised control trials of the WRC could take place, further investigation is required to improve the completion rate of measures.

Chapter three provides a more in-depth discussion of the implications of the findings for both the systematic literature review and the empirical study. Specifically, chapter three aims to highlight the clinical impact the findings will have within student mental health services and their contribution to the development of future research.

## **Chapter one-Systematic Literature Review**



**Exploring Effectiveness of Dialectical Behavioural Therapy for University Students:  
Systematic Review**

Dr Rachel Johnston<sup>1</sup> and Professor Michaela A. Swales<sup>2</sup>

<sup>1</sup>North Wales Clinical Psychology Programme, Bangor University

<sup>2</sup>School of Psychology, Bangor University

Link to Journal of College Student Psychotherapy submission guidelines:

<https://www.tandfonline.com/action/authorSubmission?show=instructions&journalCode=wcsp20>

## **Abstract**

Student mental health services have been created to meet the increasing demand of student mental health. These services require evidence to inform their implementation of effective interventions in the student population. The current paper conducted a systematic review of the literature that had applied dialectical behavioural therapy (DBT) informed interventions to university students. The search identified 20 studies which were appraised for methodological quality, application and outcomes. The review found evidence for an increase in emotional regulation and mindfulness skills in university students following a DBT-informed intervention. The findings are discussed in the context of clinical implications for student mental health services and future research.

## **Introduction**

Emerging adulthood has been defined as the period between 18-25 years old, which includes the years typically spent attending university (Allem, Sussman & Unger, 2017). This timeframe is strongly associated with dramatic lifestyle changes such as increased autonomy from parents, shifts in pre-existing social connections and relationship instability (Allem et al., 2017; Sussman & Arnett, 2014). Themes associated with emerging adulthood have been identified as 1) identity exploration, 2) experimentation, 3) instability, 4) self-focused, 5) other focused and 6) feeling in-between (Arnett, 2000; Allem et al., 2017). Whilst these themes have the potential for positive experiences, they can also lead to psychological distress e.g., exploring life without knowing how to define oneself can lead to decreased psychological wellbeing (Baggio, Studer, Iglesias, Daeppen & Gmel, 2017). Given the stresses and alterations in lifestyle associated with emerging adulthood, it is unsurprising that students are at risk of mental health distress, with 1 in 5 students meeting criteria for a

diagnosis of a mental health disorder (Oswalt et al., 2020). Due to the increasing concern for student mental health, the World Health Organization (WHO) launched the WHO World Mental Health International College Student project which conducted surveys in 19 universities in eight countries across Europe, Africa and the United States assessing mental health in first-year students (Auerbach et al., 2018). The results found that one-third of students had clinical levels of anxiety, mood or substance disorder, indicating that student mental health is a global issue.

Research has highlighted an increase in the number of students with mental health difficulties. From 2009 to 2015, anxiety rose 5.9% and depression rose 3.2% in a student population with number of students seeking help for mental health related difficulties from the university also increasing (Oswalt et al., 2020). Other studies highlight a 50% increase from 2013- 2021 in students meeting the criteria for one or more mental health problems using data from 373 universities (Lipson et al., 2022). Students of colour were found to experience the largest increase with the lowest rate of seeking help for their difficulties in comparison to white students.

In comparison to their non-university attending peers, a UK nationwide study found that students had lower psychological distress, although increases in distress were evident in both groups across a 9-year period (Tabor, Patalay & Bann, 2021). However, during the spring lockdown due to the COVID-19 pandemic in 2020, university students were found to have higher depression, anxiety and perceived stress than their non college attending peers (Arsandaux et al., 2021). A meta-analysis study found that one in four students experienced suicide ideation (Office of National Statistics, 2018). However, in comparison to same age peers that are non-students, the prevalence of suicidal behaviours and ideation is lower in university students (Mortier et al., 2018). In England and Wales, suicide in students is significantly lower when compared to the general population (Gunnell, Caul, Applyby, John &

Hawton, 2019; Office of National Statistics, 2018). The lower rate of suicide among students may be due to the well-established protective factors from suicide such as higher socioeconomic status and higher levels of education which are likely higher in student populations (Batty et al., 2018). However, in the UK, within an 8-year period (2007-2015) the number of students who died by suicide increased by 79% (Thorley et al., 2017). A 15% rise in the rate of suicide was detected between the years 2016/2017 when compared with data from 2010/2011 (Gunnell et al., 2019). While the rate of mental health distress and suicide is lower in students when compared with non-attending university peers, these are still significant issues for individuals in higher education as indicated by the rise in its occurrence.

University provides a platform and an opportunity to reach students who are struggling with mental health distress. Given the increase in both mental health distress and suicidality among students that is evident throughout the literature universities have developed specific services to address the rising demand in students' mental health (Alharbi & Smith, 2018; Stallman, 2012; Thorley, 2017). A survey of student services for mental health in the UK found they were often referred to as 'wellbeing services' or 'counselling services' and typically located within the student services department (Thorley, 2017). Research has highlighted that some of the most common issue students seek help from SMHS within the UK are depression, anxiety, academic distress and trauma (Broglia et al., 2021). The interventions offered within student mental health services (SMHS) are widely varied, ranging from peer support groups to manualised interventions such as cognitive-behavioural therapy delivered by professionals (Pollard, Vanderlayden, Alexander, Borkin & O'Mahony, 2021). The majority of students referred to SMHS receive 'high-intensity' support delivered by trained psychotherapists. Concerns have been raised over the lack of evidence base student counselling services/SMHS have to draw from when deciding the most effective interventions to apply to students (Broglia et al., 2018).

With the high rate of mental distress among students, it is imperative that effective and evidence-based interventions are delivered within SMHS. Dialectical behavioural therapy (DBT) is a psychotherapeutic approach that was originally designed to treat individuals with complex mental health difficulties, including individuals with chronic suicidality often given the diagnosis of borderline personality disorder (BPD; Linehan, Heard & Armstrong, 1993). One of the main goals of DBT is to build a life worth living. DBT is founded on behavioural therapy, using both change and acceptance techniques derived from Zen principles, applied with a dialectic stance to enable clients to drop problematic behaviours and to adopt adaptive coping skills (Linehan & Wilks, 2015). As a model, DBT proposes four stages of treatment targets with stage one aimed at reducing suicidal and therapy-interfering behaviours while increasing skilful behaviours. Stage two focuses on exposure to emotions (e.g., exposure for those with trauma symptoms). Stage three involves building self-esteem and stage four objectives are to increase a sense of completeness. A distinctive feature of DBT is that it is a comprehensive therapy that is principle-driven including a detailed skills-training protocol that teaches sixty-six different skills across four modules (Linehan et al., 1993). These modules include four topics of mindfulness, emotion regulation, interpersonal effectiveness and distress tolerance.

Mindfulness skills aim to teach the client to strategically attend to the present moment with awareness of internal and external experiences. Within a student population a positive relationship between mindfulness and resilience has been repeatedly demonstrated (Galante et al., 2021; Keye & Pidgeon, 2013; Pidgeon & Keye, 2014; Pidgeon & Pickett, 2017). A large randomised-controlled trial in a UK university offered support for the inclusion of mindfulness training into student mental health provisions (Galante et al., 2018).

Within DBT, emotion regulation skills enable clients to learn and manage emotions. A reduced ability to regulate emotions has been linked to adverse mental health outcomes in

students. Difficulties regulating emotion have been associated with increased drug use, binge drinking, binge eating and risky sexual behaviours in students (Miller & Racine, 2020). A lack of emotion regulation skills has been found to be related to deliberate self-harm and disordered eating in university students (Buckholdt et al., 2015). High levels of emotion dysregulation have been found to predict both symptoms of anxiety and depression in students (Shukla & Pandey, 2021) suggesting that emotion dysregulation can have a negative impact upon symptoms transdiagnostically. Negative emotions can impair learning outcomes in educational settings (Azevedo et al., 2017), therefore DBT's focus on building the ability to regulate emotions could facilitate improvement in both mental wellbeing and academic outcomes for students.

Interpersonal effectiveness skills enable service-users to respond effectively within relationships in order to meet their own needs and the needs of their social connections. In previous studies exploring mental health in students, interpersonal difficulties have been highlighted as a relevant factor as students with lower social support are more likely to develop mental health problems (Eisenberg, 2009). For many students, university consists of forging new relationships with peers in a variety of settings e.g., working collaboratively on a course or sharing accommodation. Interpersonal difficulties are one of the most common reasons cited by students for their distress (Conley et al., 2017). Difficulties with relationships, such as with roommates, has been associated with lower mental wellbeing and adjustment at university (Bowman, Jarratt, Jang & Bono, 2019). By learning to effectively manage interpersonal relationships, students could not only alleviate distress that comes from negative social interactions, but build social connections that help protect against adverse mental health during times of stress (Burns et al., 2020; Cao, Yildirim & Tanriverdi, 2020).

The distress tolerance module of DBT teaches skills that can be used to manage crises situations in place of previously dysfunctional coping methods. Throughout university

students are faced with multiple sources of distress such as academic difficulties and financial strain (Acharya, Jin & Collins, 2018; Hubbard, Reohr, Tolcher & Downs, 2018). A higher ability to tolerate distress is related to better mental health outcomes for university students (Robinson et al., 2019). Research has found drug use to be associated with low levels of distress tolerance in students (Buckner, Jeffries, Terlecki & Ecker, 2016).

The effectiveness of DBT in various forms to treat a range of mental health difficulties has been well supported throughout the literature. Systematic reviews and meta-analysis have demonstrated significantly greater benefits of DBT in treating symptoms of suicide and self-harm than treatment as usual (Cristea et al., 2017; Panos, Jackson, Hasan & Panos, 2014). Evidence from systematic reviews and meta-analysis supports the application of DBT in reducing substance misuse (Giannelli, Gold, Bieleninik, Ghetti & Gelo, 2019; Warner & Murphy, 2021), eating disorders (Linardon, Gleeson, Yap, Murphy & Brennan, 2018; Rozakou-Somalia, Darvariu & Sjogren, 2021), emotion regulation (Harvey, Hunt & White, 2019) and common mental health symptoms (Delaquis et al., 2020).

It is important to differentiate between comprehensive DBT and DBT informed interventions (e.g., only including the skills training). In comprehensive DBT, clients have access to multiple forms of treatment including weekly group skills training, weekly one-to-one therapy and coaching sessions as required via the telephone (Linehan, 1993). Therapists delivering comprehensive DBT engage in weekly consultation meetings. DBT skills training differs from comprehensive DBT in that service-users only receive weekly group skills training (although this is not always done in a group). A review of the literature has found evidence that DBT skills training alone is an effective form of treatment for a variety of mental health symptoms (Delaquis et al., 2020; Valentine, Bankoff, Poulin, Reidler & Pantalone, 2015). DBT skills training has been used successfully to treat mental health distress in non-clinical populations (Flynn et al., 2018; Justo et al., 2018; Wilks et al., 2017;

Zapolski & Smith, 2017). The ability of the skills only classes to be an effective form of treatment is an attractive feature to busy services, such as SMHS.

Given that DBT has been showed to be an effective intervention for many of the difficulties that students have been shown to experience, it is unsurprising that research exploring the application of DBT to this population has been building. The current paper aims to systematically review the research that has applied a DBT based / informed interventions to student populations in order to contribute to the evidence-base informing SMHS practice.

## **Method**

### **Pre-registration**

Before conducting the review, the protocol was registered with PROSPERO in an attempt to prevent duplication

[https://www.crd.york.ac.uk/prospERO/display\\_record.php?RecordID=287361](https://www.crd.york.ac.uk/prospERO/display_record.php?RecordID=287361).

### **Eligibility Criteria**

The current review is targeted towards papers describing any form of intervention that is based on DBT applied to university students written in English. This can include comprehensive DBT, singular modules of DBT such as distress tolerance, mindfulness, emotion regulation and interpersonal effectiveness or blends of any of the modules together. There were no restrictions on the research methodology or time of publication.

To be included in the review studies had to:

- Include a quantitative measure of mental health pre and post a DBT intervention
- Include a sample drawn from a university student population

### **Search Strategy**



Five databases were chosen based on their relevance to the topic of the research question: Psychinfo, Medline, Embase, Central and Eric. The search was conducted in December 2021 and updated again in August 2022. The search terms employed were: (university OR college OR student\* OR graduate\*) AND (dialectical AND behav\* AND therapy) OR DBT. Search terms relevant to DBT were discussed within the research team and were guided by recent systematic reviews (Delaquis et al., 2021; Kothgassner et al., 2021) one of which had over 200 citations (Valentine et al., 2020). It was decided not to include specific mental health terms in the search as the assumption was made that if DBT was being applied to students in a study, it would have a focus on mental health/wellbeing. For each paper included in the review, backward citation and forward citation searching was conducted.

### **Selection process**

The titles and abstracts of the studies identified in the search were exported into RefWorks, a reference manager software. RefWorks was used to remove any duplicates. Following the removal of duplicates, titles and abstracts were screened against the inclusion and exclusion criteria. Full texts of papers that meet inclusion criteria were selected for further examination. A total of 100 titles and abstracts were checked independently by another member of the review team from the original pool of papers, 100% agreement on those that preceded to the second stage of screening and those that did not was achieved. Based on PRISMA guidelines for conducting systematic reviews (Moher et al., 2009) the study selection process is recorded in Figure 1.

### **Data collection**

A data extraction table was created to collect the relevant information from the twenty included studies. Information extracted included year of study, location, study design,

problem of interest, inclusion criteria, sample size, demographics, drop-out rate, details of intervention, measures used and outcome. The data extraction table was piloted by the first author and discussed with review team before extracting data from all included studies.

### **Risk of bias**

The methodological quality of each of the included studies was assessed using the Joanna Briggs Institute (JBI) critical appraisal checklist for case series (JBI, 2017a; Appendix A and cohort studies (JBI, 2017c; Appendix B) by the first author. The checklists includes eight evaluation items relating to research design and procedures scored by four ratings ( yes no, unclear and not applicable). The studies were then reviewed again using the JBI measures by another member of the research team, any disagreements in ratings were resolved via discussion until 100% agreement was achieved.

## **Results**

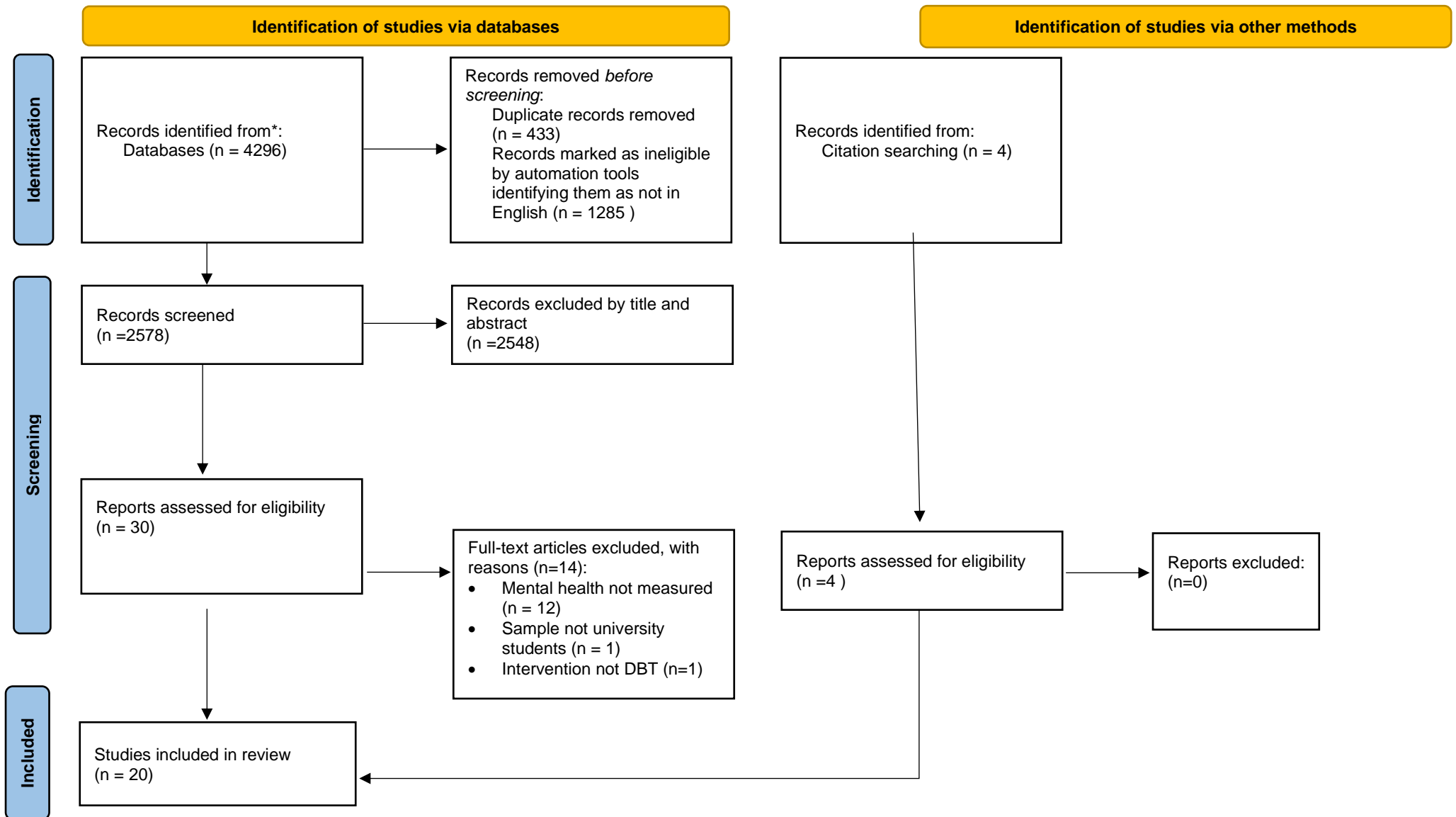
### **Study Characteristics**

The search of the literature yielded 20 studies that met the inclusion criteria. All of the studies included at least one standardised measure of mental health before and after a DBT based intervention in university students. The year of study publication ranged from 2013-2021. Sample sizes in the intervention groups ranged from 3-106 participants with average age ranging from 18-25. Participants were predominantly white, however, twelve studies did not report ethnicity. The majority of participants identified as female with four studies not reporting gender. Studies were carried out in the United States of America (USA, =10), Turkey (n=2), Canada (n=2), Australia (n=2), Finland (n=1), Tiawan (n=1), Nigeria (n=1) and Iran (n=1).

The majority of studies described their problem of interest as emotion dysregulation (n=7) while others described stress (n=4-one of these studies also focused on trauma), traits

of BPD (n=3), test anxiety (n=1), addiction (n=1) difficulties stemming from attention deficit hyperactivity disorder (ADHD, n=1), social anxiety (n=1), adjustment issues for international students (n=1) and one applied to the general university counselling population without a specific focus (n=1). Of the twenty studies, sixteen targeted students with pre-existing mental health difficulties and had an inclusion criterion that required students to meet a minimum level of clinical symptoms or self-report of distress. Please see Figure 1 for diagram of paper screening.

**Figure 1.** PRISMA flow diagram of screening papers



## **Study design and intervention conditions**

All studies delivered a DBT based intervention. Of the twenty studies, nine randomly allocated their sample to either a DBT intervention or a control group. Five of the studies were within-group designs, two case series and the remaining thirteen were between-group repeated measures designs. Six of the nine studies that included a comparison group employed a waitlist condition with two of the studies using a treatment-as-usual group that contained no elements of DBT. One study used a positive psychology group as a comparison and one study used a cognitive-behavioural group. Two studies employed a DBT based comparison group; one using only the skills handouts with no instruction from a therapist, and another compared an emotional regulation module with the addition of mindfulness module.

