



THE HONG KONG
POLYTECHNIC UNIVERSITY

香港理工大學

Pao Yue-kong Library

包玉剛圖書館

Copyright Undertaking

This thesis is protected by copyright, with all rights reserved.

By reading and using the thesis, the reader understands and agrees to the following terms:

1. The reader will abide by the rules and legal ordinances governing copyright regarding the use of the thesis.
2. The reader will use the thesis for the purpose of research or private study only and not for distribution or further reproduction or any other purpose.
3. The reader agrees to indemnify and hold the University harmless from and against any loss, damage, cost, liability or expenses arising from copyright infringement or unauthorized usage.

IMPORTANT

If you have reasons to believe that any materials in this thesis are deemed not suitable to be distributed in this form, or a copyright owner having difficulty with the material being included in our database, please contact lbsys@polyu.edu.hk providing details. The Library will look into your claim and consider taking remedial action upon receipt of the written requests.

ACCEPTANCE AND COMMITMENT
THERAPY FOR PROMOTING
PSYCHOLOGICAL WELL-BEING AMONG
NEW GRADUATE NURSES: A PILOT
RANDOMIZED CONTROLLED TRIAL

LAM CHING YEE

PhD

The Hong Kong Polytechnic University

2024

The Hong Kong Polytechnic University
School of Nursing

Acceptance and Commitment Therapy for Promoting
Psychological Well-being Among New Graduate Nurses: A
Pilot Randomized Controlled Trial

Lam Ching Yee

A thesis submitted in partial fulfillment of the requirements for
the degree of Doctor of Philosophy
July 2023

CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgment has been made in the text.

Signature: _____

Name of Student: Lam Ching Yee

Abstract of dissertation entitled:

“Acceptance and Commitment Therapy for Promoting Psychological Well-being
Among New Graduate Nurses: A Pilot Randomized Controlled Trial”

submitted by Lam Ching-yee

for the degree of Doctor of Philosophy at The Hong Kong Polytechnic University

Background. New graduate nurses (NGN) are at high risk of stress, depression, burnout, and other psychological health issues due to increased challenges of role transition from students to qualified nurses, specifically the first year after graduation. Major transition challenges include increased nursing responsibility, unfamiliar clinical environment, and socialization with new colleagues. Such difficult situations affect psychological well-being of NGN and hence result in stronger psychological inflexibility which leads to psychological dysfunction and reduced quality of life. Mental health promotion in NGN has been little addressed in previous research on role transition programmes that generally focus on service outcomes, clinical knowledge, and skill training. Acceptance and commitment therapy (ACT) has been identified as an empirically support intervention for people with various mental illnesses. As it focuses on psychological flexibility (PF), it has been proposed to be an appropriate mental health promotion intervention. Thriving NGN with PF through ACT may help them to accept difficult thoughts and feelings and to shield them from psychological problems.

Objectives. This single-blind, two-arm parallel-group randomized control trial with assessments at baseline, post-intervention and 3-month after intervention aimed (i) to assess the feasibility of the study, and (ii) to investigate the preliminary efficacy of an online group-based ACT intervention combined with career information seminar in

comparison to a control group received online career information seminar only for promoting psychological well-being of NGN.

Setting and Participants. Pre-licensure undergraduate final year student nurses were conveniently recruited at two universities via face-to-face or online publicizing activities.

Randomization. Eligible participants were randomly assigned either to an intervention group (one 2-hour online career information seminar combined with five 2-hour consecutive weekly online ACT sessions) or a control group (one 2-hour online career information seminar). Block randomization was done by using an online computer-generated random number with an allocation ratio of 1:1.

Intervention conditions. Participants of the control group received information of nursing career pathway and suggested preparation for new role. Six core processes of ACT were introduced and practised in the five 2-hour online ACT sessions for participants assigned to the ACT intervention group. These participants also received the same career seminar as participants in the control group. All ACT sessions were led by a trained nurse educator and supervised by an experienced ACT facilitator.