The majority of studies included a group element of treatment with only 2 studies (10%) not including a group as part of the DBT intervention. One study used both group and one-to-one formats of treatment. One study used only instructional videos. There was high heterogeneity observed in treatment length with interventions ranging from 3-24 sessions with time ranges of 10-90 minutes. The majority of participants were specifically recruited to the studies as they met the individual papers inclusion criteria (e.g., issues with emotion regulation) with only 2 recruiting from the general student body.

## **Drop out**

Drop out ranged from 0-60.2%. The papers varied in reporting drop out with some defining drop-out as those who did not complete the treatment by either withdrawing or missing too many sessions (varied between studies). Others did not report drop-out from the intervention itself but instead reported the number of those that did not complete post measures.

## **Facilitator training**

The majority of DBT was delivered by a researcher who had undergone DBT training with 6 studies not reporting DBT experience and 1 study reported solely relying on the manual to deliver DBT. In one study, graduates of a cognitive-behavioural course facilitated the group while being supervised by DBT trained therapists and adhering to the DBT manual. Reported training by facilitators varied widely. Two of the studies reported the facilitators attending a 10-day workshop, one of these studies required only one of the facilitators to have undergone the 10-day training with the other completing 20 hours online training. This is similar to another paper which reported one of the facilitators undergoing a 2-day training while the other facilitator completed 24 hours online learning. Six of the studies simply reported the facilitators being DBT trained with no details of their training. One study reported the facilitator undergoing 2 years intensive training. The remaining two papers that reported DBT training used trainee clinicians: one describing trainees having 100 hours of DBT training whereas the other reported 30 hours of training.

Only seven studies reported how many facilitators were required to run the DBT groups, six of these studies employed two facilitators for each group with one study employing three facilitators per group. Three of the papers used trainee clinicians to facilitate the DBT groups. Two of the studies reported a weekly consultation meeting. The only paper not to find significant improvement in mental health measures was a one-to-one DBT delivered by a DBT trained educator.

## **DBT Modules**

A mix of the DBT modules were used across the studies; four modules (n=10), three modules (n=2), two modules (n=4) and one module (n=4). All the studies with the exception

of two, included the mindfulness module. Of the studies that included all four modules, six delivered them across 8 weekly group sessions. The remaining studies that included all four modules delivered them across weekly group sessions ranging from 6, 12, 13 and 24 weeks. Of these ten studies, nine found significant improvements in mental health measures following the DBT-informed intervention. Two of the twenty studies delivered three modules, containing mindfulness and interpersonal effectiveness paired with emotion regulation/distress tolerance, delivered across 8 and 11 weekly group sessions. All the studies found significant improvement in mental health. Four of the twenty studies delivered two modules, all demonstrating significant improvement in participants mental health. Four of the studies employed only one DBT module, two of these studies delivering mindfulness, while one delivered interpersonal effectiveness and the remaining study delivered emotion regulation skills. Three of these studies delivered the intervention across 8 weeks, the remaining study used three instructional videos to deliver mindfulness. All of these studies demonstrated significant improvement in mental health measures.

### **DBT form- comprehensive or informed?**

Only one of the twenty studies included in the review did comprehensive DBT in which participants had access to weekly individual therapy, weekly group skills training and coaching sessions as needed as well as weekly consultation meetings for therapists (Pisterello, 2012). The remaining 19 studies delivered DBT informed intervention teaching the DBT skills, rather than comprehensive DBT.

### **Outcomes**

Outcomes from the papers are detailed in Table 1. A narrative synthesis of the studies as ordered by outcome measure are reported below, effect sizes are reported when available.

**Table 1. study characteristics**

Author	Country	POI	Age	Focus	Intervention & n of participants	Format	Control	Outcome measure	Dropout definition & rate %	Last Time point	Sig. change in symptoms
<b>Accardo, 2021</b>	USA	Social anxiety	<i>m</i> =20.2	Intervention	IE (n=5)	one-to-one x 8	/	BFNES, SIAS, SSI, SIT	16.7% dropped out after attending only 2 sessions	post	Varied
<b>Beanlands et al., 2019</b>	Canada	Stress	<i>m</i> =23	Intervention	M, ER, IE, DT (n=31)	group x 8	/	DASS-21, TMS, WHO- FIVE	16%- no details of drop out definition	post	yes
<b>Cherry et al., 2020</b>	USA	Stress & Trauma	<i>m</i> =20	Intervention	M (n=106)	Instructional videos x 3	waitlist (n=103)	ASSS, DERS, FFMQ, LEC, PCL-5, PSS	60.2% removed due to incomplete data collection	post	yes
<b>Chugani et al., 2013</b>	USA	BPD	<i>m</i> =21.31	Intervention	M, DT, IE (n=19)	group x 11	Treatment as usual (n=?)	DBT- WCCL, DERS	0%	post	yes



<b>Davarani et al., 2019</b>	Iran	Emotion dysregulation	$m=21.5$	Intervention	M, ER, IE, DT (n=10)	group x 8	waitlist (n=10)	DERS	0%	post	yes
<b>Doumbia, 2020</b>	USA	Stress	/	Intervention	M, ER, IE, DT (n=3)	Instructional video x 6	/	ASSIS, K-6	50% no details of drop out definition	post	no
<b>Fleming et al., 2015</b>	USA	ADHD	$r=18-23$	Intervention (RCT)	M, ER (n=17)	group x 8	Skills handouts (n=16)	AAQoI, BAARS-IV, BADDs, BAI, BDI, FFMQ	5% dropped out after 4 sessions and did complete post measures	3 months	yes
<b>Gulgez et al., 2015</b>	Turkey	Emotion dysregulation	/	Intervention	M, ER, IE, DT (n=9)	group x 8	waitlist (n=9)	DERS	0%	post	yes
<b>Lin et al., 2018</b>	Taiwan	BPD	$M= 20.4$	Intervention	M, ER, IE, DT (n=36)	group x 8	CBT group (n=32)	CMSADS-L, ASIQ-S, BPDSFS, KDI, CEQ-S, ERS	14%	6 months	yes

<b>Lothes et al., 2021</b>	USA	Test anxiety	<i>m</i> =19	Intervention	M (n=16)	group & instructional videos x 8	waitlist (n=11)	FFMQ, MAAS, TAI, STAI	0%	6 months	yes
<b>Author</b>	<b>Country</b>	<b>POI</b>	<b>Age</b>		<b>Intervention &amp; n of participants</b>	<b>Format</b>	<b>Control</b>	<b>Outcome measure</b>		<b>Follow-up</b>	<b>Sig. change in symptoms</b>
<b>Meaney-Tavares et al., 2013</b>	Australia	BPD traits	<i>m</i> =22.5	Intervention	M, ER, IE, DT (n=17)	group x 8	/	BAI, BDI, CSA	26% dropped out within first 3 weeks	post	yes
<b>Muhomba et al., 2017</b>	USA	Emotion dysregulation	<i>m</i> =25	Intervention	M, DT (n=22)	group x 7-10	/	DBT-WCCL, DERS	Did not report figure of drop put however 42 students enrolled to groups and only 52% completed pre and post measures.	post	yes

<b>Panepinto et al., 2015</b>	USA	General college counselling population	$m=25$	Intervention	M, ER, IE, DT (n=64)	group x 6-12	/	BSI, LPI	42% did not complete group	post	yes
<b>Pistorello et al., 2012</b>	USA	Emotion dysregulation	$m=20.8$	Intervention (RCT)	M, ER, IE, DT (n=31)	group and one-to-one	treatment as usual (n=32)	BDI, BPD, SASII, SAS-SR, SBQ, SCID-11	35%-missed four sessions in a row	18 months	yes
<b>Rizvi et al., 2014</b>	USA	Emotion dysregulation	$r=18-29$	Intervention	ER (n=16) &	group	ER with M (n=8)	DASS-21, DBT-WCCL, DERS, FFMQ, PANAS-X, WSAS	12.5%	1 months	yes
<b>Robins et al., 2019</b>	Australia	Stress	$m= 31.5$	Intervention	M, ER, IE, DT (n=16)	group x 8	waitlist (n=57)	MBI-SS, UWES, GHQ, AAQ-II, MAAS	0%	6 months	yes
<b>Ugwueze et al., 2020</b>	Nigeria	Addiction	$r=18-28$	Intervention	ER (n=10) DT (n=10)	Group x 8	Waitlist (n=10)	DARPAS, AWARE, NIAAA, ERDTI	0%	post	yes

<b>Uliaszek et al., 2016</b>	Canada	Emotion dysregulation	$m=22.07$	Intervention (RCT)	M, ER, IE, DT (n=23)	group	positive psychology group (n=13)	DERS, LPI, KIMS, PPTI, SCL-9, WAI	4.5%	post	yes
<b>Ustundag-Budack et al., 2019</b>	Turkey	Adjustment issues	$m=22.6$	Intervention	M, ER, IE (n=10)	group	/	DAS-42	0%	post	yes
<b>Uitto, 2020</b>	Finland	Emotion regulation	$r= 20-49$	Intervention	ER (n=14)	Group x 8	Waitlist (n=6)	DERS, DASS	43%	3 months	yes

Abbreviations:  $m$ = Average,  $n$ = Number, ASSIS =Acculturative stress scale for International students, ASSS= Academic self-efficacy and stress scale, AAQOL= ADHD Quality of Life Questionnaire, BAARS-IV= Barkley adult ADHD rating scale, BADDS= Executive functioning Brown ADD rating scale, BAI- Beck anxiety inventory, BDI=Beck depression inventory, BFNES= Brief Fear of Negative Evaluation Scale, BSI= Brief symptom inventory, CSA= Coping Scale for Adults, DASS-21/42= Depression Anxiety Stress Scale, DBT-WCCL= DBT ways of coping checklist, DERS=Difficulties in Emotion Regulation Scale, FFMQ= Five facet mindfulness Questionnaire, K-6= Kessler psychological distress scale, KIMS= Kentucky inventory of mindfulness skills, LEC= Life Events Checklist, LPI= Life problem inventory, MAAS= Mindfulness attention awareness scale, PANAS-X= Positive affect and negative affect schedule, PCL-5=PTSD checklist, PPTI= positive psychotherapy inventory, POI= Problem of interest, PSS= Perceived stress scale, SASII= Suicide attempt self-injury, SCID-11 BPD= Clinical interview for BPD, SAS-SR= Social adjustment scale, SBQ= Suicidal behaviours questionnaire, SCL-90= Symptom checklist inventory STAI= State-trait anxiety inventory, SIAS= Social Interaction Anxiety Scale, SIT= Social Interaction Task, SSI= Social Skills Inventory, TAI= Test anxiety inventory, TMS= Toronto Mindfulness Scale, WAI= Working alliance inventory, WHO-FIVE= World Health Organisation- Five Well-Being Index, WSAS= Adapted work and social adjustment scale

## Emotion Regulation-DERS

Eight studies measured the impact of the DBT-informed intervention on emotion regulation via the DERS with five of these studies including the emotion regulation module. One of the studies compared the impact of DBT-informed intervention on university students with a diagnosis of BPD to a TAU group (Chugani et al., 2013). The results found that both the DBT-informed group and TAU group decreased in emotion dysregulation, however the DBT informed group displayed significantly greater decreases than the control despite it not including the specific emotion regulation module. However, the sample was small, and the TAU group received individual therapy, as opposed to being in a group format, and received less time in overall therapy than the DBT group. Four studies compared the impact of DERS scores in a DBT group to a waitlist condition (Cherry et al., 2020; Davarani et al., 2019; Gulgez et al., 2015; Uitto et al., 2020). Three instructional videos of mindfulness were found to improve DERS scores in trauma exposed students compared to the waitlist condition (Cherry et al., 2020) however effect sizes were reportedly small. Two studies found significant improvements in DERS scores for those in a DBT group in comparison to a waitlist condition (Davarni et al., 2019; Guldez et al., 2015) with both groups including the emotion regulation module and one reporting medium effect size ( $d=.65$ ; Davarni et al., 2019). Uitto et al., (2020) found significant improvement in emotion regulation as measured by the DERS however the intervention group did not significantly differ from the waitlist condition. DBT-informed groups found individuals who scored highly for emotion dysregulation who completed an emotion regulation DBT module showed significant improvements in emotion regulation with a large effect size ( $d=1.72$ ; Rizvi et al., 2014). The study also found no differences for those who completed the emotion regulation group and those who also did the emotion regulation group with mindfulness added. However, this study was limited by small sample sizes. Uliaszek et al., (2016) found no significant difference between the DBT group including a module on emotion regulation for DERS

scores when compared with a positive psychology group however the DBT group had a large effect on reduction of DERS scores ( $d= 1.52$ ). Muhomba et al., (2017) found that students selected for the study based on their high emotion dysregulation who completed a distress tolerance and mindfulness module had a large reduction in DERS scores ( $d=1.47$ ) however the study did not include a control group for comparison. Ugwueze et al., (2020) found a reduction in emotion dysregulation, as measured by the ERDTI, in participants who completed ER and DT in comparison to a control group. All the studies that used DERS to measure emotion regulation indicated a significant improvement in scores despite a variation of DBT based intervention ranging from instructional videos to groups and with some not including the emotion regulation module, the majority of results illustrated large effect sizes.

## **Mindfulness**

Eight of the twenty studies included a measure of mindfulness. All of these studies included the mindfulness module of DBT. Four of these studies used the FFMQ to measure mindfulness. Rizvi et al., (2014) found that students who received either ER or ER with mindfulness both made large improvements ( $d= 1.72$ ) in FFMQ scores with no difference between the groups. Fleming et al., (2015) found that students given a diagnosis of ADHD, who received mindfulness and emotion regulation modules, significantly improved in FFMQ scores in comparison ( $d=.75$ ) to student's diagnosed with ADHD who only received the skills handouts rather than face-to-face training. Two studies used only the mindfulness module of DBT and found significant improvement in FFMQ scores in comparison to the control groups (Cherry et al., 2020; Loathes et al., 2021). Measures other than the FFMQ were also used to assess mindfulness. KIMS was used to assess mindfulness and the results indicated scores significantly improved with large effects (1.07) in the DBT-informed group, no differences were detected between KIMS scores for individuals in the DBT group and a positive psychology comparison group (Uliaszek et al., 2016). Beanlands et al., (2019) used TMS to assess mindfulness and found students who received all four DBT modules significantly improved in their

mindfulness scores ( $d= 1.25$ ) however they did not include a comparison group. It appears that all measures of mindfulness indicated an improvement in scores following a variation of DBT based interventions completed by students. Robins et al., (2019) assessed mindfulness using the MAAS measure, finding that the intervention group displayed a large effect size for an increase in mindfulness scores.

### **Anxiety, Depression and Stress**

Of the twenty studies, eight used a measure to capture a measure of anxiety, stress or depression. Pistorello et al., (2012) found a reduction in depression scores for students in the DBT condition in comparison to the control ( $d=0.76$ ) in their RCT study. Meany-Tavers et al., (2013) detected no change in anxiety scores for those in the DBT group however scores of depression significantly improved ( $\eta^2=.56$ ). Fleming et al., (2015) noted a decrease in anxiety and depression scores within the DBT group ( $d= 0.34-.37$ ) but this did not significantly differ from the comparison group. Four of the studies used a combined measure of depression and anxiety with the addition of stress (DASS-21/DASS-42). Rizvi et al., (2014) found a reduction in all subscales of the DASS-21 ( $d= 0.36-.74$ ) while Ustundag-Budack et al., (2019) found improvements in DASS-42 scores after students completed 3 modules of DBT. Uitto et al., (2020) found small improvements in the DASS-42 following the ER module, however there was no difference in comparison to a waitlist condition. Beanlands et al., (2019) found no reduction in anxiety or depression as measured by the DASS-21, however scores of stress significantly reduced ( $d=.40$ ). Doumbia et al., (2020) found that the DB-informed intervention had no significant impact on measure of ASSIS, a measure of academic stress, following DBT.

### **Other Outcomes**

Five studies used general measures of common mental health distress/ wellbeing. Two studies included a measure of common mental health distress symptoms, one found small to medium

reductions in symptoms following the DBT-informed intervention ( $d=.10-.42$ ) and the other also showed medium to large reductions of common mental health symptoms ( $d=.61-.94$ ). Measures of wellbeing also showed improved scores following the DBT-informed intervention (Beanlands et al., 2019; Fleming et al., 2015).

Evidence was found that DBT-informed interventions reduced dysfunctional ways of coping (Muhomba et al., 2017; Rizvi et al., 2014) and had more significant gains than a TAU group (Chugani et al., 2013). One study using a case series design included measures of social anxiety, following one-to-one DBT, results ranged from two out of five participants no longer meeting criteria for Social Anxiety Disorder and all five participants showing improvement in social anxiety measures (Acardo et al., 2020). However due to the small sample size, no statistical analysis can be conducted on the results. Ugwueze et al., (2020) found significantly fewer incidences of drug relapse for those that completed either ER or DT in comparison to controls.

## **Suicide**

Two studies included a measure of suicide and self-injury. Pisterello et al., (2012) found a reduction in suicidality, depression and self-harm in students who completed all four modules of DBT in comparison to the treatment as usual group. Lin et al., (2018) found that both a DBT informed and CBT group significantly reduced suicide attempts in previously suicidal participants and that these effects were maintained at 6 months follow up. In comparison to the CBT group, the DBT group had significantly greater reduction in suicidal symptoms and BPD traits than the CBT group at 6 months follow up.

## **Acceptability**

Five studies included a measure of acceptability. Acceptability for DBT interventions including all four modules was rated highly via the Treatment Acceptability measure and Satisfaction with Treatment questionnaire by nursing students (Beanlands et al., 2019). Qualitative



feedback via focus groups in this study showed that the majority of participants found the intervention engaging, valuable, helpful and increased their awareness. However, it was also noted that at times the volume of new information could be overwhelming. DBT delivered in a group was rated higher for acceptability in comparison to those that just received the materials without a group (Fleming et al., 2015). Average scores out of 10 for usefulness of DBT components such as mindfulness, regulating emotions, managing daily life were of 7 or greater. Feedback also found that students described the DBT group positively, with reference to improved regulation of emotions, a reduction in negative emotions and the skills being enjoyable with the only criticism suggesting groups be larger and longer (Rizvi et al., 2014). Students also rated a DBT group higher for working alliance in relation to relationship with facilitators and goals than a positive psychology group (Uliaszek et al., 2016). Over 94% of the sample in Robins et al (2019) found the DBT skills “useful” or “very useful” and would recommend them to other students. Thematic analysis of feedback revealed that participants felt that applying the DBT skills leads to improved wellbeing and that the structure of the group was helpful, however certain aspects of the group (the time taken to review homework) were less desirable.

### **Follow up**

The majority of studies did not include a follow-up measure, however seven of the papers did with follow-up ranging from 1-18 months post intervention. The positive impact of DBT interventions on mental health were found to be maintained at 1 month (Rizvi et al., 2014), 3 months (for the majority of participants; Fleming 2015; Uitto, 2020), 6 months (Lin et al., 2018; Lothes et al., 2021; Robins et al., 2018) and 18 months (Pisterello et al., 2012).

### **Discussion**

A systematic review of the literature was conducted to explore the application of DBT to university students. A total of twenty studies were selected and evaluated. The majority of studies

used single components of DBT, most commonly skills groups; only one study tested comprehensive DBT. In terms of effectiveness, all but one of the studies reported some degree of significant reduction for mental health symptoms in a student sample despite the wide variation in delivery. When reported, large effect sizes were detected for the majority of emotion regulation and mindfulness measures. The impact on measures of anxiety, depression and stress were not as robust however small-medium effects were reported. Suicidal ideation and self-harm were not commonly recorded throughout the studies, nor was risky behaviours. Therefore, it is difficult to discern DBT's impact on these factors. However, when it was measured, DBT caused a significant reduction in suicidality. Caution must be applied to the interpretation of the effect sizes due to the small samples of the current studies and lack of control groups throughout the majority of papers.

The majority of studies were targeted at students with pre-existing mental health difficulties, some requiring students to identify if they had mental health difficulties but more commonly students had to meet a minimum clinical cut-off on a psychometric measurement of clinical distress (e.g., two standard deviations above DERS average or clinical diagnosis of BPD). Given the positive impact that the DBT-informed interventions had upon the variety of pre-existing mental health distress among the student participants, it offers encouragement for the future exploration of the application of DBT in different formats to students with pre-existing mental health needs in future research with larger randomised samples.

The format and content of the interventions varied widely; with half of the studies employing all four DBT modules with the remaining studies using a mix of modules ranging from one-three modules. Only one of the studies included full comprehensive DBT with the remaining studies employing a skills-only DBT intervention. Significant findings were not limited to the papers that included all four modules, a reduction in mental health symptoms was also found in those studies which included as little as one of the DBT modules. It is noteworthy that all but one of the studies included the mindfulness module in the DBT intervention. The ability to select individual DBT

modules that can be employed as effective stand-alone treatments for students is an attractive feature for university services given that they must operate within term-time, limiting the time available to run interventions. Research that underpins the effectiveness of each of the modules on students would be useful in shaping a future course of DBT intervention. It would also be useful to include an investigation of the potential predictors to the response of particular DBT modules such as the presenting issues.

A common element across the studies that found significant improvement in mental health symptoms following DBT was the employment of a group to deliver the DBT skills. The only paper not to detect significant change in symptoms used recorded videos administered on a one-to-one basis to deliver the DBT skills (Doumbia et al., 2020), although another paper included in the review did find significant change in symptoms following the use of three recorded videos (Cherry et al., 2020). That DBT can be delivered successfully via a group to students is an advantage to SMHS as this has the potential to utilise staff time most effectively while reaching as many students as possible simultaneously as opposed to carrying out individual sessions. It is possible that the group element is a powerful conduit for DBT informed interventions given the opportunity for social connections and peer support. However, when compared with another group-based intervention in an RCT, DBT had significantly greater gains within the student population (Uliaszek et al., 2016).

In terms of the resources required to create and run a DBT group, the current review found that the majority of papers described the facilitators as being DBT trained. However, there was a wide variation in training reported. There was a mix of workshops ranging from 2-10 days and online training ranging from 20-24 hours. Trainee staff were employed to facilitate/co facilitate a group who would then receive supervision from a more advanced member of staff. Given that DBT is a manualised approach it was unsurprising that one paper that did find significant improvements in mental health reported receiving no training but instead created the intervention from the resources

available in the published manual. Only a small minority of the papers included the number of facilitators required to run the groups, this number ranged from 2-3 members of staff.

There was a lack of measures exploring the acceptability of DBT by students. What was available indicated that DBT-informed interventions had good acceptability by students, this included both quantitative and qualitative feedback. Further research could explore the acceptability of DBT in more depth in students and to assess what students found helpful/not helpful. Further feedback on the acceptability of DBT could allow for any adaptations that would be relevant to students to be made. There was also a lack of follow up measures, whilst the majority of studies found an improvement of mental health measures it is unclear whether these effects were maintained following the treatment. However, what follow up data was available supported the effects of DBT in a student population lasting up to 18 months.

It is important to interpret the results of the current review within the context of their methodological limitations, particularly the small sample size. The small sample size of the majority of the studies included in the review inhibits the statistical power and impedes the generalisability of the results to the general student populations. Just over half of the studies had fewer than twenty participants in their intervention groups. However, the positive findings discussed in the current paper are encouraging for further research in this area to take place with larger sample sizes. Within the reviewed papers, just under half of the studies randomly allocated participants to either a DBT condition or a control group. Three of the papers followed an RCT design- two evaluating DBT skills compared with instructional worksheets on DBT (Fleming et al., 2015) and positive psychology (Uliaszek et al., 2016) and one evaluating comprehensive DBT to treatment-as-usual (Pisterello et al., 2012) all of which found a superior positive impact of DBT upon students with a mental health difficulty. Given the promising findings of the previous studies, further RCTs with larger sample sizes exploring the various forms of DBT (e.g., comprehensive vs DBT informed/ comparing modules) would help develop the evidence base for applying DBT to students. Another

limitation of the review, is that the papers predominantly included white female participants, reducing the application of the current findings to ethnic minorities and those that do not identify as female. Future research exploring the application of DBT to students trials should include more diverse populations.

With regards to the limitations of the methodological approach of the current review, the search terms employed took inspiration from recent current reviews for the words used for DBT and aimed to be as succinct as possible to allow the review to be conducted within the time parameters. The research team chose not to specify mental health search terms such as depression or anxiety or modules of DBT such as emotion regulation in order to ensure the search yielded a feasible number of studies that could be reviewed and evaluated in the time parameters set. It is possible that the current search strategy missed other relevant papers on the current topic.

In conclusion, the analysis of the current papers in the review provide tentative support that DBT informed interventions have a positive impact on the mental health in students, particularly in increasing emotion regulation and mindfulness skills. The little data available on its acceptability presents an argument that it is not aversive to students. There was strong disparity in the content and length of DBT interventions used and yet all but one study in the current review found improvement in mental health symptoms, although this is limited by the majority of studies being underpowered and a lack of diversity among participants. However, three of the papers included in the review did follow an RCT design, all finding positive support for the effectiveness in DBT in its application to students. The results of the current review hope to provide encouragement for the future investigation of DBT in student population via larger RCTs.

In terms of clinical implications for SMHS, the current review offers tentative support for the application of DBT to students although further research is required to truly understand the effectiveness of its application to the student population. However, the findings from the current

review highlights that diversity of DBT in its application to a wide range of mental health distress which is a useful feature given that SMHS are faced with a variety of presenting difficulties among students. The scalability of DBT is another attractive feature for SMHS who often have to work within the parameters of university semesters, the majority of studies demonstrated the flexibility of DBT by creating a schedule of DBT skills that fitted with term time. Given that DBT can be delivered in a group, which the majority of papers in the current review did, this would allow SMHS to optimise staff time by staff members being able to simultaneously provide an intervention for multiple students.

## References

- Accardo, M. S. (2020). *DBT interpersonal effectiveness skills as social anxiety intervention in college students* Hofstra University.
- Acharya, L., Jin, L., & Collins, W. (2018). College life is stressful today–Emerging stressors and depressive symptoms in college students. *Journal of American college health*, 66(7), 655-664.
- Alharbi, E., & Smith, A. (2018). A review of the literature on stress and wellbeing among international students in english-speaking countries. *International Education Studies*, 11(5), 22-44.
- Allem, J., Sussman, S., & Unger, J. B. (2017). The revised inventory of the dimensions of emerging adulthood (IDEA-R) and substance use among college students. *Evaluation & the Health Professions*, 40(4), 401-408.
- Alonso, J., Mortier, P., Auerbach, R. P., Bruffaerts, R., Vilagut, G., Cuijpers, P., et al. (2018). Severe role impairment associated with mental disorders: Results of the WHO world mental health surveys international college student project. *Depression and Anxiety*, 35(9), 802-814.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469.
- Arsandaux, J., Montagni, I., Macalli, M., Texier, N., Pouriel, M., Germain, R., ... & Tzourio, C. (2021). Mental health condition of college students compared to non-students during COVID-19 lockdown: the CONFINS study. *BMJ open*, 11(8), e053231.

- Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., et al. (2018). WHO world mental health surveys international college student project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology, 127*(7), 623.
- Azevedo, R., Taub, M., Mudrick, N. V., Millar, G. C., Bradbury, A. E., & Price, M. J. (2017). Using data visualizations to foster emotion regulation during self-regulated learning with advanced learning technologies. In *Informational environments* (pp. 225-247). Springer, Cham.
- Batty, G. D., Kivimäki, M., Bell, S., Gale, C. R., Shipley, M., Whitley, E., & Gunnell, D. (2018). Psychosocial characteristics as potential predictors of suicide in adults: an overview of the evidence with new results from prospective cohort studies. *Translational Psychiatry, 8*(1), 1-15.
- Baggio, S., Studer, J., Iglesias, K., Daeppen, J., & Gmel, G. (2017). Emerging adulthood: A time of changes in psychosocial well-being. *Evaluation & the Health Professions, 40*(4), 383-400.
- Beanlands, H., McCay, E., Fredericks, S., Newman, K., Rose, D., Santa Mina, E., et al. (2019). Decreasing stress and supporting emotional well-being among senior nursing students: A pilot test of an evidence-based intervention. *Nurse Education Today, 76*, 222-227.
- Bowman, N. A., Jarratt, L., Jang, N., & Bono, T. J. (2019). The unfolding of student adjustment during the first semester of college. *Research in Higher Education, 60*(3), 273-292.
- Broglia, E., Ryan, G., Williams, C., Fudge, M., Knowles, L., Turner, A., et al. (2021). Profiling student mental health and counselling effectiveness: Lessons from four UK services using complete data and different outcome measures. *British Journal of Guidance & Counselling, , 1-19*.
- Buckholdt, K. E., Parra, G. R., Anestis, M. D., Lavender, J. M., Jobe-Shields, L. E., Tull, M. T., & Gratz, K. L. (2015). Emotion regulation difficulties and maladaptive behaviors: Examination of



deliberate self-harm, disordered eating, and substance misuse in two samples. *Cognitive Therapy and Research*, 39(2), 140-152.

Buckner, J. D., Jeffries, E. R., Terlecki, M. A., & Ecker, A. H. (2016). Distress tolerance among students referred for treatment following violation of campus cannabis use policy: Relations to use, problems, and motivation. *Behavior modification*, 40(5), 663-677.

Burns, E. C., Martin, A. J., & Collie, R. J. (2020). Supporting and thwarting interpersonal dynamics and student achievement: a multi-level examination of PISA 2015. *International journal of research & method in education*, 43(4), 364-378.

Cherry, M. L., & Wilcox, M. M. (2020). Decreasing perceived and academic stress through emotion regulation and nonjudging with trauma-exposed college students. *International Journal of Stress Management*, 27(2), 101.

Chugani, C. D., Ghali, M. N., & Brunner, J. (2013). Effectiveness of short term dialectical behavior therapy skills training in college students with cluster B personality disorders. *Journal of College Student Psychotherapy*, 27(4), 323-336.

Conley, C. S., Shapiro, J. B., Kirsch, A. C., & Durlak, J. A. (2017). A meta-analysis of indicated mental health prevention programs for at-risk higher education students. *Journal of counseling Psychology*, 64(2), 121.

Cristea, I. A., Gentili, C., Cotet, C. D., Palomba, D., Barbui, C., & Cuijpers, P. (2017). Efficacy of psychotherapies for borderline personality disorder: A systematic review and meta-analysis. *Jama Psychiatry*, 74(4), 319-328.

- Davarani, Z. Z., & Heydarinasab, L. (2019). The effectiveness of dialectical behavior therapy skills to reduction in difficulty in emotion regulation among students. *Revista Argentina De Clínica Psicológica*, 28(5), 842.
- Delaquis, C. P., Joyce, K. M., Zalewski, M., Katz, L., Sulymka, J., Agostinho, T., et al. (2020). Dialectical behaviour therapy skills training groups for common mental health disorders: A systematic review and meta-analysis.
- Doumbia, B. A. (2020). No title. *Examining the Effect of Weekly Dialectical Behavior Therapy-Based Psycho-Educational Learning Intervention on International Students' Emotional Well-being and Academic Performance: A Quasi-Experimental Pre-Test Post-Test Study*,
- Eisenberg, D., Golberstein, E., & Hunt, J. B. (2009). Mental health and academic success in college. *The BE Journal of Economic Analysis & Policy*, 9(1).
- Fleming, A. P., McMahon, R. J., Moran, L. R., Peterson, A. P., & Dreessen, A. (2015). Pilot randomized controlled trial of dialectical behavior therapy group skills training for ADHD among college students. *Journal of Attention Disorders*, 19(3), 260-271.
- Flynn, D., Joyce, M., Weihrauch, M., & Corcoran, P. (2018). Innovations in practice: Dialectical behaviour therapy–skills training for emotional problem solving for adolescents (DBT STEPS-A): Evaluation of a pilot implementation in irish post-primary schools. *Child and Adolescent Mental Health*, 23(4), 376-380.
- Galante, J., Stochl, J., Dufour, G., Vainre, M., Wagner, A. P., & Jones, P. B. (2021). Effectiveness of providing university students with a mindfulness-based intervention to increase resilience to stress: 1-year follow-up of a pragmatic randomised controlled trial. *J Epidemiol Community Health*, 75(2), 151-160.

- Giannelli, E., Gold, C., Bieleninik, L., Ghetti, C., & Gelo, O. C. (2019). Dialectical behaviour therapy and 12-step programmes for substance use disorder: A systematic review and meta-analysis. *Counselling and Psychotherapy Research, 19*(3), 274-285.
- Goolsbee, A., Hubbard, G., Ganz, A., Burwell, S. M., Kearney, M. S., Porat, R., et al. (2019). A policy agenda to develop human capital for the modern economy. *Aspen Institute Policy Paper. Chicago: University of Chicago,*
- Gulgez, O., & Gunduz, B. (2015). The effect of dialectical behavior therapy based emotion regulation program on decreasing the emotion regulation difficulties of university students. *Cukurova University Faculty of Education Journal, 44*(2), 191-208.
- Gunnell, D., Caul, S., Appleby, L., John, A., & Hawton, K. (2020). The incidence of suicide in University students in England and Wales 2000/2001–2016/2017: Record linkage study. *Journal of affective disorders, 261*, 113-120.
- Hubbard, K., Reohr, P., Tolcher, L., & Downs, A. (2018). Stress, mental health symptoms, and help-seeking in college students. *Psi Chi Journal of Psychological Research, 23*(4), 293-305.
- Lothes, I. I., Mochrie, K., Wilson, M., & Hakan, R. (2021). The effect of dbt-informed mindfulness skills (what and how skills) and mindfulness-based stress reduction practices on test anxiety in college students: A mixed design study. *Current Psychology, 40*(6), 2764-2777.
- Justo, A. R., Andretta, I., & Abs, D. (2018). Dialectical behavioral therapy skills training as a social-emotional development program for teachers. *Practice Innovations, 3*(3), 168.
- Keye, M. D., & Pidgeon, A. M. (2013). Investigation of the relationship between resilience, mindfulness, and academic self-efficacy. *Open Journal of Social Sciences, 1*(6), 1-4.

- Kwan, M. Y., Arbour-Nicitopoulos, K. P., Duku, E., & Faulkner, G. (2016). Patterns of multiple health risk-behaviours in university students and their association with mental health: Application of latent class analysis. *Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice*, 36(8), 163.
- Linardon, J., Gleeson, J., Yap, K., Murphy, K., & Brennan, L. (2019). Meta-analysis of the effects of third-wave behavioural interventions on disordered eating and body image concerns: Implications for eating disorder prevention. *Cognitive Behaviour Therapy*, 48(1), 15-38.
- Linehan, M. M., Heard, H. L., & Armstrong, H. E. (1993). Naturalistic follow-up of a behavioral treatment for chronically parasuicidal borderline patients. *Archives of General Psychiatry*, 50(12), 971-974.
- Linehan, M. M., & Wilks, C. R. (2015). The course and evolution of dialectical behavior therapy. *American Journal of Psychotherapy*, 69(2), 97-110.
- Lipson, S. K., Zhou, S., Abelson, S., Heinze, J., Jirsa, M., Morigney, J., ... & Eisenberg, D. (2022). Trends in college student mental health and help-seeking by race/ethnicity: Findings from the national healthy minds study, 2013–2021. *Journal of Affective Disorders*, 306, 138-147.
- Meaney-Tavares, R., & Hasking, P. (2013). Coping and regulating emotions: A pilot study of a modified dialectical behavior therapy group delivered in a college counseling service. *Journal of American College Health*, 61(5), 303-309.
- Miller, A. E., & Racine, S. E. (2022). Emotion regulation difficulties as common and unique predictors of impulsive behaviors in university students. *Journal of American College Health*, 70(5), 1387-1395.

- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group\*. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine*, 151(4), 264-269.
- Mortier, P., Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., ... & Bruffaerts, R. (2018). Suicidal thoughts and behaviors among college students and same-aged peers: results from the World Health Organization World Mental Health Surveys. *Social psychiatry and psychiatric epidemiology*, 53(3), 279-288.
- Muhomba, M., Chugani, C. D., Uliaszek, A. A., & Kannan, D. (2017). Distress tolerance skills for college students: A pilot investigation of a brief DBT group skills training program. *Journal of College Student Psychotherapy*, 31(3), 247-256.
- Office of National Statistics, 2018,  
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/estimating-suicide-among-higher-education-students-in-england-and-wales-experimental-statistics/2018-06-25>
- Oswalt, S. B., Lederer, A. M., Chestnut-Steich, K., Day, C., Halbritter, A., & Ortiz, D. (2020). Trends in college students' mental health diagnoses and utilization of services, 2009–2015. *Journal of American College Health*, 68(1), 41-51.
- Panepinto, A. R., Uschold, C. C., Olandese, M., & Linn, B. K. (2015). Beyond borderline personality disorder: Dialectical behavior therapy in a college counseling center. *Journal of College Student Psychotherapy*, 29(3), 211-226.
- Panos, P. T., Jackson, J. W., Hasan, O., & Panos, A. (2014). Meta-analysis and systematic review assessing the efficacy of dialectical behavior therapy (DBT). *Research on Social Work Practice*, 24(2), 213-223.

- Pidgeon, A. M., & Keye, M. (2014). Relationship between resilience, mindfulness, and psychological well-being in University students. *International Journal of Liberal Arts and Social Science*, 2(5), 27-32.
- Pidgeon, A. M., & Pickett, L. (2017). Examining the differences between university students' levels of resilience on mindfulness, psychological distress and coping strategies. *European Scientific Journal*, (Special Edition), 103-113.
- Pistorello, J., Fruzzetti, A. E., MacLane, C., Gallop, R., & Iverson, K. M. (2012). Dialectical behavior therapy (DBT) applied to college students: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 80(6), 982.
- Pollard, E., Vanderlayden, J., Alexander, K., Borkin, H., & O'Mahony, J. (2021). Student mental health and wellbeing: Insights from higher education providers and sector experts: June 2021.
- Robinson, M., Ross, J., Fletcher, S., Burns, C. R., Lagdon, S., & Armour, C. (2021). The mediating role of distress tolerance in the relationship between childhood maltreatment and mental health outcomes among university students. *Journal of interpersonal violence*, 36(15-16), 7249-7273.
- Rizvi, S. L., & Steffel, L. M. (2014). A pilot study of 2 brief forms of dialectical behavior therapy skills training for emotion dysregulation in college students. *Journal of American College Health*, 62(6), 434-439.
- Rozakou-Soumalia, N., Dârvariu, Ş, & Sjögren, J. M. (2021). Dialectical behaviour therapy improves emotion dysregulation mainly in binge eating disorder and bulimia nervosa: A systematic review and meta-analysis. *Journal of Personalized Medicine*, 11(9), 931.

- Shukla, M., & Pandey, R. (2021). Identifying the transdiagnostic and unique domains of emotion regulation difficulties in subclinical conditions of anxiety and co-occurring anxiety-depression. *Current Psychology*, 40(6), 2896-2909.
- Sussman, S., & Arnett, J. J. (2014). Emerging adulthood: Developmental period facilitative of the addictions. *Evaluation & the Health Professions*, 37(2), 147-155.
- Tabor, E., Patalay, P., & Bann, D. (2021). Mental health in higher education students and non-students: evidence from a nationally representative panel study. *Social psychiatry and psychiatric epidemiology*, 56(5), 879-882.
- Thorley, C. (2017). Not by degrees: Not by degrees: Improving student mental health in the UK's universities. *IPPR: London, UK*,
- Turner, J. C., Leno, E. V., & Keller, A. (2013). Causes of mortality among american college students: A pilot study. *Journal of College Student Psychotherapy*, 27(1), 31-42.
- Uliaszek, A. A., Rashid, T., Williams, G. E., & Gulamani, T. (2016). Group therapy for university students: A randomized control trial of dialectical behavior therapy and positive psychotherapy. *Behaviour Research and Therapy*, 77, 78-85.
- Üstündağ-Budak, A. M., Özeke-Kocabaş, E., & Ivanoff, A. (2019). Dialectical behaviour therapy skills training to improve turkish college students' psychological well-being: A pilot feasibility study. *International Journal for the Advancement of Counselling*, 41(4), 580-597.
- Valentine, S. E., Bankoff, S. M., Poulin, R. M., Reidler, E. B., & Pantalone, D. W. (2015). The use of dialectical behavior therapy skills training as stand-alone treatment: A systematic review of the treatment outcome literature. *Journal of Clinical Psychology*, 71(1), 1-20.