Primary and Secondary Outcome Measures. Generalized estimating equations (GEE) were conducted to investigate the time-by-condition interactions for primary outcomes, i.e., psychological well-being (as measured by Psychological Well-being Scale-18, PWBS-18; and World Health Organization Well-being Index, WHO-5), secondary outcomes, i.e., perceived stress and professional quality of life (as measured by Perceived Stress Scale, PSS-10; and Professional Quality of Life, ProQOL) and process outcomes, i.e., psychological flexibility and dispositional mindfulness (as measured by Acceptance and Action Questionnaire, AAQ-II; and Mindfulness Attention Awareness Scale, MAAS). All assessments were conducted

online at baseline, post-intervention, and 3-month after intervention. Regarding feasibility of this study, recruitment rate, programme completion rate and assessment completion rate was assessed.

Results. A total of 64 NGN joined the study (ACT n=32, Control n=32). Significant time-by-condition interactions for subjective well-being (WHO-5) ($Wald X^2 = 8.286, p = 0.016$) and burnout (ProQOL-BO) ($Wald X^2 = 6.130, p = 0.047$) in intention-to-treat (ITT) sample were found. Within control group, significant increased burnout (ProQOL-BO) ($Mdiff = 6.90, 95\% CI [6.94, 6.87], p = .002$) together with significant reductions in subjective well-being (WHO-5) ($Mdiff = -7.80, 95\% CI [-7.77, -7.80], p = .037$) and decreased compassion satisfaction (ProQOL-CS) ($Mdiff = -5.60, 95\% CI [-5.27, -5.94], p = .032$) were found across the three measurement time points from baseline to 3-month after intervention. However, no significant changes were found for these outcome measures within the ACT group. The between-group comparisons found that when compared to NGN who attended only career information seminar, NGN who attended ACT sessions and career information seminar became more psychological flexible (AAQ-II) ($Mdiff = -2.84, 95\% CI [-3.13, -2.56], p = .045, d = .373$) at post-intervention, and had lesser secondary traumatic stress (ProQOL-STTS) ($Mdiff = -5.89, 95\% CI [-5.34, -6.44], p = .044, d = .631$) at 3-month after intervention.

The study appeared feasible. The recruitment rate was 14.2%. The programme completion rate of ACT group and control group was 50% and 100% respectively. The online assessment completion rate ranged from 79.7% (3-month after intervention) to 100% (baseline). All online ACT sessions and career information seminar were run smoothly and in-order.

Conclusion. Overall, these results provided preliminary support for the feasibility of a novel online group-based ACT role transition programme for NGN. By nourishing NGN with ACT skills and strengthening ACT processes may inoculate NGN against stress and burnout, and a decline in compassion satisfaction can be prevented. This study adds more support to the ACT model as a useful intervention for promoting psychological well-being and suggests future research with full-powered trial and a larger sample size. Given the intervention was delivered by a trained nurse educator at school via an online group-based approach, it has its practical advantages in both school and, maybe, clinical settings, with little resources implications.

Publications arising from the thesis

- Lam, C.Y., Mak, Y.W. and Leung, S.F. (2023, March 10-11). *Psychological well-being, perceived stress, and psychological flexibility among new graduated nurses* [Poster Session]. The 26th East Asian Forum of Nursing Scholars (EAFONS 2023), Tokyo, Japan.
- Lam, C.Y. Mak, Y.W. Lam, K.L. and Leung, S.F. (2021, June 24-27). *The effect of acceptance and commitment therapy workshop on mental well-being among community-based health facilitators* [Paper Presentation]. ACBS Virtual World Conference 19.
- Lam, C.Y., Mak, Y.W. and Leung, S.F. (2020, July 14-19). *Acceptance and Commitment Therapy (ACT) and Well-being: A Systematic Review* [Poster Presentation]. ACBS World Conference 18, Online.
- Lam, C.Y., Mak, Y.W. and Leung, S.F. (2019, June 27-30). *Acceptance and commitment therapy (ACT) for promoting mental well-being among new graduate nurses: study protocol for a pilot randomized controlled trial (RCT)* [Poster Session]. ACBS World Conference 17: Dublin, Ireland.
- Lam, C.Y., Mak, Y.W. and Leung, S.F. (2018, July 24-29). *The use of acceptance and commitment therapy (ACT) as a preventive and promotional program for mental health: A systematic review* [Poster Session]. ACBS World Conference 16, Montréal, Québec, Canada.
- Lam, C.Y., and Mak, Y.W. (2018, January 11-12). *Preventing or reducing depressive or anxiety symptoms among adolescents using acceptance and commitment therapy: A literature review* [Poster Session]. The 21st East Asian Forum of Nursing Scholars (EAFONS 2018), Seoul, Korea.

Awards derived from the study

Michael J. Asher Student Dissertation Award 2023

Association for Contextual Behavioral Science for this doctoral dissertation. (Link: https://contextualscience.org/michael_j_asher_student_dissertation_award)

Student Spotlight Award 2023

Association for Contextual Behavioral Science. (Link: https://contextualscience.org/acbs_student_spotlight_program)

Acknowledgements

First and foremost, to my dear supervisor, Dr Yim-wah. Mak, I must express my deepest gratitude to her constant support, guidance, inspiration, and encouragement. Her teaching is crucial and essential. She showed me her passion and enthusiasm in assisting people to shift their focus from external to internal. I am glad to have had her guide me.

I would like to express my deepest appreciation to Dr. Sau-fong. Leung, my co-supervisor, for her unconditional support. I am extremely grateful to have her in my journey of studying.

My special thanks to Dr. Lisa, W. COYNE and Dr. Hui CAO for their kindness in providing me inspiration for refining my ACT intervention protocol, and to make it the most suitable for new graduate nurses.

Special thanks to Mr. Samuel Hui, one of my wonderful ACT teachers, who provided me greatest support and excellent teaching throughout the intervention implementation period.

I am also deeply thankful to the study participants, our next generation in nursing profession. Thank you for your willingness to join this study and to learn new things.

Last, thank you so much to my parents, Eden, and April, I could not have undertaken this journey without you.

Table of Contents

CERTIFICATE OF ORIGINALITY	iii
Abstract of dissertation entitled:	iv
Publications arising from the thesis	viii
Awards derived from the study	ix
Acknowledgements	x
List of Tables	xv
List of Figures.....	xvii
List of Appendices.....	xvii
List of Abbreviations	xviii
List of Statistical Acronyms	xix
Chapter 1 Introduction.....	1
1.1 Introduction.....	1
1.2 Psychological Well-being and Health	2
1.3 New Graduate Nurses and Role Transition	4
1.3.1 <i>Stressful Working Life and Nurses.....</i>	<i>4</i>
1.3.2 <i>Stress in New Graduate Nurses and Their Experience During Transitional Period</i>	<i>5</i>
1.3.3 <i>Current Transition Programmes for New Graduate Nurses</i>	<i>7</i>
1.4 Acceptance and Commitment Therapy	9
Figure 1 ACT.....	11
1.4.1 <i>ACT: A Potential Intervention for Promoting Psychological Well-being</i>	<i>11</i>
1.5 Significance of study	12
1.6 Organization of the Thesis.....	13
Chapter 2 Literature Review	15
2.1 Introduction.....	15

2.2	Methods	15
2.2.1	<i>Literature Search</i>	15
2.2.2	<i>Inclusion and Exclusion Criteria</i>	16
2.2.3	<i>Data Extraction</i>	16
2.2.4	<i>Outcomes Measurement</i>	16
2.2.5	<i>Quality Assessment of Included Studies</i>	17
2.3	Results.....	17
2.3.1	<i>Selection of Studies</i>	17
2.3.2	<i>Description of Included Studies</i>	20
2.3.3	<i>Population Characteristics</i>	20
2.3.4	<i>Intervention Characteristics</i>	20
2.3.5	<i>Outcome Measures</i>	22
2.3.6	<i>Quality of Studies</i>	25
2.3.7	<i>Intervention Efficacy on Psychological Well-being (PWB)</i>	28
2.4	Discussion.....	32
2.5	Conclusion	32
Chapter 3	Methods.....	34
3.1	Study Design.....	34
3.2	Study Participants, Eligibility Criteria, and Study Setting,	35
3.2.1	<i>Study Participants and Eligibility Criteria</i>	35
3.2.2	<i>Study Setting</i>	35
3.3	Sampling Methods and Recruitment Procedures.....	35
3.3.1	<i>Sampling Methods</i>	35
3.3.2	<i>Recruitment Procedures</i>	36
3.4	Interventions of the Study.....	37
3.4.1	<i>Delivery Mode of Treatment Sessions</i>	37
3.4.2	<i>Schedule of Treatment Sessions</i>	37
3.4.3	<i>Control Group</i>	38
3.4.4	<i>Intervention Group</i>	39
3.4.5	<i>Intervention Protocol</i>	39