- Warner, N., & Murphy, M. (2022). Dialectical behaviour therapy skills training for individuals with substance use disorder: A systematic review. *Drug and Alcohol Review*, 41(2), 501-516.
- Wilks, C. R., Valenstein-Mah, H., Tran, H., King, A. M., Lungu, A., & Linehan, M. M. (2017). Dialectical behavior therapy skills for families of individuals with behavioral disorders: Initial feasibility and outcomes. *Cognitive and Behavioral Practice*, 24(3), 288-295.
- Zapolski, T. C., & Smith, G. T. (2017). Pilot study: Implementing a brief DBT skills program in schools to reduce health risk behaviors among early adolescents. *The Journal of School Nursing*, 33(3), 198-204.



## Appendix A

### JBIC Critical Appraisal Checklist for Case Series

Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Author \_\_\_\_\_ Year \_\_\_\_\_ Record Number \_\_\_\_\_

	Yes	No	Unclear	Not applicable
• Were there clear criteria for inclusion in the case series?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Was the condition measured in a standard, reliable way for all participants included in the case series?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Were valid methods used for identification of the condition for all participants included in the case series?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Did the case series have consecutive inclusion of participants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Did the case series have complete inclusion of participants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Was there clear reporting of the demographics of the participants in the study?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Was there clear reporting of clinical information of the participants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Were the outcomes or follow up results of cases clearly reported?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Was there clear reporting of the presenting site(s)/clinic(s) demographic information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Was statistical analysis appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal:      Include ☐      Exclude ☐      Seek further info ☐

Comments (Including reason for exclusion)

---



---

## Appendix B

### JBI Critical Appraisal Checklist For Cohort Studies

Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Author \_\_\_\_\_ Year \_\_\_\_\_ Record Number \_\_\_\_\_

	Yes	No	Unclear	Not applicable
1. Were the two groups similar and recruited from the same population?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Were the exposures measured similarly to assign people to both exposed and unexposed groups?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Was the exposure measured in a valid and reliable way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were confounding factors identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Were strategies to deal with confounding factors stated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were the outcomes measured in a valid and reliable way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was the follow up time reported and sufficient to be long enough for outcomes to occur?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Was follow up complete, and if not, were the reasons to loss to follow up described and explored?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Were strategies to address incomplete follow up utilized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Was appropriate statistical analysis used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal:      Include ☐      Exclude ☐      Seek further info ☐

Comments (Including reason for exclusion)

## **Chapter Two-Empirical Study**

## **Exploring the Effectiveness of Dialectical Behavioural Therapy skills University Module for students**

Dr Rachel Johnston<sup>1</sup> and Professor Michaela A. Swales<sup>2</sup>

<sup>1</sup>North Wales Clinical Psychology Programme, Bangor University

<sup>2</sup>School of Psychology, Bangor University

## **Abstract**

The aim of the current study was to investigate the feasibility and acceptability of a Wellness and Resilience Course (WRC) delivered as a non-credit bearing university module. The WRC is a 12-week course that is primarily based on Dialectical-Behavioural Therapy. In total there were 13 students who completed the WRC group and 12 comparative students not enrolled in the module who served as a control group. The WRC was rated highly in acceptability, feasibility and appropriateness by the students. In comparison to the control group, the intervention group increased in adaptive skills use, acceptance of emotional responses, distress tolerance, mindfulness and life satisfaction. However, many measures employed in the study to capture change in wellbeing did not change significantly. The results of the current study are encouraging for future research to explore the effectiveness of the WRC in improving mental wellbeing in a larger randomised sample of students. However, before future randomised control trials of the WRC could take place, further investigation is required to improve the completion rate of measures.

## **Introduction**

University students face a host of stressors when entering into post-secondary education, such stressors can include moving out of the family home, academic pressures, difficulty forming new social connections, financial strain and difficulties forming their identity (Bhujade, 2017; Britt, Ammerman, Varrett & Jones, 2017; Gfeller & Cordoba, 2017). Given these difficulties, it is unsurprising that students are identified as a vulnerable group to experiencing heightened mental health distress (Thorley et al., 2017). A global research project found 31.4% prevalence rates in a one-year period for DSM-IV mood, anxiety or substance misuse disorder, meaning one in three university students meets clinical levels of mental health distress (Auerbach et al., 2018). Up to 40% of students from UK universities are experiencing mental health difficulties (National Union of Students, 2017). However, in comparison to non-attending college peers, students have significantly lower rates of mental health distress and suicide (Mortier et al., 2018; Tabor, Patalay & Bann, 2021).

Despite students displaying better outcomes than their non-university attending peers, they still have higher prevalence rates in comparison to the general public (Kessler et al., 2005, Adult Psychiatric Morbidity Survey, 2014) and research has illustrated a rise in the number of students with mental health distress (Tabor et al., 2021; Thorley et al., 2017). The number of university students experiencing mental distress has significantly risen by up to 29% (Xiao et al., 2017). Mental health issues are linked to poorer academic performance among students (De Luca et al., 2016; Mojtabai et al., 2015). Rates of student dropout in universities has continued to rise up to 50% in the United Kingdom (OECD, 2019). Given the rise in mental health distress among students, there has been a call to intervene to ensure the safety of students and their wellbeing (Clarke, Mikulenaite & De Pury 2018).

University settings present an opportunity and a platform to reach out to the student population. Universities have created specific mental health services to provide interventions for students (Thorley et al., 2017). These services can provide direct interventions to students delivered by professionals (Pollard, Vanderlayden, Alexander, Borkin & O'Mahony, 2021). Despite the presence of these services on campus, they are underutilized by students (Heck et al., 2014; Li et al., 2016). Up to 84% of students who experience mental health issues and require intervention do not receive help (Eisenberg et al., 2007). A review of the literature highlighted barriers to services including stigma, students feeling that they do not have time to access support and being unaware about mental health or mental health services (Dunley & Papadopoulos, 2019) Student's lack of awareness of mental health means that they can misdiagnosis mental health issues as common stress and therefore not see the need for professional intervention (Kirsh et al., 2016). Due to the underutilisation of mental health services on campus and the vulnerability of students, it is important to explore alternative methods of providing support for students that move away from traditional modes of intervention delivery.

Preventative mental health programmes in universities utilising psychoeducation and/or skills practice delivered as a credit-bearing course module have gathered momentum as a means to address the mental health needs of students (Conley, Durlak & Kirsch, 2015). Students who struggle to seek the aid of services may be more willing to partake in a university module aimed at mental health as it may appear less intimidating, and it is normalised by other members of their cohort also joining the course. However, further research is required to establish the effectiveness of such course modules.

Results from a pilot study found that a small sample of students who underwent a 12-week university course based on CBT had significant reductions in depression and anxiety whilst having improvements in self-esteem, these results were maintained at 1 month follow up (Schiraldi & Brown, 2001). Four sessions of a 'resilience' program delivered during orientation week to a large sample of first year students found improvement in scores of depression and anxiety with an increase in emotion regulation, mindfulness and cognitive-behavioural therapy (CBT) skills in comparison to matched controls (Akeman et al., 2020). This particular intervention was based on CBT, mindfulness and resilience (viewing challenges/failures as learning opportunities) and was delivered by trainee doctorate students. Yale University has a well-established 'science of happiness course' containing 12 weekly sessions lasting 1 hour which is available to students from a range of academic backgrounds. Research has found that first year students who took the course had significantly greater mental wellbeing than a waitlist control group (Hood, Jelbert & Santos, 2021). It was also found that students who undertook the course when COVID-19 lockdown began had significantly greater wellbeing than matched controls, both staff and students who took the course during lockdown online displayed an increase in wellbeing (Hood et al., 2021). A review of the available literature found that skills-training programs with supervised practice were significantly more effective than psychoeducation or skills training alone for reducing depression, stress and anxiety, these results were maintained at follow up (Conley et al., 2015). Psychoeducational interventions

alone were also found to significantly impact levels of anxiety and stress, although effect sizes were small and were not detected at follow up.

The current paper wishes to explore the feasibility and acceptability of a preventative course ‘Wellness and Resilience for College and Beyond’ (WRC) established at the University of Washington by Dr James Mazza (Chugani et al., 2020). WRC is based on Dialectical Behavioural Therapy (DBT), originally created to treat complex mental health difficulties, including self-harm and chronic suicidality (Linehan, Heard & Armstrong, 1993, Linehan, 2015a; Linehan 2015b; Swales & Heard, 2016; Valentine, Bankoff, Poulin, Reidler & Pantalone, 2015). Specifically, the WRC draws from DBT’s skills training. Fully comprehensive DBT involves clients having access to multiple forms of treatment including weekly group skills training, weekly one-to-one therapy and coaching sessions as required via the telephone (Linehan, 1993). Therapists delivering comprehensive DBT engage in weekly consultation meetings. DBT skills training differs from comprehensive DBT in that service-users only receive weekly group skills training (although this is not always done in a group). DBT has been repeatedly demonstrated to be an effective treatment for common mental health difficulties (for reviews please see Delaquis et al., 2020; Valentine et al., 2015). Research has found support for DBT’s skills application to students to effectively improve emotion regulation (Davarni et al., 2019), mindfulness (Fleming et al., 2015; Lothes et al., 2021) social anxiety (Accardo, 2020) and stress (Rizvi et al., 2014).

The WRC is primarily based on DBT and its four skills building modules, emotion regulation, interpersonal effectiveness, distress tolerance and mindfulness. Given the difficulties students face, the content of DBT appears to address areas that have been highlighted as problematic for students. The relationship between emotion dysregulation and low mental health among students is well established in the literature and is linked to self-harm, disordered eating, substance misuse, high risk sexual behaviours, anxiety and depression (Buckholdt et al., 2015; Miller & Racine, 2020; Shukla & Pandey, 2021). The emotion regulation module within DBT aims to replace maladaptive



coping strategies to deal with emotion and to build skills that enable the successful processing and management of emotions.

University presents new opportunities to establish and maintain interpersonal relationships e.g. relationships with other tenants in shared accommodation. Difficulties with relationships have been highlighted as a source of distress for students (Conley et al., 2017). Interpersonal difficulties have been linked with mental distress and difficulties adjusting to university life within a student population (Bowman, Jarratt, Jang & Bono, 2019). Social support and social connections are a protective factor for students' wellbeing (Burns et al., 2020; Cao, Yildirim & Tanriverdi, 2020). The interpersonal module of DBT aims to equip individuals with skills that allow them to navigate social scenarios to build/maintain social connections in a way that meets their individual needs and the needs of their peers.

Students are faced with a host of distressing situations such as academic pressures and financial difficulties (Acharya, Jin & Collins, 2018; Hubbard, Reohr, Tolcher & Downs, 2018). The inability to tolerate or manage distress is linked to harmful behaviours such as self-harm among (Slabbert, Hasking & Boyes, 2018) and substance abuse (Buckner, Jeffries, Terlecki & Ecker, 2016) among students. The ability to tolerate distress is associated with better mental health outcomes for university students (Robinson et al., 2019). The distress tolerance module of DBT aims to teach skills that enable service-users to cope effectively at times of heightened emotional stress.

Mindfulness skills aim to teach the client to strategically attend to the present moment with awareness of internal and external experiences. Within a student population a positive relationship between mindfulness and resilience has been repeatedly demonstrated (Galante et al., 2021; Keye & Pidgeon, 2013; Pidgeon & Keye, 2014; Pidgeon & Pickett, 2017). A large randomised-controlled trial in a UK university offered support for the inclusion of mindfulness training into student mental health provisions (Galante et al., 2018).

The WRC course also includes elements of acceptance and commitment therapy (ACT; Hayes et al, 2013), positive psychology (Seligman & Csikszentmihalyi, 2000) and Cognitive-behavioural therapy (Beck, 2020). ACT, positive psychology and CBT have been found to improve mental health outcomes in university students (Cook, Mostazir & Watkins, 2019; Gregoire, Lachance, Bouffard & Dionne, 2017; Lambert, Passmore & Joshanloo, 2018). To the best of the author's knowledge, this will be the second time the WRC has been piloted in a UK university (the first pilot carried out in Northern Ireland but currently no published data available).

The current thesis is guided by the Medical Research Council's (MRC; Skivington et al., 2021). recommendations for intervention research. The MRC identifies four core aspects of research conducted on new interventions. 1) intervention development, 2) feasibility, 3) evaluation and 4) implementation. The leading aim of the current thesis is to explore phase two of the MRC model, focusing on the feasibility and acceptability of delivering the WRC in a UK university course. The current authors are part of an international group of university staff/members who had opted in to undergoing training in delivering and measuring the outcomes of the course. A second aim of the current project will be to explore changes in mental health/ wellbeing after 12 weeks and 3 month follow up to examine what measures would be most useful in future evaluations. It is hypothesised that students in the WRC will experience benefits to their mental wellbeing following the course.

## **Method**

The current study employs a quasi-experimental repeated measures with between group comparisons design. Individual-level randomisation to each group was not possible due to a University requirement that participants be allocated to course modules on a first come, first served, basis. Ethical approval was granted by Bangor University Research Ethics Board.

### **Sample and Recruitment**

The course was advertised to students enrolled in undergraduate and postgraduate psychology courses (please see Appendix A for information sheets, Appendix B for consent form). There were 50 spaces available on the course which were allocated on a first come, first serve basis. Participants being added to the WRC group on a first come, first serve, basis was due to the nature of self-enrolment the module was allocated by the university. All psychology students were then emailed an advertisement of the study (please see Appendix C) inviting them to opt in to the research if they had enrolled in the module or inviting them to participate in the control group. The study aimed to recruit 50 participants in each condition. Participants were compensated with SONA credits and a voucher.

### **The WRC course**

The WRC course was originally developed by the University of Washington, the course developer provides a full package of materials to deliver the course including; powerpoint slides for each lecture and homework assignments. Each facilitator attended a free two-day online training from the developers of the course on delivering the module and measuring outcomes. The lectures were based on the book DBT Skills Training for Emotional Problem Solving for Adolescents (DBT STEPS-A), as this curriculum was designed to enable general education teachers to teach DBT skills to adolescents. The majority of material was related to DBT (see Table 1) with skills from each of the four DBT modules (mindfulness, interpersonal effectiveness, distress tolerance, emotion regulation) being included. Two weeks of the module was informed by ACT (clarifying values) and positive psychology (practicing gratitude) with the remaining weeks focusing on DBT skills. The module uses lectures, readings, videos and coaching sessions during weekly skills sessions. Each lecture had detailed teaching notes as did the skills session. Students would attend a weekly 2-hour lecture and a weekly skills session in smaller groups for 40 minutes to discuss their skills practice and receive support from a facilitator. Each week a homework task would be set that included a written reflective piece on the current lecture content and a diary card tracking their use of skills. There was a total of three facilitators (CBT therapist, PhD student, Clinical psychologist trainee).

The original course was designed to be delivered in 15 weeks; however, the current study delivered the course to fit with the semester length of 12 weeks. Due to the COVID-19 pandemic, lectures would be held in person but could also be attended remotely. Small group discussions were in-person attendance only, if students missed more than 2 small groups they would be failed and removed from the course. Due to the pandemic, week 6 and 12 lectures and small groups had to be held remotely.

**Table 1.** *WRC content*

<b>Lecture &amp; mindfulness skill</b>	<b>Theory</b>	<b>Topic</b>	<b>Small groups exercises</b>
Week 1- breathing exercise	DBT, ACT & positive psychology	Introduction to Resilience	Introducing homework formats and participation requirements
Week 2- observe and describe image	DBT	Mindfulness	Planning mindfulness activities for the week
Week 3- observing urges	ACT	Values clarification and commitment	Discussing values- imaginary exercise- <i>“what would you like people to say about you at your 100 birthday party?”</i>
Week 4- singing happy birthday	DBT	Habits, willpower and Distress tolerance	Discussing areas of their lives that students feel they could apply willpower over the next week. Discussing when to apply distress tolerance skills and creating a “crisis box”
Week 5- breathing exercise	DBT	Reality Acceptance skills	Practicing taking the opposite perspective of a topic students are very passionate about

<b>Lecture &amp; mindfulness skill</b>		<b>Topic</b>	<b>Small groups exercises</b>
Week 6- imagery exercise	Positive psychology	Gratitude-choosing your attention	Gratitude circle- members go around and say what they are grateful for that has not yet been said
Week 7- counting exercise	DBT	Emotions-cultivating positive emotions	Practicing activities that increase positive emotions
Week 8- movement exercise	CBT	Identifying unhelpful thoughts and altering them to be helpful	Identifying common unhelpful thoughts and challenging them
Week 9- mindfull eating and drinking	DBT	Managing intense negative emotions	Role playing opposite action skill
Week 10 Imagery exercise	DBT	Developing interpersonal effectiveness skills	Role playing interpersonal effectiveness skills
Week 11- Listening exercise	DBT	Balancing options and intensity of interpersonal effectiveness skills	Discussion-factors that influence the use of interpersonal skills
Week 12	DBT, ACT, Positive psychology & CBT	Therapeutic lifestyle changes	Discussion- self-care practices and implementing them

## **Data collection**

Data was collected at three time points, baseline, post and 3 month follow up. Participants were asked demographic questions (gender, age, ethnicity, sexuality, course enrolment) and given a

battery of psychometric measures. Qualtrics software was used to administer the measures via an online survey. Questionnaires took around 30 minutes to complete.

### **Feasibility outcome measures**

Feasibility was measured via 1) rates of recruitment, 2) completion of between session tasks and 3) attrition at post and follow up.

### **Acceptability outcome measures**

*Acceptability of Intervention Measure, Intervention Appropriateness Measure and Feasibility of Intervention Measure (AIM, IAM, FIM; Weiner et al., 2017):* This is a self-report 12 item scale with response options ranging from 1 (completely disagree) to 5 (completely agree). Each of these scales consists of 4 items measuring three aspects on an intervention via subscales: 1) acceptability (AIM), 2) appropriateness (IAM) and 3) feasibility (FIM). The AIM, IAM and FIM has a strong internal consistency ( $\alpha=.85-91$ , Weiner et al., 2017).

### **Clinical outcome measures**

The current project is part of an international group of university members carrying out research on the WRC. Therefore, the measures were inherited from the previous research conducted on the WRC course (e.g., the study that took place in Northern Ireland that has not yet published their data). The measures aimed to capture any changes in the varied difficulties students can experience. WRC aims to prevent mental wellbeing decline; therefore, it is unknown what specific benefits it will yield. The aim of the battery of psychometrics was to capture any changes in the varied difficulties students can experience.

*The DBT Ways of coping checklist (DBT-WCC; Neacsiu, Rizvi, Vitaliano, Lynch & Linehan, 2010).* This is a 59-item scale measuring the use of adaptive coping skills and has been

found to have strong internal consistency ( $\alpha=.92-.96$  Stein et al., 2016). The scale contains three subscales measuring adaptive coping, dysfunctional coping and blaming others. Each item is worded in a way that allows the individual to answer without requiring knowledge of DBT skills.