3.5	Measuring Instruments	44
3.5.1	<i>Psychological Well-being Scale-18 (PWBS-18)</i>	44
3.5.2	<i>World Health Organization Well-being Index (WHO-5)</i>	45
3.5.3	<i>Perceived Stress Scale (PSS-10)</i>	46
3.5.4	<i>Professional Quality of Life Scale (ProQOL) (Version 5)</i>	47
3.5.5	<i>Acceptance and Action Questionnaire (AAQ-II)</i>	48
3.5.6	<i>Mindfulness Attention Awareness Scale (MAAS)</i>	48
3.5.7	<i>Demographic characteristics</i>	49
3.6	Data Collection and Data Management.....	50
3.7	Sample Size Calculation	50
3.8	Randomization, Allocation Concealment, and Blinding	51
3.9	Data Analyses Plan.....	51
3.9.1	<i>Feasibility of the Study</i>	51
3.9.2	<i>Preliminary Analyses</i>	52
3.9.3	<i>Intervention Effect</i>	52
3.10	Ethical Considerations	53
Chapter 4	Results	54
4.1	Process of the Study.....	54
4.1.1	<i>Recruitment</i>	54
4.1.2	<i>Randomization and Effectiveness of Blinding</i>	59
4.1.3	<i>Capacity and Resource to Conduct All Process</i>	59
4.1.4	<i>Access to Equipment, Space and Personal Time</i>	60
4.1.5	<i>Process to Ensure Treatment Fidelity</i>	60
4.1.6	<i>Assessment Process and Data Completeness</i>	62
4.1.7	<i>Participation Retention and Intervention Adherence Among Allocation Groups</i>	64
4.2	Implementation of Intervention Protocol.....	66
4.2.1	<i>Mode of delivery and Participants' Engagement</i>	66
4.2.2	<i>Scheduling of Treatment Sessions</i>	67
4.2.3	<i>Barrier to Participation</i>	68
4.2.4	<i>Metaphor, Experiential and Mindfulness Exercises</i>	68

4.2.5	<i>Performance of Study Participants in ACT Sessions</i>	68
4.2.6	<i>Adverse Events</i>	69
4.3	Characteristics of Study Participants.....	70
4.3.1	<i>Demographics Characteristics of Study Participants at Baseline</i>	71
4.3.2	<i>Employment status of Study Participants at Post-intervention and 3-month Follow-up Assessment</i>	77
4.3.3	<i>Outcome Measures Reported by Study Participants at Baseline</i>	79
4.3.4	<i>Correlations Between Variables at Baseline</i>	88
4.4	Characteristics of Programme Non-completers.....	90
4.5	Potential Efficacy of a Group-based Online ACT Intervention for NGN.....	91
4.5.1	<i>ITT Sample Analyses</i>	91
4.5.2	<i>Programme Completers Analyses</i>	102
4.5.3	<i>Programme Completers and Non-completers of ACT Group Analyses</i>	112
Chapter 5	Discussion	114
5.1	Intervention Effects on Outcomes and Process Measures.....	114
5.1.1	<i>Summary of Results</i>	114
5.1.2	<i>Interventional Effects and New Graduate Nurses</i>	115
5.2	Feasibility of the Study.....	118
5.3	Strength of the Study.....	122
5.4	Limitations of the Study.....	122
5.5	Implications for Practice.....	123
5.6	Implications for Research.....	125
5.7	Implications for Education.....	126
Chapter 6	Conclusion	127
References	179

List of Tables

Table 2.1 A Summary of the Included Studies (n = 7).....	23
Table 2.2 A Summary of Quality Appraisal by Using JBI Critical Appraisal Checklist for Randomized Controlled Trials (n = 7).....	27
Table 2.3 Between-group Comparison on Psychological Well-being in the Included Studies (n = 7) ..	30
Table 3.1 Outline of Contents for the ACT Sessions.....	42
Table 4.1 Recruitment in Universities.	56
Table 4.2 The Completion Rate of Online Questionnaire at Three Assessment Time Points Among Study Participants (N=64).....	63
Table 4.3 The Attendance Rate of Each ACT Session Among Study Participants of ACT Group (n=32).	64
Table 4.4 Number of Attended ACT Sessions Among Study Participants of ACT Group (n=32).	65
Table 4.5 Demographic Characteristics of Study Participants at Baseline (N = 64).....	73
Table 4.6 Clinical Experience of Study Participants at Baseline (N = 64).....	76
Table 4.7 Employment Status of Study Participants at Post-intervention (n = 54) and 3-month Follow- up (n = 51).	78
Table 4.8 Psychological Well-being Reported by Study Participants at Baseline (N = 64).....	82
Table 4.9 Subjective well-being Reported by Study Participants at Baseline (N = 64).....	84
Table 4.10 Perceived Stress Reported by Study Participants at Baseline (N = 64).....	84
Table 4.11 Professional Quality of Life Reported by Study Participants at Baseline (N = 64)	86
Table 4.12 Psychological Flexibility Reported by Study Participants at Baseline (N = 64).....	87
Table 4.13 Dispositional Mindfulness Reported by Study Participants at Baseline (N = 64).....	88
Table 4.14 Zero-order Correlations Between Outcome and Process Variables at Baseline (N = 64)....	89
Table 4.15 Descriptive Statistics of Raw Means (SDs) for Measurable Outcomes Among ITT Samples at Three Time Points.	92
Table 4.16 Intervention Effect on Outcome Measures by Group Across Time Among ITT Sample Using GEE.....	97
Table 4.17 Post-hoc Comparison From the GEE Models for Outcome Measures Within-group and Between-group Across Time.....	99

Table 4.18 Descriptive statistics of raw means for Measurable Outcomes Among Programme	
Completers at Three Time Points (n=48).....	102
Table 4.19 Intervention Effect on Outcome Measures by Condition Across Time Among Programme	
Completer Using GEE (n=48).....	107
Table 4.20 Post-hoc Comparison from the GEE Models for Outcome Measures of Programme	
Completers Within-group and Between-group Across Time (n=48).....	109
Table 4.21 Descriptive Statistics of Raw Means for Measurable Outcomes Among Completers and	
Non-completers of ACT Group at Three Time Points.....	112

List of Figures

Figure 1 ACT Model of Psychological Flexibility	11
Figure 2 Flowchart of Study Selection Process	19
Figure 3 Flow of Study Participants as Recommended by the CONSORT Statement	58

List of Appendices

Appendix A Forest Plot of the Meta-analysis.....	129
Appendix B Funnel Plot of the Meta-analysis.....	130
Appendix C Ethical Review Approval Letter – The Hong Kong Polytechnic University	131
Appendix D Ethical Review Approval Letter – Hong Kong Metropolitan University	132
Appendix E Information Sheet and Consent Form.....	133
Appendix F Consenting Page in Qualtrics Survey Software.....	135
Appendix G A summary of ACT metaphors and experiential exercises used in this study.....	137
Appendix H Homework – ACT Worksheets.....	138
Appendix I Questionnaire Used in the Present Study.....	145
Appendix J ACT Intervention Materials - PowerPoint Slides.....	158
Appendix K Career Information Seminar - PowerPoint Slides.....	169
Appendix L ACT Core Competency Self-Rating Form	174
Appendix M Credential of the ACT Facilitator.....	176

List of Abbreviations

AAQ-II	Acceptance and Action Questionnaire-II
ACT	Acceptance and Commitment Therapy
CI	Confidence Interval
ES	Effect Size
GEE	Generalized Estimating Equations
ITT	Intention-To-Treat
MAAS	Mindfulness Attention Awareness Scale
NGN	New Graduate Nurses
ProQOL	Professional Quality of Life
ProQOL-BO	Professional Quality of Life - Burnout
ProQOL-CS	Professional Quality of Life - Compassion Satisfaction
ProQOL-STS	Professional Quality of Life - Secondary Traumatic Stress
PSS-10	Perceived Stress Scale
PWBS-18	Psychological Well-being Scale-18
RN	Registered Nurse
WHO-5	World Health Organization-5 Well-being Index
<i>Mdiff</i>	Mean Difference
PF	Psychological Flexibility
RCT	Randomized Controlled Trial
TUNS	Temporarily Undergraduates Nursing Students
WLC	Wait List Control