***Difficulties in Emotion Regulation- Short form (DERS; Kaufman, Fosco, Yaptangco, Skidmore & Crowell, 2016).*** The DERS measures emotion regulation across six domains; nonacceptance of emotion, impulsivity, engaging in goal directed behaviour when distressed, lack of emotional awareness, limited access to emotion regulation strategies and clarity across 18 items. Higher scores indicate greater difficulties with emotion regulation. It has demonstrated strong internal consistency ( $\alpha=.90-.97$ , Gratz & Roemer, 2004).

***Depression, Anxiety and Stress Scale (DASS-21, Lovibond & Lovibond, 1995).*** A 21-item questionnaire that uses 3 subscales to measure depression, anxiety and stress. Higher scores indicate higher degrees of depression, anxiety and stress. Research has found the DASS-21 has strong internal consistency ( $\alpha=.78-.89$ , Cooker, Cooker & Sanni, 2018).

***Distress Tolerance Scale (DTS; Simons & Gaher, 2005).*** A 15-item scale used to measure an individual's ability to tolerate distress across four subscales, tolerance of distress, appraisal of distress, rate of absorption of distress and regulation efforts to manage distress. All items are scored on a scale from 1-5, higher scores indicate a higher tolerance for emotional distress. The DTS has strong internal consistency ( $\alpha=.89$ , Shaw, Llabre & Timpano, 2015).

***Perceived Stress Scale (PSS; Cohen, Kamarch, & Mermelstein, 1983).*** A 10-item questionnaire used to measure psychological distress, items are scored from 0-4. Higher scores indicate higher perceived stress. The PSS has been reported to have strong internal consistency ( $\alpha=.89$ ; Robert, Harrington & Storch, 2006).

***Acceptance and Action Questionnaire (AAQ; Bond et al., 2011).*** A 7-item scale to measure of experiential avoidance and psychological inflexibility with strong internal consistency ( $\alpha=.89-91$ ; Ruiz et al., 2016). Higher scores are linked to less flexibility.

***Mindful Attention Awareness Scale (MAA, Brown and Ryan 2003).*** To measure a conceptualization of mindfulness as “the presence or absence of attention to, and awareness of, what is occurring in the present moment” across 15-items scored on a scale from 1-6. The MAA has been found to have strong internal consistency ( $\alpha=.89$ ; MacKillop & Anderson, 2007). Higher scores indicate higher levels of dispositional mindfulness.

***Over Controlled Trait Rating Scales (OC, Seretis, Hempel & Lynch, 2015).*** A 24-item scale scored on a range from 1-6 to assess the need for control. Currently the internal consistency has not been assessed.

***Brief Resilience Scale (BRS Smith et al., 2008).*** A 6-item scale scored on a range from 1-5 to measure psychological resilience. The BRS has been found to have strong internal consistency ( $\alpha=.80-91$ ; Smith et al., 2018). Higher scores reflect higher levels of resilience.

***Personal Need for Structure Scale (PNSS; Thompson, Naccarato & Parker, 1989).*** A 11-item scale designed to measure an individual’s desire for simple structure. Each item is scored on a scale of 1-7. It has strong internal consistency ( $\alpha=.85$ ; Rattan et al., 2012). Higher scores are linked to a greater preference for structure.

***Satisfaction with Life Scale (SLS; Diener, Emmons, Larsen & Griffin, 1985).*** The LS is a 5-item scale scored on a range of 1-7 measuring an individual’s life satisfaction. The LS has good internal consistency ( $\alpha=.74$  ; Lopez-Ortega, Torres-Castro & Rosas-Carrasco, 2016). Higher scores indicate higher satisfaction with life.

***The World Health Organization Disability Assessment Schedule 2.0 (WHO-ODA World health organisation. 1998).*** This scale is designed as a global assessment of health and disability.



The WHO-ODA had been found to have good internal consistency ( $\alpha=.84-.93$ ; (Buist-Bouwman et al., 2008).

### ***Alcohol and Other Substance Use measures***

Participants were asked to report their recent substance and alcohol consumption.

## **Results**

### **Rates of recruitment**

The module had 50 spaces available for self-enrolment. A total of 76% of spaces were filled by 38 individuals self-enrolling in the module. In terms of the current research, out of the 38 individuals, 25 participants volunteered to take part in the current research.

### **Completion of between session tasks**

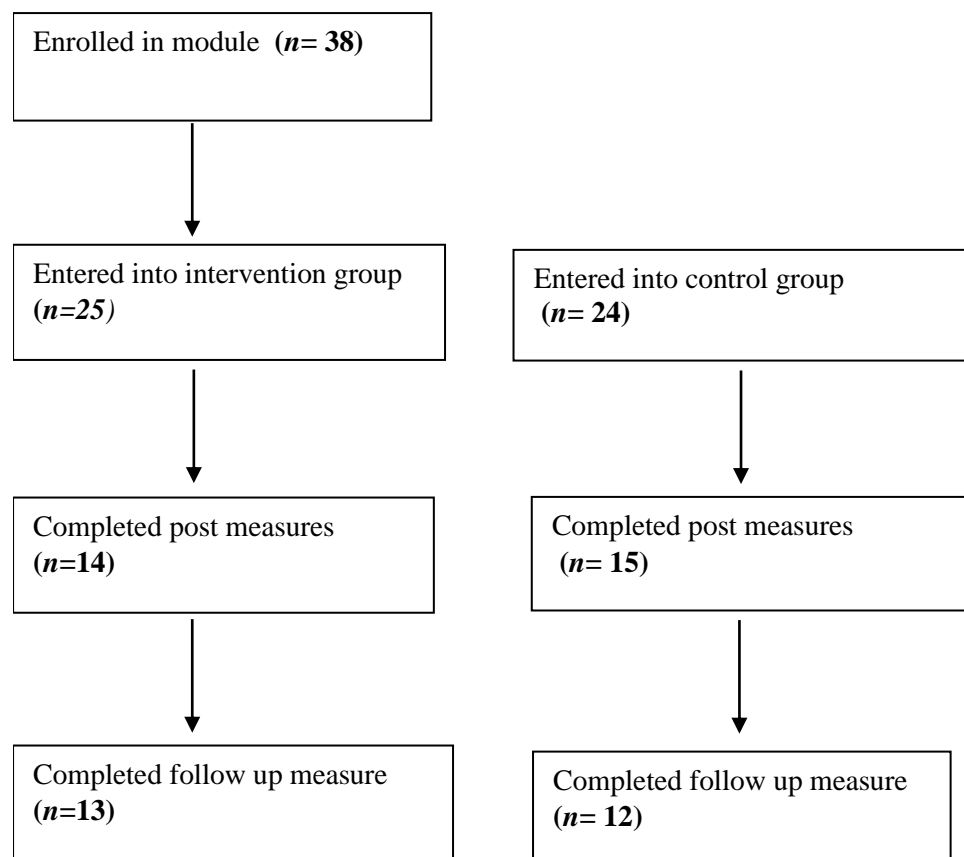
Of the 38 individuals who originally enrolled in the WRC course, 27 completed the module. To remain in the module, participants must have attended 80% of small groups and submitted 80% of homeworks or students would receive a fail and be removed from the module. None of the 27 students enrolled in the module were awarded a fail indicating that students had a minimum completion rate of 80% for tasks between sessions.

### **Attrition at post and follow up**

In the intervention group, 44% dropped out between pre and post measures, with a further 4% dropping out between post and follow up. Resulting in 52% of participants completing all three measures. In the control group, 24 students opted to take part, 37% dropped out between pre and post measures. A further 13% dropped out between post and follow up, resulting in 50% of participants in the control group completing all three measures. Independent t-tests revealed no significant differences between the psychometric measures at baseline between those who dropped out and

those who remained in the study. See Figure 1. Aside from the research, of the 38 students who enrolled in the module, 27 completed the course with a drop out rate of only 28%.

**Figure 1.** *Consort diagram for flow at different stages of the study*



## Participants

Chi-square tests found no significant differences between groups for gender, sexuality, ethnicity or pre-existing conditions (please see Table 2 for details). Independent t-tests found no significant differences between the intervention group (5.23) and the control group (4.33) for self-reported socioeconomic status, nor were there differences between the average age of the groups.

**Table 2** *Participant details.*

	<b>Intervention (n=13)</b>	<b>Control (n=12)</b>
<b>Age</b>	21.07	21.75
Male	23.1% (n=3)	8.3% <sup>5</sup> (n=1)
Female	76.9% (n=10)	91.7% (n=11)
International Student	30.8% (n=4)	0%
<b>Sexuality</b>		
Heterosexual	61.5% (n=8)	58.3 (n=7)
<b>Gay/Lesbian</b>	7.7% (n=1)	0%
Bisexual	23.1% (n=3)	33.3% (n=4)
Unsure	0%	8.4% (n=1)
Other	7.7% (n=1)	0%
<b>Conditions</b>		
Chronic Illness	7.7% (n=1)	8.3% (n=1)
Hearing impairment	7.7% (n=1)	0%
Learning Disability	15.4% (n=2)	0%
Mobility issue	7.7% (n=1)	0%
No conditions	53.8% (n=7)	58.3% (n=7)
Other	0%	8.3% (n=1)
Psychiatric Diagnosis	0%	25% (n=3)
<b>Ethnicity</b>		
White	84.6% (n=11)	100% (n=12)
Black	7.7% (n=1)	0%

Indian	7.7% (n=1)	0%
--------	------------	----

### ***Evaluations of the wellness course***

The evaluations of the WRC were rated highly using the AIM scale, out of a possible score from 1-5 for measures of acceptability the average score was 4.11 (SD.84, see Table 3), average scores for how appropriate students found the course was 4.23 (SD.1.04, see Table 4) and finally for scores of feasibility there was an average score 4.19 (SD. .58, see Table 5).

**Table 3 of Intervention**

Item description	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
The WRC meets my approval	0%	4%	17%	61%	18%
The WRC is appealing to me	0%	0%	30%	52%	18%
I like the WRC	4%	0%	26%	35%	35%

I welcome the WRC	4%	0%	17%	44%	35%
----------------------	----	----	-----	-----	-----

**Table 4. IAM**

Item description	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
WRC seems fitting	0%	3%	17%	40%	40%
WRC seems suitable	4%	0%	17%	48%	31%
WRC seems applicable	4%	0%	22%	39%	35%
WRC seems like a good match	4%	0%	26%	35%	35%

**Table 4 FIM**

Item description	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
WRC seems implementable	0%	0%	27%	56%	17%

WRC seems possible	0%	0%	22%	48%	30%
WRC seems doable	0%	0%	31%	39%	30%
WRC seems easy to use	0%	9%	31%	43%	17%

### **Changes in mental health/ wellbeing**

The sample is small and risks being underpowered for statistical analysis. Therefore, as well as statistical analysis, effect sizes are also reported (please see Appendix D effect sizes of group differences at all levels). As the current study is exploratory and is employing a large number of measures, effect sizes and statistical analysis are used to indicate where potential change may be happening to guide future research selection of measures to employ.

### **Statistical Analysis**

Mixed model ANCOVAs were conducted with pre-measures of each scale serving as a covariate. Each analysis was assessed in order to ensure the data met assumptions of homoscedasticity, homogeneity, normality of residuals and independence between variables were evaluate and corrected for if required. Only significant findings are reported. For all psychometric scores and effect sizes please see (Appendix D).

After adjusting for baseline differences, a significant difference was found between groups;  $F(1, 22) = 17.54, p < .000, \eta^2 = .44$  for DBT-WCC-skills use. Higher scores indicate higher use of DBT-WCC adaptive skills. The intervention group demonstrated significantly higher rates of use of DBT skills than the control group at post measures  $F(1, 22) = 10.14, p = .004, \eta^2 = .32$  and at

follow up  $F(1, 22) = 17.24, p < .000, \eta^2 = .42$  as indicated by their greater scores at these time points.

For average scores see Table 6.

**Table 6.** *Average scores for statistical analysis that indicates significant change*

	Intervention			Control		
	Pre	Post	Follow up	Pre	Post	Follow up
DBT-WCC Skills Use subscale	1.84, (SD=0.45)	2.10* (SD=0.34)	2.24** (SD=0.40)	1.51(SD=0.38)	1.48* (SD=0.45)	1.59** (SD=0.31)
DERS-Non-acceptance subscale	9.62, SD=2.29	7.77, SD=2.20	7.15* SD=1.90	10.42, SD=3.37	9.50, SD=2.75	9.50* , SD=2.02
DERS-impulsivity subscale	7.00 (SD=2.64)	6.38* (SD=3.09)	5.00* (SD=1.77)	9.17 (2.37)	8.92* (2.02)	8.92* (2.23)
DERS-strategies subscale	7.62 (2.46)	7.23 (2.58)	6.15** (2.40)	8.83 (1.75)	9.5 (2.07)	8.83** (2.59)
DERS-lack of emotional awareness subscale	6.23, (SD=2.68)	11.69*, (SD=2.09)	12.46*, (SD=2.22)	8.50, (SD=2.94)	9.08*, (SD=2.15)	9.33*, (SD=2.64)
DTS-Appraisal subscale	3.21, SD=0.90	3.46, SD=1.13	3.88*, SD=0.95	2.81 SD=0.86	3.00, SD=0.95	2.71*, SD=0.74
DTS Absorption subscale	2.87 (1.09)	2.90* (1.24)	3.53* (0.69)	2.75 (0.87)	2.64* (1.02)	2.36* (0.64)
MAAS-Total	50.62, SD=14.36	52.67*, SD=14.24	59.00*, SD=14.85	50.50, SD=11.41	48.08*, SD=8.74	45.00*, SD=8.98
OC-Total	84.92, SD=12.53	82.58*, SD=16.05	75.85*, SD=13.87	91.42, SD=9.35	88.8*3, SD=11.97	89.92*, SD=13.91
LSS-Total	21.23, SD=7.04	20.00*, SD=9.26	25.46*, SD=7.68	19.00, SD=5.56	18.25*, SD=5.43	19.25*, SD=6.37

\*= $p < .050$ , \*\*= $p < .001$ ,



Higher scores for the DERS scale and its subscales indicate greater dysfunction in emotion regulation. The intervention group scored lower on DERS non-acceptance of emotional responses subscale in comparison to the control group;  $F(1, 22) = 7.41, p = .012, \eta^2 = .25$ . No significant difference was detected at post measures however at follow up the intervention group were significantly lower in DERS non-acceptance of emotional responses than the control group. Similar findings were detected for the DERS impulsivity where an interaction was detected ( $F(1, 22) = 11.53, p = .003, \eta^2 = .34$ ). The intervention group scores for impulsivity decreased, whereas the control group increased between post and follow up data collection. A between-group difference subscale  $F(1, 22) = 6.07, p = .022, \eta^2 = .21$  at follow up time point was found for DERS strategies subscale  $F(1, 22) = 17.04, p < .000, \eta^2 = .43$  with the intervention group showing significantly lower scores than the control group. However, the intervention group had greater lack of emotional awareness as measured by the DERS lack of emotional awareness subscale than the control group;  $F(1, 22) = 6.69, p = .017, \eta^2 = .23$ . This was found at both post measures  $F(1, 22) = 4.66, p = .042, \eta^2 = .18$  and at follow up  $F(1, 22) = 4.66, p = .042, \eta^2 = .22$  as the intervention group had higher scores for the DERS lack of emotional awareness subscale than the control group, with higher scores indicating greater impairment.

Higher scores on the DTS and its subscales indicate greater ability to tolerate distress. With regards to distress tolerance, the intervention group demonstrated higher distress tolerance via the DTS-appraisal scale than the control group  $F(1, 22) = 3.61, p = .045, \eta^2 = .14$ . The intervention group did not significantly differ from the controls at post measures however they did have significantly greater DTS-appraisal scores at follow up measures  $F(1, 22) = 9.80, p = .005, \eta^2 = .30$ . An interaction effect was detected for the DTS-Absorption scale ( $F(1, 22) = 7.61, p = .012, \eta^2 = .266$ ), the intervention group scores increased whereas the control group scores decreased between post and follow up measures.

In relation to mindfulness, a significant interaction effect was found for the MASS-total scores;  $F(1, 20) = 5.55, p = .029, \eta^2 = .22$ . The control group appeared to decrease in mindfulness from post to follow up measure whereas the intervention group scores increased.

A significant interaction was found between groups;  $F(1, 21) = 5.35, p = .031, \eta^2 = .20$  for OC total score. The control group scores decreased from post to follow up measure whereas the intervention group scores increased.

For life satisfaction, a significant interaction was found between groups;  $F(1, 21) = 5.35, p = .031, \eta^2 = .23$  for LSS total score. The intervention group scores for life satisfaction increased from post to follow up whereas the control groups' life satisfaction decreased.

No significant changes were detected for the following measures: WHO-ODA (measuring health behaviours), PNSS (need for structure), BRS (resilience), AAQQ (acceptance), PSS (perceived stress) and DASS-21 (depression, anxiety and stress).

### **Effect Sizes**

Cohen's D scores were calculated to explore the differences between groups at each data collection point (please see Appendix D for scores). To better understand which measures may capture changes in mental wellbeing, the effect size for changes between groups at data entry points were calculated by subtracting Cohen's D pre scores from post and follow up scores (please see Appendix E for all scores). Seven of the scales indicated that from pre-measures, the change between post and/or follow up was large (Table 5).

**Table 5** E sizes

Measure	Effect Size Pre	Effect size Post/Follow up	Effect size for change in scores
DERs Emotion awareness	-1.62	Follow up 1.29	-2.91
DERs Emotion awareness	-1.62	Post 1.23	-2.85
DTS Absorption	0.12	Follow up 1.75	-1.63
DTS Total	0.29	Follow up 1.6	-1.31
WCC Skills Use	0.51	Follow up 1.85	-1.34
MAAS Total	0.01	Follow up 1.13	-1.12
DERs Clarity	-0.52	Follow up -1.64	1.12
DERs Impulsivity	-0.86	Follow up -1.95	1.09
DT Tolerance	0.16	Follow up 1.24	-1.08
WCC Skills Use	0.51	Post 1.57	-1.06
BNS total	0.65	Follow up -0.3	0.95
DTS Appraisal	0.45	Follow up 1.37	-0.92
DERs non-acceptance	-0.28	Follow up -1.19	0.91
DTS Regulation	0.14	Follow up 1	-0.86

## Discussion

The current study piloted a course module designed to improve student wellbeing, the primary focus of the current study was to explore the feasibility and acceptability of the WRC course. The results for the current study show promise with regards to feasibility. In terms of recruitment to the module, 76% of spaces were filled by students via self-enrolment. This is a

promising result given that this was the first module of its kind to be offered to psychology students, therefore word of mouth or reputation did not facilitate recruitment. Future research could explore if repetition of the module would increase recruitment as there is the potential that the module may be recommended to students by their peers that have already completed it. In terms of engagement with the module and completion of between students' tasks, of the 27 students who did not drop-out of the module there was a minimum completion rate of between session tasks of 80%. This is an encouraging result, especially within the context of the module being an additional non-credit bearing module, so students completed between sessions tasks as well as the assignments for their other core modules.

Within the module, only 28% of individuals withdrew from the course. Of the thirty-eight individuals who enrolled in the course, twenty-seven completed the module. Recent reviews show a weighted mean drop out of 28% for DBT based interventions including both skills and comprehensive DBT (Dixon & Linardon, 2020) so it may be that this dropout is standard for the intervention rather than relating to a specific factor within the current study. While the course would appear on transcripts as a module which was "passed", it had no weight in terms of credits that would contribute to the overall degree. As it was non-credit bearing additional module that participants could do alongside their mandatory modules it may be that as term continued and the academic demand increased it was viewed as an unnecessary output of time and resources for students leading to dropout. Unfortunately, the current study cannot ascertain if students that did dropout of the study did indeed drop out of the module as no information on this was collected. It is possible that the individuals continued with the module but did not continue with the study. Both the intervention and control group experienced roughly 50% drop put. Data collection for the post and follow up time points were during periods of exams. Potentially, students may have opted to not complete the post and follow up measures due to the demand from their current courses.