List of Statistical Acronyms

95% CI	Ninety-five percent confidence interval
d	Cohen's d
df	degree of freedom
M	mean
p	p -value
r	correlation coefficient
SD	standard deviation
SE	standard error
Wald χ^2	Wald Chi-square
α	Cronbach's alpha
χ^2	Chi-square

“Nothing external ensures freedom from suffering”

(Hayes et al., 2012, p. 3)

Chapter 1 Introduction

1.1 Introduction

New graduate nurses (NGNs) experience various challenges when transiting from students to registered nurses. At the same moment, they view transition and change as uncontrollable, ambiguous and overwhelming (Catarelli et al., 2023; Higgins et al., 2010), and therefore perceive great stress. While NGNs' role transition carries risks of reality shock and burnout (Jarden, Jarden, Weiland, Taylor, Brockenshire, et al., 2021), an unhealthy role transition in NGNs not only impact on NGNs themselves (Cheng et al., 2015; Melnyk et al., 2013; Wu et al., 2012) but also as consequence on patient care and outcomes, employers and nursing profession (Cleary et al., 2009). Now, hospital-based structural transitional programmes are generally provided to NGNs which aim to provide them with knowledge of required skills (Irwin et al., 2018; Pasila et al., 2017; van Rooyen et al., 2018), clinical decision and leadership (Reem et al., 2014), and the latest institutional rules and guidelines (Kenny et al., 2021; McVicar, 2003; Reinhard, 2017). Although this kind of transitional programmes have been purposively designed as a kind of support and facilitation that aid NGNs to adapt with the new working environment more easily, especially during the first year after graduation, the aspect of mental wellness has not been usually attended (Kenny et al., 2021). Among many empirical-based psychological interventions, acceptance and commitment therapy (ACT) is a mindfulness and valued-based cognitive therapy which targets a general goal of increasing psychological flexibility of an individual (Hayes et al., 2006; Hayes & Strosahl, 2004). That, as psychological flexibility is the fundamental aspects of health, it helps people to manage oneself with unpleasant feelings and psychological difficulties, and work toward their value-based goals (Kashdan & Rottenberg, 2010).

It therefore is considered as a potential intervention for promoting one's psychological well-being in our ever-changing and unpredictable world. This study was aimed to develop a culturally specific intervention which targets on nurturing psychological well-being of NGNs hence preparing them for role transition from nursing learners to registered nurses, and to test the feasibility and preliminary efficacy of this newly developed intervention.

In this introduction chapter, it firstly presents the concept of psychological well-being, new graduate nurses (NGNs) and role transition. After that, acceptance and commitment therapy (ACT) and its uses for promoting psychological well-being, and the significance of present study will be described.

1.2 Psychological Well-being and Health

Psychological well-being (PWB) refers to the positive functioning of an individual, at both inter- and intra-individual levels. It includes one's relatedness with others and self-referent attitudes. According to the Ryff's Model of Psychological Well-being, psychological well-being composes of six key dimensions, namely self-acceptance, positive relationship with others, autonomy, environmental mastery, purpose in life and personal growth (Ryff, 1989; Ryff & Keyes, 1995a). For the first dimension, self-acceptance, it is the sense of self-acceptance. Also, it is the central feature of mental health characterizing self-actualization, optimal functioning, and maturity. For the second dimension, positive relationship with others, it is the ability to love. It emphasizes the importance of warm, trusting interpersonal relations. For the third dimension, autonomy, it is the quality of self-determination, independence, and the regulation of behaviour from within. It also refers to the internal locus of evaluation. For the fourth dimension, environmental mastery, it is the ability to choose or create environment which fit an individual's condition. It also describes the