The WRC course had favourable evaluation for student satisfaction as measured by the AIM, IAM and FIM. All measures had an average score of 4 or over (highest satisfaction score being 5). A small minority neither agreed or disagreed that the WRC was acceptable, appropriate, and feasible, with an even smaller minority rating it low for these measures. Future research could explore qualitative feedback of the WRC course, allowing a deeper insight into potential adjustments that could be made to increase student satisfaction and to note what students find particularly useful about the course.

The statistical results of the study must be interpreted with caution due to the small sample size. Examination of effect sizes indicates large effects for favourable outcomes for the intervention group in comparison to the control group for several measures including DERS, WCC-skills use, DTS and MAAS. In terms of statistical analysis, significant differences were detected between the groups after controlling for baseline measures on a number of scales. The intervention group showed significant increases in adaptive skills use, acceptance of emotional responses, distress tolerance and life satisfaction in comparison to the control group. A significant interaction was found for mindfulness wherein the intervention group demonstrated a significant increase in mindfulness levels as the control group's mindfulness levels decreased. These results are encouraging for further exploration of the impact the WRC has upon students with a larger randomised sample.

Whilst some measures indicated significant change, several did not. These measures included health behaviours, depression, anxiety, stress, perceived stress and need for structure. Whilst other psychoeducation university courses have found a reduction in depression and anxiety, this was missing from the current study as scores of depression, anxiety and stress were not significantly different from intervention and control participants. However, the previous research that has found a reduction in anxiety and depression had a stronger ethos on CBT and positive psychology (Akeman et al., 2020) than the current course material. The WRC does include material

on the connection between a healthy body and wellbeing in week 12, however a greater focus could perhaps have resulted in changes in health scores.

The outcomes of the current study are matched with the aims of the course content. In the WRC course, mindfulness is arguably one of the most frequented skills that participants learn. Each lecture and small groups practice begins with a different mindfulness skill and students are then invited to describe their internal and external experiences. The increase in mindfulness seen in the current study is an encouraging finding as research has found evidence of a link between higher levels of mindfulness and resilience among university students (Pidgeon & Keye, 2014). The presence of higher distress tolerance and acceptance of emotional responses is in line with the foundational theory of the course material, DBT. Students were taught skills for managing intense emotional experiences and acceptance of negative events. The increase in life satisfaction among the intervention group is unsurprising given that time is devoted in the module to cultivating positive experiences, identifying meaningful values and practicing gratitude. Interestingly, the positive outcomes for the intervention group were in contrast to the findings that they were higher than the control group for a lack of emotional awareness at the end of the intervention. Perhaps more time is required in the course focusing on naming and identifying emotions in the lectures and small groups discussions. Potentially the knowledge and skills covered in the WRC increased the students' awareness of their abilities to regulate emotion. This awareness may have led to negative self-evaluations of their emotional awareness as their goals for their emotional health may be higher than that of the control group. Prior to the course, it is possible that they would not have had a framework from which to evaluate their management of emotions.

The current study has several limitations. Firstly, the sample size was small. This weakened the statistical power of the current analysis. The current study did not ask if the students were currently facing any other significance stressors that may have been unrelated to university life e.g., family bereavement. Nor did it collect information on students previous/current exposure to

therapy or if they had access to the student wellbeing service. The study also did not differentiate between individuals enrolled in an undergraduate module or a postgraduate module. The difference in demand from these courses may have influenced students' wellbeing in both groups. While analysis attempted to control for any differences in baseline measures, a potentially influential differences between the two groups may be found in the levels of motivation to engage with the WRC. The intervention group consisted of students who self-enrolled in the module, whereas the control did not. This suggests that the intervention group were motivated to engage in the WRC which could have influenced the results. Another limitation on the current study is that it did not seek information on the students that dropped out and their reasons for doing so. Therefore, the current study is unable to offer specific information that might increase retention other than to include the module as a credit-bearing module. Further research that introduces the current module as being credit-bearing would be illuminating as to what features may contribute to drop-out other than pressure to focus on other credit-bearing modules. It is also important to acknowledge the context in which the module was delivered. During the time of the module's delivery the university's COVID restrictions were beginning to lift since the beginning of the pandemic. No information was collected to ascertain the amount that individual attended lectures versus watching them online and if mode of delivery influenced the outcomes. Future research could include a comparison of a face-to-face and a remote condition to assess if mode of delivery influences outcomes.

In conclusion, the current study offers' tentative encouragement for the further exploration of the WRC course in a larger randomised sample of students. Within the framework of the MRC's guidance for research conducted on interventions, it is recommended that at least 75% rate of measure completion is obtained before further advancing exploration of the intervention via a RCT. The current study fell well below that expectation, however given the contrast in the number of those who dropped out of the study (48%) and those that dropped out of the module (28%), it could be that the added pressure of completing questionnaires during the exam period for an uncredited

module negatively impacted the rate of measure completion. Potentially, if the module was given a role in the curriculum that did not result in it being an additional module, but rather part of the curriculum and completion resulted in course credit, completion of measures could improve. Further research with large, randomised and appropriately powered statistical analysis could further explore the feasibility of the WRC if it was awarded status as a core, rather than additional, module whilst exploring its effectiveness in improving mental wellbeing in students. In terms of acceptability, the current study offers tentative support as the WRC received strong ratings by students. Qualitative data on the acceptability of the WRC would enable researchers to understand what students find helpful/unhelpful



## References

- Accardo, M. S. (2020 2021). *DBT interpersonal effectiveness skills as social anxiety intervention in college students* (Ph.D.). Available from APA PsycInfo®. (2467635160; 2020-79976-008). Retrieved from <http://ezproxy.bangor.ac.uk/login?url=https://www.proquest.com/dissertations-theses/dbt-interpersonal-effectiveness-skills-as-social/docview/2467635160/se-2?accountid=14874>
- Acharya, L., Jin, L., & Collins, W. (2018). College life is stressful today—Emerging stressors and depressive symptoms in college students. *Journal of American college health*, 66(7), 655-664.
- Akeman, E., Kirlic, N., Clausen, A. N., Cosgrove, K. T., McDermott, T. J., Cromer, L. D., . . . Aupperle, R. L. (2020). A pragmatic clinical trial examining the impact of a resilience program on college student mental health. *Depression and Anxiety*, 37(3), 202-213.
- Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., . . . Hasking, P. (2018). WHO world mental health surveys international college student project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, 127(7), 623.
- Beck, J. S. (2020). *Cognitive behavior therapy: Basics and beyond*. Guilford Publications.
- Bhujade, V. M. (2017). Depression, anxiety and academic stress among college students: A brief review. *Indian Journal of Health and Wellbeing*, 8(7), 748-751.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary psychometric properties of the acceptance and action Questionnaire—II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, 42(4), 676-688.

- Bowman, N. A., Jarratt, L., Jang, N., & Bono, T. J. (2019). The unfolding of student adjustment during the first semester of college. *Research in Higher Education*, 60(3), 273-292.
- Britt, S. L., Ammerman, D. A., Barrett, S. F., & Jones, S. (2017). Student loans, financial stress, and college student retention. *Journal of Student Financial Aid*, 47(1), 3.
- Burns, E. C., Martin, A. J., & Collie, R. J. (2020). Supporting and thwarting interpersonal dynamics and student achievement: a multi-level examination of PISA 2015. *International journal of research & method in education*, 43(4), 364-378.
- Buckholdt, K. E., Parra, G. R., Anestis, M. D., Lavender, J. M., Jobe-Shields, L. E., Tull, M. T., & Gratz, K. L. (2015). Emotion regulation difficulties and maladaptive behaviors: Examination of deliberate self-harm, disordered eating, and substance misuse in two samples. *Cognitive Therapy and Research*, 39(2), 140-152.
- Buckner, J. D., Jeffries, E. R., Terlecki, M. A., & Ecker, A. H. (2016). Distress tolerance among students referred for treatment following violation of campus cannabis use policy: Relations to use, problems, and motivation. *Behavior modification*, 40(5), 663-677.
- Chugani, C. D., Fuhrman, B., Abebe, K. Z., Talis, J., Miller, E., & Coulter, R. W. S. (2020). Wellness and resilience for college and beyond: Protocol for a quasi-experimental pilot study investigating a dialectical behaviour therapy skill-infused college course. *BMJ Open*, 10(6), e036833-2020-036833. doi:10.1136/bmjopen-2020-036833 [doi]
- Clarke, N., Mikulenaite, G., & de Pury, J. (2018). Suicide-safer universities. *Universities UK*. Available at: <https://www.Universitiesuk.Ac.uk/policy-and-analysis/reports/Documents/2018/guidance-for-Universities-on-Preventing-Student-Suicides.Pdf>,

- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, , 385-396.
- Conley, C. S., Durlak, J. A., & Kirsch, A. C. (2015). A meta-analysis of universal mental health prevention programs for higher education students. *Prevention Science*, 16(4), 487-507.
- Conley, C. S., Shapiro, J. B., Kirsch, A. C., & Durlak, J. A. (2017). A meta-analysis of indicated mental health prevention programs for at-risk higher education students. *Journal of counseling Psychology*, 64(2), 121.
- Cook, L., Mostazir, M., & Watkins, E. (2019). Reducing stress and preventing depression (RESPOND): randomized controlled trial of web-based rumination-focused cognitive behavioral therapy for high-Ruminating University students. *Journal of medical Internet research*, 21(5), e11349.
- Csikszentmihalyi, M., & Seligman, M. (2000). Positive psychology. *American Psychologist*, 55(1), 5-14.
- De Luca, S. M., Franklin, C., Yueqi, Y., Johnson, S., & Brownson, C. (2016). The relationship between suicide ideation, behavioral health, and college academic performance. *Community Mental Health Journal*, 52(5), 534-540.
- Delaquis, C. P., Joyce, K. M., Zalewski, M., Katz, L., Sulymka, J., Agostinho, T., & Roos, L. E. (2020). Dialectical behaviour therapy skills training groups for common mental health disorders: A systematic review and meta-analysis.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71-75.

- Dixon, L. J., & Linardon, J. (2020). A systematic review and meta-analysis of dropout rates from dialectical behaviour therapy in randomized controlled trials. *Cognitive Behaviour Therapy, 49*(3), 181-196.
- Dunley, P., & Papadopoulos, A. (2019). Why is it so hard to get help? barriers to help-seeking in postsecondary students struggling with mental health issues: A scoping review. *International Journal of Mental Health and Addiction, 17*(3), 699-715.
- Eisenberg, D., Golberstein, E., & Gollust, S. E. (2007). Help-seeking and access to mental health care in a university student population. *Medical Care, ,* 594-601.
- Fleming, A. P., McMahon, R. J., Moran, L. R., Peterson, A. P., & Dreessen, A. (2015). Pilot randomized controlled trial of dialectical behavior therapy group skills training for ADHD among college students. *Journal of Attention Disorders, 19*(3), 260-271.  
doi:10.1177/1087054714535951
- Galante, J., Stochl, J., Dufour, G., Vainre, M., Wagner, A. P., & Jones, P. B. (2021). Effectiveness of providing university students with a mindfulness-based intervention to increase resilience to stress: 1-year follow-up of a pragmatic randomised controlled trial. *J Epidemiol Community Health, 75*(2), 151-160.
- Gfellner, B. M., & Cordoba, A. I. (2017). Identity problems, ego strengths, perceived stress, and adjustment during contextual changes at university. *Identity, 17*(1), 25-39.
- Grégoire, S., Lachance, L., Bouffard, T., & Dionne, F. (2018). The use of acceptance and commitment therapy to promote mental health and school engagement in university students: A multisite randomized controlled trial. *Behavior Therapy, 49*(3), 360-372.

- Hayes, S. C., Levin, M. E., Plumb-Villardaga, J., Villatte, J. L., & Pistorello, J. (2013). Acceptance and commitment therapy and contextual behavioral science: Examining the progress of a distinctive model of behavioral and cognitive therapy. *Behavior Therapy, 44*(2), 180-198.
- Heck, E., Jaworska, N., DeSomma, E., Dhoopar, A. S., MacMaster, F. P., Dewey, D., & MacQueen, G. (2014). A survey of mental health services at post-secondary institutions in alberta. *The Canadian Journal of Psychiatry, 59*(5), 250-258.
- Hood, B., Jelbert, S., & Santos, L. R. (2021). Benefits of a psychoeducational happiness course on university student mental well-being both before and during a COVID-19 lockdown. *Health Psychology Open, 8*(1), 2055102921999291.
- Hubbard, K., Reohr, P., Tolcher, L., & Downs, A. (2018). Stress, mental health symptoms, and help-seeking in college students. *Psi Chi Journal of Psychological Research, 23*(4), 293-305.
- Kaufman, E. A., Xia, M., Fosco, G., Yaptangco, M., Skidmore, C. R., & Crowell, S. E. (2016). The difficulties in emotion regulation scale short form (DERS-SF): Validation and replication in adolescent and adult samples. *Journal of Psychopathology and Behavioral Assessment, 38*(3), 443-455.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry, 62*(6), 593-602.
- Keye, M. D., & Pidgeon, A. M. (2013). Investigation of the relationship between resilience, mindfulness, and academic self-efficacy. *Open Journal of Social Sciences, 1*(6), 1-4

- Kirsh, B., Friedland, J., Cho, S., Gopalasuntharanathan, N., Orfus, S., Salkovitch, M., . . . Webber, C. (2016). Experiences of university students living with mental health problems: Interrelations between the self, the social, and the school. *Work, 53*(2), 325-335.
- Landes, S. J., Chalker, S. A., & Comtois, K. A. (2016). Predicting dropout in outpatient dialectical behavior therapy with patients with borderline personality disorder receiving psychiatric disability. *Borderline Personality Disorder and Emotion Dysregulation, 3*(1), 1-8.
- Lambert, L., Passmore, H. A., & Joshanloo, M. (2019). A positive psychology intervention program in a culturally-diverse university: Boosting happiness and reducing fear. *Journal of Happiness Studies, 20*(4), 1141-1162.
- Li, W., Dorstyn, D. S., & Denson, L. A. (2016). Predictors of mental health service use by young adults: A systematic review. *Psychiatric Services, 67*(9), 946-956.
- Linehan, M. M., Heard, H. L., & Armstrong, H. E. (1993). Naturalistic follow-up of a behavioral treatment for chronically parasuicidal borderline patients. *Archives of General Psychiatry, 50*(12), 971-974.
- Linehan, M. M., Korslund, K. E., Harned, M. S., Gallop, R. J., Lungu, A., Neacsiu, A. D., . . . Murray-Gregory, A. M. (2015). Dialectical behavior therapy for high suicide risk in individuals with borderline personality disorder: A randomized clinical trial and component analysis. *JAMA Psychiatry, 72*(5), 475-482.
- Linehan, M. M., & Wilks, C. R. (2015). The course and evolution of dialectical behavior therapy. *American Journal of Psychotherapy, 69*(2), 97-110.

- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy*, 33(3), 335-343.
- OECD (2019). OECD data collection programme: Education and training. <http://stats.oecd.org/>.
- Mojtabai, R., Stuart, E. A., Hwang, I., Eaton, W. W., Sampson, N., & Kessler, R. C. (2015). Long-term effects of mental disorders on educational attainment in the national comorbidity survey ten-year follow-up. *Social Psychiatry and Psychiatric Epidemiology*, 50(10), 1577-1591.
- Mortier, P., Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., ... & Bruffaerts, R. (2018). Suicidal thoughts and behaviors among college students and same-aged peers: results from the World Health Organization World Mental Health Surveys. *Social psychiatry and psychiatric epidemiology*, 53(3), 279-288.
- Miller, A. E., & Racine, S. E. (2022). Emotion regulation difficulties as common and unique predictors of impulsive behaviors in university students. *Journal of American College Health*, 70(5), 1387-1395.
- National Union of Students (2017). Further education and mental health: the experiences of further education students. Retrieved from [www.nusconnect.org.uk /resources/further-education-and-mental- health-report](http://www.nusconnect.org.uk/resources/further-education-and-mental-health-report)
- Neacsiu, A. D., Rizvi, S. L., Vitaliano, P. P., Lynch, T. R., & Linehan, M. M. (2010). The dialectical behavior therapy ways of coping checklist: Development and psychometric properties. *Journal of Clinical Psychology*, 66(6), 563-582.

- Pidgeon, A. M., & Keyes, M. (2014). Relationship between resilience, mindfulness, and psychological well-being in university students. *International Journal of Liberal Arts and Social Science*, 2(5), 27-32.
- Pidgeon, A. M., & Pickett, L. (2017). Examining the differences between university students' levels of resilience on mindfulness, psychological distress and coping strategies. *European Scientific Journal*, (Special Edition), 103-113.
- Pistorello, J., Fruzzetti, A. E., MacLane, C., Gallop, R., & Iverson, K. M. (2012). Dialectical behavior therapy (DBT) applied to college students: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 80(6), 982-994. doi:<http://dx.doi.org/10.1037/a0029096>
- Pollard, E., Vanderlayden, J., Alexander, K., Borkin, H., & O'Mahony, J. (2021). Student mental health and wellbeing: Insights from higher education providers and sector experts: June 2021.
- Rizvi, S. L., & Fitzpatrick, S. (2021). Changes in suicide and non-suicidal self-injury ideation and the moderating role of specific emotions over the course of dialectical behavior therapy. *Suicide and Life-Threatening Behavior*, 51(3), 429-445. doi:10.1111/sltb.12691
- Roberts, J., Lenton, P., Keetharuth, A. D., & Brazier, J. (2014). Quality of life impact of mental health conditions in England: Results from the adult psychiatric morbidity surveys. *Health and Quality of Life Outcomes*, 12(1), 1-10.
- Robinson, M., Ross, J., Fletcher, S., Burns, C. R., Lagdon, S., & Armour, C. (2021). The mediating role of distress tolerance in the relationship between childhood maltreatment and mental health outcomes among university students. *Journal of Interpersonal Violence*, 36(15-16), 7249-7273.
- Schiraldi, G. R., & Brown, S. L. (2001). Primary prevention for mental health: Results of an exploratory cognitive-behavioral college course. *Journal of Primary Prevention*, 22(1), 55-67.



- Shukla, M., & Pandey, R. (2021). Identifying the transdiagnostic and unique domains of emotion regulation difficulties in subclinical conditions of anxiety and co-occurring anxiety-depression. *Current Psychology*, 40(6), 2896-2909.
- Simons, J. S., & Gaher, R. M. (2005). The distress tolerance scale: Development and validation of a self-report measure. *Motivation and Emotion*, 29(2), 83-102.
- Slabbert, A., Hasking, P., & Boyes, M. (2018). Riding the emotional roller coaster: The role of distress tolerance in non-suicidal self-injury. *Psychiatry Research*, 269, 309-315.
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15(3), 194-200.
- Swales, M. A., & Heard, H. L. (2016). *Dialectical behaviour therapy: Distinctive features* Routledge.
- Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., ... & Moore, L. (2021). A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *bmj*, 374.
- Tabor, E., Patalay, P., & Bann, D. (2021). Mental health in higher education students and non-students: evidence from a nationally representative panel study. *Social psychiatry and psychiatric epidemiology*, 56(5), 879-882.
- Thompson, M. M., Naccarato, M. E., & Parker, K. E. (1989). Assessing cognitive need: The development of the personal need for structure and personal fear of invalidity scales. Paper presented at the *Annual Meeting of the Canadian Psychological Association, Halifax, Nova Scotia, Canada*,

- Turner, J. C., Leno, E. V., & Keller, A. (2013). Causes of mortality among american college students: A pilot study. *Journal of College Student Psychotherapy*, 27(1), 31-42.
- Üstün, T. B., Chatterji, S., Kostanjsek, N., Rehm, J., Kennedy, C., Epping-Jordan, J., . . . Pull, C. (2010). Developing the world health organization disability assessment schedule 2.0. *Bulletin of the World Health Organization*, 88, 815-823.
- Valentine, S. E., Bankoff, S. M., Poulin, R. M., Reidler, E. B., & Pantalone, D. W. (2015). The use of dialectical behavior therapy skills training as stand-alone treatment: A systematic review of the treatment outcome literature. *Journal of Clinical Psychology*, 71(1), 1-20.
- Weiner, B. J., Lewis, C. C., Stanick, C., Powell, B. J., Dorsey, C. N., Clary, A. S., . . . Halko, H. (2017). Psychometric assessment of three newly developed implementation outcome measures. *Implementation Science*, 12(1), 1-12.
- Xiao, H., Carney, D. M., Youn, S. J., Janis, R. A., Castonguay, L. G., Hayes, J. A., & Locke, B. D. (2017). Are we in crisis? national mental health and treatment trends in college counseling centers. *Psychological Services*, 14(4), 407

## Appendix A

### Information Sheet



### **PARTICIPANT INFORMATION SHEET**

#### **Study Title**

Exploring the effectiveness and acceptability of Dialectical Behavioural therapy skills in undergraduates to promote wellbeing and resilience.

#### **Invitation**

As a psychology student we would like to invite you to participate in a study aimed at evaluating the impact of a wellbeing and resilience module on student wellbeing. Before you decide whether or not to take part, it is important that you understand what the project is about and what you will be asked to do. Please read the following information and please ask any questions about anything that you do not understand. Please make sure that you are happy before you decide what to do. Thank you for taking the time to think about this.

#### **What is the study for?**

A central aim of this study is to see whether the development and use of resilience strategies and emotion regulation skills (such as relaxation strategies and mindfulness) can impact positively on mental health and wellbeing.

#### **Why have I been chosen?**

We are inviting psychology students from the undergraduate course in second and third year and students enrolled in the masters to participate.

#### **Do I have to take part?**

Participation in the study is completely voluntary and you are under no obligation to participate. Further, you can withdraw from the study at any time by not submitting your responses or by contacting the Chief Investigator (see below) and stating the first three letters of your name and the last four digits of your mobile phone number. Refusal to take part will have no impact on your participation or progress in your degree.

#### **What will happen to me if I do take part?**

Should you decide to participate it will require you to enrol in the 'Wellbeing and Resilience' module and attend 12 weekly lectures. Each lecture will be accompanied by a weekly task to do outside of the lecture. Participants will also be asked to complete three online surveys—one in week 1 of the semester, week 12 and 3 months after semester 1 has ended. The survey will take you approximately 30 minutes to complete. The survey will ask you to provide the first 3 letters of your first name and the last four digits of your mobile phone number so that your responses to the questionnaires can be matched across time. The Chief Investigator will be the only person who will have access to this information and any information that you give will be treated in the strictest of confidence.

**Can I enrol in the module and not participate in the research?**

Yes. The module and the research are separate so you can enrol in the module and not take part in the research.

**Will I get credit towards my course if I complete the module?**

No, currently the module is an additional non-credit bearing module. However, a record of module completion will appear on your final course transcripts.

**What if I don't get a space on the module?**

There are only 50 spaces available on the module and participants will be selected on a first come first served basis. However, if you are unable to enrol on the module you can still participate in the research study by filling out a 30-minute online survey at 3 times at week 1 of the semester, week 12 and 3 months after semester 1 has ended. This information will be used in the research to form a control group to compare to the data from those enrolled in the module. To thank participants for completing the surveys, they will be given a £5 Amazon voucher. This will allow the researchers to compare those enrolled in the module and those that are not.

**Risks/Disadvantages**

There are no anticipated risks of participating in this study. However, given the sensitivity of the topic being explored there is the potential for some upset. Should you wish to talk to a professional about any aspect of the study, a range of support services are identified below.

**Are there any possible benefits in taking part?**

By taking part in this study, we anticipate that you will be helping the School of Psychology to improve student wellbeing. Specifically, your views will help to inform the ways we support students in psychology and in particular, the further development of a wellbeing and resilience module.

**What happens when the study ends?**

The information elicited will be used to further develop the support programmes we provide for our students and our decision to make a new wellbeing and resilience module more widely available.

**What if something goes wrong?**

It is very unlikely that anything will go wrong, as there is very little risk associated with the project. However, the University does have ways of dealing with things if they do go wrong. Any complaints will be taken seriously and should be made to the Chief Investigator.

**Will taking part in the study be kept confidential?**

All data that you provide will be anonymous and will be treated confidentially, stored in line with GDPR (2018) and the Data Protection Act (1998) for a period of ten years. The data will be stored on a password protected PC and the research team are the only individuals who will have access to this information.

**What will happen to the results of the study?**

Results from the study will be made available on request when the project is completed at the end of September 2022. Also, it is anticipated that the results of this study will be presented at future academic conferences and in academic journals. You can be assured that you will not be identified from the data in any way.

**Who is organizing and funding the research?**

The research is being organised by a team of researchers in the School of Psychology at Bangor University.

**Who has reviewed this study?**

The study has been approved by the School of Psychology's Filter Committee.

**Contact details.****For further information please contact:**

Dr Rachel Johnston

E-mail [rcj19lvc@bangor.ac.uk](mailto:rcj19lvc@bangor.ac.uk)

**Sources of Support**

- **Bangor University Counselling Service**

Student Services, Lower Ground Floor, Neuadd Rathbone, College Road, Bangor

T: 01248 388520 E: [counselling@bangor.ac.uk](mailto:counselling@bangor.ac.uk)

- **Samaritans of North Wales**

5a Llys Onnen, Parc Menai, Bangor LL57 4DF

T: 116123 (free from any phone) or 03300945717 (local charges apply)

- **Mind Cymru**

The Wellbeing Centre, 23b Chester Street, Mold CH7 1EG, UK

T: 01352974430 E: [enquiries@newmind.org.uk](mailto:enquiries@newmind.org.uk)

**Compliance with GDPR and the Data Protection Act 2018**

We will act as the data controller, which means that we are responsible for looking after your information and using it properly, as stipulated in GDPR and the Data Protection Act 2018. Bangor University will keep identifiable information about you for 10 years after the study has finished, which will be September 2031.

As a university we use personal identifying information to conduct research to review and improve people's health, wellbeing and care, the services they use and our understanding of the world in which we live. As a publicly-funded organisation, we have to ensure that it is in the public interest when we use personal identifying information from people who have agreed to take part in research. This means that when you agree to take part in a study, we will use your data to conduct the research and analyse the information and findings.

We need to manage your information in specific ways in order for the research to be reliable and accurate and therefore your rights to access, change or move your information are limited. You should note that if you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personal identifying information possible.

Health, care and other human research should serve the public interest, which means that we have to demonstrate that our research serves the interests of society as a whole. We do this by following University and appropriate UK policies and codes of practice. The only people in the University who will have access to your personal identifying information will be those who need to contact you for the study or to carry out audits of the research.

**Appendix B**  
**CONSENT FORM**

**Study Title:** Exploring the effectiveness and acceptability of Dialectical Behavioural therapy skills in university students to promote wellbeing and resilience.

**Please read the following statements and, if you agree, tick the corresponding box to confirm agreement:**

I am aged 18 years or over.

I confirm that I have read and understand the participant information sheet for this study and fully understand what participation involves.

I understand that I have the right to withdraw my questionnaire at any time by exiting the survey or by contacting the Chief Investigator using the details on the participant information sheet and quoting the first 3 letters of my first name and last four digits of my mobile phone number.

I understand that by withdrawing my questionnaire/data I can still be enrolled in the module as the module and research project are separate  
I understand that this is a non-credit bearing module and will not contribute to my degree credits but that the module completion will be displayed to my final transcript

I understand that all of the data collected in this study will be stored in line with GDPR and the Data Protection Act and will be stored in a confidential manner on a password protected computer for a period of ten years.

I agree for my data to be used in future conference presentations and reports and understand that my data will be anonymous

I understand that my participation in this study is voluntary and I am under no obligation to take part and refusal to take part will have no impact on my participation or progress on my degree.

I freely agree to participate in this study.

Please state the first 3 letters of your first name and the last four digits of your mobile phone number, this will be used to match your survey responses throughout the study\_\_\_\_\_

## Appendix C

### Study advertisement

University is an exciting and stressful time for everyone. The increased freedom and independence is both exciting and daunting, leading many students to struggle in new ways or with emotions that seem to have increased in intensity. Conversely, research has shown that individuals who develop and use resilience strategies and emotion regulation skills (such as opposite action, relaxation strategies, mindfulness, and practicing gratitude) as well as build positive routines (for example, good eating and sleep habits, daily exercising, scheduling fun activities) are more likely to be effective in their job roles, involved in strong relationships, physically and mentally healthy, and satisfied with their lives overall.

The purpose of this course is to teach undergraduate students skills for having resilience in the face of commonly experienced stressors and difficulties. Stated simply, resilience is the ability to both survive and thrive. Resilience is not only about your ability to positively adapt in the face of adverse or challenging circumstances (that is, *survive*), but it is also about learning the positive skills, strategies and routines that enable you to live a happy, fulfilling, and successful life (in other words, *thrive*). This course will provide you with a personalized set of strategies and skills for self-care and optimize your academic and social experiences while at the University of Pittsburgh and beyond.

By the end of this course, you will have knowledge and skills that you can apply to your life now and in the future. This course will use lectures, readings, videos, discussion forums, practice exercises, and coaching to assist and encourage you in meeting the course objectives while developing your more resilient and skillful self.

There are **only 50 spaces** available on the module and participants will be selected on a first come first served basis. However, if you are unable to enrol on the module you can still participate in the research study by filling out a **30-minute online survey at 3 times-** week 1 of the semester, week 12 and 3 months after semester 1 has ended. To thank participants for completing the surveys, they will be given a **£5 Amazon voucher**. This will allow the researchers to compare those enrolled in the module and those that are not.

### SONA CREDITS

To thank all those that participate in the course description and those who do not participate in the module but still complete the online questionnaires **4 SONA credits** will be awarded and a £5 Amazon voucher.



## Appendix D

Psychometric scores an effect sizes

	Intervention Score, M (SD)	Control Score M (SD)	Cohen's D	CI Lower	CI Upper
Pre WCC Skills Use	1.84 (0.45)	1.51 (0.38)	0.51	-0.05	1.58
Post WCC Skills Use	2.10 (0.34)	1.48 (0.44)	1.57	0.65	2.46
Follow up WCC Skills Use	2.24 (.40)	1.59 (0.28)	1.85	0.89	2.79
Pre_WCC_GDF_Avg	2.79 (0.58)	3.17 (0.22)	-0.84	-1.66	-0.01
Post_WCC_GDF_Avg	1.61 (0.52)	2.94 (0.44)	-.67	-1.47	0.15
Follow_WCC_GDF_Avg	2.16 (0.64)	2.88 (0.43)	-1.33	-2.19	-0.44
Pre_WCC_BO_Avg	1.87 (0.55)	2.38 (0.42)	-1.02	-1.85	-0.17
POST_WCC_BO_Avg	1.85 (0.65)	2.33 (0.59)	-0.78	-1.59	0.04
Follow_WCC_BO_Avg	1.68 (0.59)	2.29 (0.60)	-1.03	-1.85	-0.18
Pre_DERs_Aw	6.23 (2.68)	8.5 (2.94)	-1.62	-1.62	0.18
Post_DERs_Aw	11.69 (2.09)	9.08 (2.15)	1.23	0.36	2.08
Follow_DERs_Aw	12.46 (2.22)	9.33 (2.64)	1.29	0.41	2.14
Pre_DERs_CI	7.46 (3.04)	9.08 (3.18)	-0.52	-1.32	0.28
Post_DERs_CI	6.92 (3.27)	9.75 (3.08)	-0.89	-1.70	- 0.05
Follow_DERs_CI	6.54 (2.40)	8.67 (2.74)	-1.64	-1.64	0.00
Pre_DERs_Go	8.85 (3.18)	10.75 (1.96)	-0.71	-1.52	0.10
Post_DERs_Go	8.15 (2.99)	10.5 (2.47)	-0.85	01.67	-0.02
FollowUp_DERs_Go	7.23 (2.80)	9.75 (2.14)	-1.00	-1.83	- 0.16
Pre_DERs_Im	7.00 (2.64)	9.17 (2.37)	-0.86	-1.68	- 0.03
Post_DERs_Im	6.38 (3.09)	8.92 (2.02)	-0.96	-1.78	- 0.12
Follow_DERs_Im	5.00 (1.77)	8.92 (2.23)	-1.95	-2.91	- 0.97
Pre_DERs_Na	9.62 (2.29)	10.42 (3.37)	-0.28	-1.06	0.51
Post_DERs_Na	7.77 (2.20)	9.5 (2.75)	-0.69	-1.50	0.12
Follow_DERs_Na	7.15 (1.90)	9.5 (2.02)	-1.19	-2.04	- 0.32
Pre_DERs_St	7.62 (2.46)	8.83 (1.75)	-0.56	-1.36	0.24
Post_DERs_St	7.23 (2.58)	9.5 (2.07)	-0.96	-1.20	-0.12
Follow_DERs_St	6.15 (2.40)	8.83 (2.59)	-1.09	-1.90	-0.22
Pre_DERs_To_Sum	46.77 (10.14)	56.75 (10.43)	-0.97	-1.79	- -013
Post_DERs_To_Sum	48.15 (11.65)	57.25 (7.5)	-0.92	-1.74	-0.08
FollowUp_DERs_To_Sum	44.54 (9.64)	55 (8.06)	-1.17	-2.01	-.030
Pre_Dass_Stress	12.69 (2.84)	14.00 (3.36)	-0.42	-1.21	0.38
Post_Dass_Stress	12.38 (3.70)	14.33 (3.25)	-0.56	-1.35	0.25
Follow_Dass_Stress	11.00 (2.94)	14.08 (3.87)	-0.90	-1.72	-0.07
Pre_Dass_An timer	12.46 (4.44)	16.67 (4.05)	-0.96	-1.78	-0.12
Post_Dass_An timer	12.53 (6.05)	16.91 (5.16)	-0.29	-1.07	0.51
Follow_Dass_An timer	10.46 (3.35)	16.91(6.06)	-0.68	-1.48	0.14
Pre_Dass_Dep	7.76 (5.37)	8.29 (5.17)	-0.99	-1.81	-0.14
Post_Dass_Dep	7.05 (6.19)	7.94 (5.59)	-0.78	-1.58	0.05
Follow_Dass_Dep	3.46 (3.35)	10.61 (6.33)	-1.33	-2.19	-0.45
Pre_Dass_Tot	24.80 (11.17)	25.91 (13.39)	-1.07	-1.90	-0.22
Post_Dass_Tot	22.00 (13.48)	24.61 (12.81)	-0.64	-1.44	0.17
Follow_Dass_Tot	14.15 (8.92)	29.23 (14.20)	-1.19	-2.04	-0.32
Pre_DT_Tol	3.31 (0.97)	3.14 (1.09)	0.16	-0.62	0.95
Post_DT_Tol	3.41 (1.17)	2.89 (0.98)	0.48	-0.32	1.27

Follow_DT_Tol	3.78 (1.01)	2.69 (0.72)	1.24	0.35	2.11
Pre_DT_Abs	2.87 (1.09)	2.75 (0.87)	0.12	-0.66	0.91
Post_DTS_Abs	2.90 (1.24)	2.64 (1.02)	0.23	-0.56	1.01
Follow_DTS_Abs	3.53 (0.69)	2.36 (0.64)	1.75	0.79	2.69
Pre_DTS_App	3.21 (0.90)	2.81 (0.86)	0.45	-0.35	1.24
Post_DTS_App	3.46 (1.13)	3.00 (0.95)	0.44	-0.36	1.23
Follow_DTS_App	3.88 (0.95)	2.71 (0.74)	1.37	0.48	2.24
Pre_DTS_Reg	3.21 (0.65)	3.11 (0.66)	0.14	-0.64	0.93
Post_DTS_Reg	3.03 (1.03)	2.94 (1.05)	0.08	-0.71	0.86
Follow_DTS_Reg	3.54 (0.86)	2.69 (0.83)	1.00	0.15	1.82
Pre_DTS_Total	3.14 (0.71)	2.95 (0.65)	0.29	-0.51	1.07
Post_DTS_Total	3.19 (1.05)	2.86 (0.90)	0.34	-0.46	1.12
FollowUp_DTS_Total	3.63 (0.68)	2.61 (0.58)	1.60	0.66	2.52
Pre_PSS_Tot	11.72 (7.28)	10.83 (6.66)	-0.99	-1.81	-0.14
Post_PSS_Tot	8.83 (6.97)	11.83 (6.47)	-1.12	-1.96	-0.26
Follow_PSS_Tot	6.15 (5.72)	12.69 (6.04)	-1.28	-2.13	-0.40
Pre_AAQ_Tot	23.92 (7.60)	29.67 (8.09)	-0.73	-1.54	0.09
Post_AAQ_Tot	21.15 (9.56)	27.33 (8.6)	-0.68	-1.48	0.14
Follow_AAQ_Tot	19.62 (7.94)	27.33 (11.4)	-0.79	-1.60	0.03
Pre_MAAS_Tot	50.62 (14.36)	50.5 (11.41)	0.01	-0.78	0.79
Post_MAAS_Tot	52.67 (14.24)	48.08 (8.74)	0.39	-0.42	1.19
Follow_MAAS_Tot	59 (14.85)	45 (8.98)	1.13	0.23	2.00
Pre_WhoDas_Tot	23.77 (9.16)	24.67 (6.11)	-0.11	-0.90	0.67
Post_WhoDas_Tot	24.54 (7.28)	26.75 (7.48)	-0.30	-1.09	0.49
Follow_WhoDas_Tot	20.77 (7.47)	25.33 (7.05)	-0.63	-1.43	0.18
Pre_OC_Tot	84.92 (12.53)	91.42 (9.35)	-0.58	-1.38	0.22
Post_OC_Tot	82.58 (16.05)	88.83 (11.97)	-0.44	-1.25	0.37
Follow_OC_Tot	75.85 (13.87)	89.92 (13.91)	-1.01	-1.84	-0.17
Pre_PNS_Tot	43.08 (6.08)	43.42 (4.70)	-0.06	-0.85	0.72
Post_PNS_Tot	41.85 (7.66)	43.08 (9.64)	-0.14	-0.93	0.64
Follow_PNS_Tot	41 (9.00)	41.33 (5.40)	-0.04	-0.83	0.74
Pre_BNS_Avg	2.81 (0.33)	3.01 (0.30)	-0.65	-1.44	0.17
Post_BNS_Avg	2.81 (0.33)	3.01 (0.30)	-0.65	-1.44	0.17
Follow_BNS_Avg	2.99 (0.29)	3.07 (0.26)	-0.30	-1.08	0.50
Pre_LS_Tot	21.23 (7.04)	19 (5.56)	0.35	-0.45	1.14
Post_LS_Tot	20 (9.26)	18.25 (5.43)	0.23	-0.56	1.01
Follow_LS_Tot	25.46 (7.68)	19.25 (6.37)	0.88	0.04	1.69

AAQ= Acceptance and Action Questionnaire, DASS Anxiety= Depression Anxiety Stress Scale Anxiety, DASS Dep= Depression Anxiety Stress Scale Depression, DASS Stress= Depression Anxiety Stress Scale Stress, DERS AW= Difficulties in Emotion Regulation Scale Lack of Emotional Awareness, DERS CI= Difficulties in Emotion Regulation Scale Lack of emotional clarity, DERS GO= Difficulties in Emotion Regulation Scale Difficulty Engaging in Goal Directed Behaviour, DERS Im= Difficulties in Emotion Regulation Scale Lack of Impulse control difficulties, DERS Na= Difficulties in Emotion Regulation Scale Lack of nonacceptance of emotional responses, DERS ST= Difficulties in Emotion Regulation Scale Lack of limited access to emotion regulation strategies, DTS= Distress Tolerance Scale, DTS APP= Distress Tolerance Appraisal of Distress, , DTS Reg= Distress Tolerance Regulation , DTS Tol= Distress Tolerance Tolerance, LS= Life Satisfaction scale, OC = Over Controlled trait rating scales, MAAS= Mindful Attention Awareness Scale, PNSS= Personal Need for Structure, PSS= Perceived

Stress Scale, WCC BO= Ways of Coping Questionnaire Blaming Others, WCC DC= Ways of Coping Questionnaire dysfunctional coping, WHODAS = WHO disability assessment schedule

### Appendix E

	Cohen's D pre measure group differences	Cohen's D post/follow up group differences	Cohen's D pre - post/follow up Cohens D=
Follow DERs CI	-0.52	-1.64	1.12
Follow DERs Im	-0.86	-1.95	1.09
Follow DERs Na	-0.28	-1.19	0.91
Follow DERs St	-0.56	-1.09	0.53
Follow WHODAS total	-0.11	-0.63	0.52
Follow WCC DC	-0.84	-1.33	0.49
Follow DASS Stress	-0.42	-0.9	0.48
Follow OC total	-0.58	-1.01	0.43
Post DERs Na	-0.28	-0.69	0.41
Post DERs St	-0.56	-0.96	0.4
Post DERs CI	-0.52	-0.89	0.37
Follow DASS Dep	-0.99	-1.33	0.34
FollowUp DERs Go	-0.71	-1	0.29
Follow PSS total	-0.99	-1.28	0.29
FollowUp DERs To Sum	-0.97	-1.17	0.2
Post WHOW DAS total	-0.11	-0.3	0.19
Post DASS Stress	-0.42	-0.56	0.14
Post DERs GO	-0.71	-0.85	0.14
Post PSS	-0.99	-1.12	0.13

Post LS	0.35	0.23	0.12
Follow DASS total	-1.07	-1.19	0.12
Post DERs Im	-0.86	-0.96	0.1
Post PNSS total	-0.06	-0.14	0.08
Follow AAQ total	-0.73	-0.79	0.06
Post DTS Reg	0.14	0.08	0.06
Post DTS App	0.45	0.44	0.01
Follow WCC BO	-1.02	-1.03	0.01
Post BNS	-0.65	-0.65	0
Follow PNS total	-0.06	-0.04	-0.02
Post AAQ total	-0.73	-0.68	-0.05
Post DERs To Sum	-0.97	-0.92	-0.05
Post DTS total	0.29	0.34	-0.05
Post DTS Abs	0.12	0.23	-0.11
Post OC total	-0.58	-0.44	-0.14
Post WCC DC	-0.84	-0.67	-0.17
Post DASS Dep	-0.99	-0.78	-0.21
Post WCC BO	-1.02	-0.78	-0.24
Follow DASS Anx	-0.96	-0.68	-0.28
Post DT Tol	0.16	0.48	-0.32
Follow BNS	-0.65	-0.3	-0.35
Post MAAS total	0.01	0.39	-0.38
Post DASS total	-1.07	-0.64	-0.43
Follow LS total	0.35	0.88	-0.53
Post DASS Anx	-0.96	-0.29	-0.67
Follow DTS Reg	0.14	1	-0.86
Follow DTS App	0.45	1.37	-0.92
Post WCC Skills Use	0.51	1.57	-1.06
Follow DT Tol	0.16	1.24	-1.08
Follow MAAS total	0.01	1.13	-1.12
FollowUp DTS total	0.29	1.6	-1.31

Follow up WCC Skills Use	0.51	1.85	-1.34
Follow DTS Abs	0.12	1.75	-1.63
Post DERs Aw	-1.62	1.23	-2.85
Follow DERs Aw	-1.62	1.29	-2.91

AAQ= Acceptance and Action Questionnaire, DASS Anxiety= Depression Anxiety Stress Scale Anxiety, DASS Dep= Depression Anxiety Stress Scale Depression, DASS Stress= Depression Anxiety Stress Scale Stress, DERs AW= Difficulties in Emotion Regulation Scale Lack of Emotional Awareness, DERs CI= Difficulties in Emotion Regulation Scale Lack of emotional clarity, DERs GO= Difficulties in Emotion Regulation Scale Difficulty Engaging in Goal Directed Behaviour, DERs Im= Difficulties in Emotion Regulation Scale Lack of Impulse control difficulties, DERs Na= Difficulties in Emotion Regulation Scale Lack of nonacceptance of emotional responses, DERs ST= Difficulties in Emotion Regulation Scale Lack of limited access to emotion regulation strategies, DTS= Distress Tolerance Scale, DTS APP= Distress Tolerance Appraisal of Distress, , DTS Reg= Distress Tolerance Regulation , DTS Tol= Distress Tolerance Tolerance, LS= Life Satisfaction scale, OC = Over Controlled trait rating scales, MAAS= Mindful Attention Awareness Scale, PNSS= Personal Need for Structure, PSS= Perceived Stress Scale, WCC BO= Ways of Coping Questionnaire Blaming Others, WCC DC= Ways of Coping Questionnaire dysfunctional coping, WHODAS = WHO disability assessment schedule

## Chapter Three-Clinical Reflections

### **Clinical Reflections**

The current chapter will focus on the contributions both the systematic review and the empirical paper presented in the thesis have made to clinical practice within the area of student mental health. The implications of the findings for future research will also be discussed.

## **Implications for clinical practice**

### ***Dialectical Behavioural Therapy within Student Mental Health Services***

The findings of the systematic review provided encouragement for the application of DBT based interventions (both skills and comprehensive) to the student population, with all but one of twenty studies finding DBT to have a positive impact on mental health. Therefore, the findings of the systematic review strongly encourage the further exploration of DBT within student mental health services (SMHS). Interestingly, the positive impact was found for DBT across various intervention content and targeted symptoms. Common components found across the interventions included in the review will be discussed in the current section to guide future SMHS implementing DBT.

#### ***Group format***

Firstly, the majority of studies included in the review employed a group element as a way to deliver DBT skills. The empirical study in the current thesis also had a group element of small seminars in which students would come together to review the practice and discuss the skills. Given that feelings of isolation and loneliness have been linked to greater mental health suffering in students in the UK (Richardson, Elliot & Roberts, 2017) the group element of DBT may help to alleviate feelings of isolation and aid intervention impact. Qualitative research from adolescent participants of a DBT intervention have highlighted the importance of the group environment being a validating space where individuals could discuss their experiences with those who would “understand” their difficulties (Pardo et al., 2020). Findings from a systematic review aimed at studies that explored participants experiences of DBT groups highlight the importance of learning DBT in a group environment as it is validating and normalizing (Little, Tickle & Nair, 2017). The group format of DBT may help battle the stigma among students about mental health as this has been highlighted as a barrier to engaging in help (Dunley & Papadopoulos, 2019; Unions Futures Project, 2018; Yakunina, Rogers, Waehler & Wreth, 2010). As interventions in group form are already being offered in SMHS (Pollard, Vanderlayden, Alexander, Borkin & O’Mahony, 2021) it is feasible to assume that implementing a DBT that includes a group element is possible within services.

### ***Content of intervention***

Another interesting finding from the review was the variation in modules within the DBT interventions. However, a component incorporated into all, bar one, of the studies was the mindfulness module. Within the empirical study in the current thesis, mindfulness was practiced at every session of the intervention. The mindfulness module is regarded as a central component of DBT and is referred to as “core mindfulness skills” and is implanted into all of the DBT modules (Linehan, 1993). Mindfulness is conceptualized in DBT as aiming for participants to bring awareness to the present moment non-judgmentally. Research has found that students often worry about the future regarding finance, academic concerns and social relationships (Karyotaki et al., 2020). High level of future worries is associated with low levels of wellbeing among students (Dadaczynski, Okan, Messer, Rathman, 2022). In a large sample of UK university students, higher levels of mindfulness were found to be strongly linked to cognitive reappraisal and resilience (Zarotti, Povah & Simpson, 2020). Considering the results of the systematic review and the empirical paper, SMHS should ensure that they incorporate the mindfulness module into their DBT interventions.

### ***Population***

Within the systematic review, studies included targeted clinical presentations such as trauma, borderline-personality traits, social anxiety and test anxiety. However, a common presentation among the studies was labelled as “stress” or “emotion dysregulation” suggesting a more general view of mental health distress. In the empirical paper students were not selected based on having met a threshold for mental health distress. In both the systematic review and empirical paper gains in mental health were observed. These findings suggest that DBT could be applied transdiagnostically within SMHS.

### ***Mental health modules within university degrees- where should they sit within the curriculum?***

The results of the empirical paper found that in comparison to peers, students who undertook a module aimed at improving wellbeing, had better mental health outcomes towards the end of the academic year. Whilst the research experienced roughly 50% of drop out (this was found in both



intervention and control groups), the course itself only experienced 28% of drop out which is favourable rate given it is a novel module.

The module was carried out as an additional module that students could opt to do in addition to their core course modules. The module consisted of a weekly 2-hour lecture and a 40-minute small group seminar alongside homework practices and additional reading. By selecting the additional Wellness and Resilience course (WRC), student increased their time spent in lectures and added an additional workload in comparison to their peers who did not enroll. The added workload of completing the questionnaires for the research may account for the high rate of drop out experienced in the study. It is not possible to decipher if the eleven individuals that dropped out of the module were also the individuals who had enrolled and subsequently dropped out of in the research.

A potential message that students could infer from the university with the WRC not being part of the core curriculum and instead being a voluntary additional module is that mental wellbeing is not as important as academic content and therefore it should not be prioritized. Potentially, this could further reinforce the stigma that students experience surrounding their mental health.

An alternative is to introduce the wellness course as a mandatory option. Universities have previously taken action to implement mandatory practices for student. The University of Illinois instigated a policy in 1984 that mandated that any students who were seen as high risk for suicide must have four sessions of assessment by a mental health professional or withdraw from the university (Joffe, 2008). Comparing suicide rates before and after the policy was implemented, there was reduction of students dying by suicide up to 45.3% in undergraduate students following the policies' introduction. These findings were in the context of suicide rates increasing nationally and at other universities. Other universities that have employed mandatory courses focused on wellbeing have found positive impacts on student's mental health (Hassed et al., 2009; Skarin & Wastlund, 2020). Yet, mandatory practice raises ethical issues of consent. Whilst the WRC is designed to raise topics sensitively, arguably there is the opportunity for strong emotions to be triggered by the topics raised or during discussion of progress with skills. While the practical element of the course could be dropped (e.g. small group discussions) reviews of the literature suggest that courses that included

supervised practice were significantly more effective than psychoeducation or skills training alone (Hood et al., 2021). Mandatory practice of such discussions could be perceived as unethical and impede any benefit the WRC course may have to mental health.

The current thesis therefore produces the following dilemma- if the WRC course is not given room on the curriculum (e.g., seen as an additional module resulting in additional work) the message from the university to students could be that mental health care is not prioritized. Alternatively, if it is implemented into the curriculum as a mandatory module this raises ethical concerns of consent to intervention. It is proposed that the voice of the student body should be consulted as to what action would be best taken when placing the WRC course into the curriculum.

However, further to implementing the WRC more research is required to establish its effectiveness. A limitation of the empirical paper in the current thesis was its inability to randomise students to either the module or a control group. This was due to self-enrolment option offered by the university. This lack of randomisation resulted in there being a potential core difference between the two groups. Those that enrolled in the module were potentially more motivated than the control group to engage with the content of the module, hence the self-enrolment. This could have influenced the positive results the individuals in the module displayed in comparison to the control group. Future research which includes a randomised sample will reduce the risk of such biases occurring.

## **Implications for future research and theory development**

### ***Literature Review***

The second leading cause of death among students is suicide with roughly one university student completing suicide every four days (Office of National Statistics, 2018). DBT was originally created to treat chronically suicidal individuals (Linehan, 1993) and has strong evidence for its effectiveness in reducing suicidal behaviour throughout the literature (DeCou, Comtois & Landes, 2019). It was therefore surprising that of the sixteen studies included in the review, only one included a measure of suicide. It seems imperative given the high rate of suicide among students and the

effectiveness of DBT in treating suicide, that future research include measures of suicide to understand the impact of DBT upon suicidal behaviours among the student population.

### ***Empirical Paper***

Anxiety and depression are common symptom presentations that students seek help with in SMHS (Broglia et al., 2021). In the review, seven studies included a measure of anxiety and/or depression. Of these studies, four detected an improvement in symptoms with small-medium effect sizes. The empirical study found no significant impact upon symptoms of anxiety and depression. As anxiety and depression are one of the most common presentations seen among students it is an important area of focus. The WRC is largely based on DBT however one session is devoted to identifying unhelpful thoughts and altering them, a common CBT technique used to treat symptoms of anxiety and depression (Greenberger & Padesky, 2015). CBT is the NICE recommended treatment for anxiety and depression (NICE, 2008). CBT has found to have greater effect on symptoms of anxiety and depression when directly compared to DBT (Afshari & Hasani, 2020). However, DBT has also been found to be effective when treating anxiety and depression (Afshari & Hasani, 2020; Delaquis, 2022; Panos, Jackson, Hasan & Panos, 2019). Future research could modify the WRC to include more content related to symptoms of anxiety and depression. However, as DBT has been shown be effective for treating common mental health problems there is the potential that the removal of DBT skills to include other techniques (e.g. CBT techniques) degrades its effectiveness in the empirical paper for reducing symptoms of anxiety and depression.

Qualitative research would allow an insight into the experiences of students undertaking the module. It would be beneficial to understand what they experienced when learning about mental health and applying practical skills within a university setting. Given that the course was open to psychology students, there was the possibility that students would be in seminar groups with another member of their course. Qualitative research would allow the exploration of the possible benefits/disadvantages of undergoing the module with their peers.

## **Reflective commentary**

From a young age I have been aware of undertones that are present when discussing mental health within my family and my community. I understood that mental health is not something that should be brought up when asking an individual how they are, it should be kept secret as any mental distress signals an inherent weakness within the individual and their family. As a teenager in secondary school, I attended health classes that informed me of the dangers of smoking, drinking and unprotected sex. I learned about the different food groups our body needs and the importance of hydration. As part of a homework project, we were required to create pamphlets on the dangers and preventatives of obesity and sexually-transmitted diseases. By the time I finished secondary school I had roughly a good idea of what was needed to keep my body healthy but not once in the seven years I attended health classes did I learn anything that would help me with my mental health. Suddenly I was in university and totally unprepared for the massive social changes and new academic demands. I was aware that there was a student mental health service but given the culture of keeping mental health hidden I had grown up in, it was not something that felt accessible to me. I feel these experiences were what strongly drew me to be a part of research that would be delivering mental health module to students helping to normalise taking care of our mental health.

For this research I had a dual role- both actively involved in delivering the intervention and evaluating it as a researcher. I felt the weight of the dual role in the seminar groups where we would actively discuss and practice the skills. As a therapist, I often find that my session plan needs to be adapted and flexible to the needs of the client. However, as a seminar facilitator I could feel rising panic if the topic strayed off from the week's current skills, even if it was a beneficial discussion to the client e.g. a first-year student finding out how to work the software used to submit coursework from a second-year student. This anxiety caused me to adhere rigidly to the topic and on reflection, I

wonder if those in my seminar group felt this anxiety and the impact this may have had. I feel this was caused by my role as a researcher and wanting to remain as scientific as possible by staying true to the module plan. Upon reflection, it would perhaps have been wise to create a subgroup of those within my seminar group in the analysis and explore if being in a group with a facilitator who was also a researcher had any effect. While I was facilitating the seminars, I was also simultaneously facilitating a DBT skills group within Bangor University's SMHS. Whilst there was overlap in skills being taught, I noticed that the time allocated was largely different. For the small groups, we were only able to meet for 40 minutes as 20 minutes was needed between room bookings to allow the room to be cleaned due to the COVID-19 pandemic. This was a very limited time in comparison to the DBT skills group who met for two hours. Typically, I had to interrupt students to end a session when they were they were in mid flow of conversation, despite a 5-minute warning that sessions would be ending soon. I felt that even an extra 20 minutes would have allowed more questions and discussion of the skills in the seminars.

## References

- Becker, M. A. S., Schelbe, L., Romano, K., & Spinelli, C. (2017). Promoting first-generation college students' mental well-being: Student perceptions of an academic enrichment program. *Journal of College Student Development*, 58(8), 1166-1183.
- Dadaczynski, K., Okan, O., Messer, M., & Rathmann, K. (2022). University students' sense of coherence, future worries and mental health: Findings from the german COVID-HL-survey. *Health Promotion International*, 37(1), daab070.
- Dunley, P., & Papadopoulos, A. (2019). Why is it so hard to get help? barriers to help-seeking in postsecondary students struggling with mental health issues: A scoping review. *International Journal of Mental Health and Addiction*, 17(3), 699-715.
- Hassed, C., De Lisle, S., Sullivan, G., & Pier, C. (2009). Enhancing the health of medical students: Outcomes of an integrated mindfulness and lifestyle program. *Advances in Health Sciences Education*, 14(3), 387-398.
- Hood, B., Jelbert, S., & Santos, L. R. (2021). Benefits of a psychoeducational happiness course on university student mental well-being both before and during a COVID-19 lockdown. *Health Psychology Open*, 8(1), 2055102921999291.
- Joffe, P. (2008). An empirically supported program to prevent suicide in a college student population. *Suicide and Life-Threatening Behavior*, 38(1), 87-103.
- Karyotaki, E., Cuijpers, P., Albor, Y., Alonso, J., Auerbach, R. P., Bantjes, J., . . . Kiekens, G. (2020). Sources of stress and their associations with mental disorders among college students: Results of the world health organization world mental health surveys international college student initiative. *Frontiers in Psychology*, , 1759.
- Linehan, M. M. (1993). *Skills training manual for treating borderline personality disorder*. Guilford press.

Linehan, M. M. (1993). *Skills training manual for treating borderline personality disorder*. Guilford press.

Little, H., Tickle, A., & das Nair, R. (2018). Process and impact of dialectical behaviour therapy: A systematic review of perceptions of clients with a diagnosis of borderline personality disorder. *Psychology and Psychotherapy: Theory, Research and Practice*, 91(3), 278-301.

The National Institute for Health and Care Excellence (2009). *NICE guidance: Generalised anxiety disorder: recognition and management*. Available <https://www.nice.org.uk/guidance/cg113>

The National Institute for Health and Care Excellence (2009). *NICE guidance: depression: recognition and management*. Available <https://www.nice.org.uk/guidance/cg90>

Pardo, E. S., Rivas, A. F., Barnier, P. O., Mirabent, M. B., Lizeaga, I. K., Cosgaya, A. D., . . . Torres, M. A. G. (2020). A qualitative research of adolescents with behavioral problems about their experience in a dialectical behavior therapy skills training group. *BMC Psychiatry*, 20(1), 1-10.

Pollard, E., Vanderlayden, J., Alexander, K., Borkin, H., & O'Mahony, J. (2021). Student mental health and wellbeing: Insights from higher education providers and sector experts: June 2021.

Richardson, T., Elliott, P., & Roberts, R. (2017). Relationship between loneliness and mental health in students. *Journal of Public Mental Health*,

Skarin, F., & Wästlund, E. (2020). Increasing students' long-term well-being by mandatory intervention—a positive psychology field study. *Frontiers in Psychology*, , 2567.

Yakunina, E. S., Rogers, J. R., Waehler, C. A., & Werth Jr, J. L. (2010). College students' intentions to seek help for suicidal ideation: Accounting for the help-negation effect. *Suicide and Life-Threatening Behavior*, 40(5), 438-450.

Zarotti, N., Povah, C., & Simpson, J. (2020). Mindfulness mediates the relationship between cognitive reappraisal and resilience in higher education students. *Personality and Individual Differences*, 156, 109795.