ability to manipulate and control complex environments. For the fifth dimension, purpose in life, it is the beliefs of an individual, which give one the feeling there is purpose in and meaning to life. It emphasizes a clear comprehension of life's purpose, a sense of directedness, and intentionality. For the last dimension, personal growth, it describes the openness to experience, actualize oneself and realize one's potentials. Of which, it is the ability to continue to develop one's potential, to grow, and to expand. More, psychological well-being is a combination of feeling good and functioning effectively (Huppert, 2009), it has been evaluated together with subjective well-being in the literature (van Agteren et al., 2021; Weiss et al., 2016). Theoretically, subjective well-being refers to pleasure and happiness of an individual. It is the primary concern to the individual, irrespective of the virtuous nature of that pleasure fulfilment (Huppert, 2009; Ryff, 1989). PWB therefore represents the subjective feeling of happiness and purposive aspects of psychological well-being, and review study suggests to use separate indices to measure two domains (Howell & Passmore, 2019).

Both psychological well-being and subjective well-being contributes to mental well-being, and mental well-being accounts for one's mental health. Given that, mental health is an integral and essential component of health, it is also a state of well-being. In which, one can realize own's abilities, can cope with normal life stresses, can work productively and is able to make contribution to the community (World Health Organization, 2018). Hence, mental health is more than the absence of mental illness and it is vital to individuals, families and societies (World Health Organization, 2004). Having said that mental illnesses are globally common and one in four people would probably be affected by mental or neurological disorders at some point of their lifetime (World Health Organization, 2001); to date, one in every

eight people are living with mental disorders (World Health Organization, 2021). To prevent onset of mental illnesses, the World Health Organization (2018, 2021) has recommended moves from large mental institutions towards community health care and integrate mental health care into primary healthcare and the general healthcare system. To achieve this, in addition to the health sectors, involvement from education, labour, justice, transport, environment, housing, and welfare sectors are essential as well (World Health Organization, 2018, 2021).

Regarding well-being is a key aspect of mental health, the World Health Organization (WHO) has called an action plan with one of its goals is to promote mental well-being and prevention of mental disorders (World Health Organization, 2013, 2021). Specifically, mental health promotion shall involve actions that improve psychological well-being (World Health Organization, 2018). A new definition of mental health has been proposed by Galderisi et al. (2015), in which, mental health is a dynamic state of equilibrium which enables individuals to use their abilities in harmony with universal values of society. Although literature has reported effective measures for negative functioning, for example, treatment for depression, anxiety, and stress, it does not predict answer to questions about positive functioning. Therefore, universal prevention programmes targeted at general population whom without pre-existing mental health problem, but not only selective prevention programmes for high-risk population or indicated prevention programmes for people emerged with symptoms, are needed.

1.3 New Graduate Nurses and Role Transition

1.3.1 Stressful Working Life and Nurses

Elevated levels of stress have been commonly found in nursing profession (Lim et al., 2010; McVicar, 2003). University students approaching healthcare

professional careers perceived moderate to high level of stress (Chan et al., 2009; Labrague et al., 2017; Lam et al., 2010). Chan and her team (2009) found that senior year undergraduate nursing students reported higher level of perceived stress than junior year students. Because of lengthy and challenging clinical training, and nursing students perceived more stress from teachers and staff nurses. More, nursing students frequently adopted transference strategies in dealing with stressful events that, they paid efforts to transfer attention from the stressful situation to other thing (Chan et al., 2009; Yamashita et al., 2012; Zhao et al., 2015). Even worser, avoidance was found as most preferred strategies when dealing with stress among a group of nurse interns (El-Rahman et al., 2018). Unfortunately, suppressing the distressful thoughts, feelings and emotions lead to further psychological suffering and lowered quality of life (Newport & Nemeroff, 1998).

1.3.2 Stress in New Graduate Nurses and Their Experience During Transitional Period

New graduate nurses are late adolescents. A trend of younger students opting to undertake undergraduate programme that, students embarking on the degree in nursing programme at university are aged between 18-20 years and it is contrast to students attending traditional universities. While young student nurses are viewed as late adolescents, adolescent nursing students are still immersed in transition associated with adolescence. Of which, the period between the ages of ten and 25 is also a period when biopsychosocial maturation leads to functional independence in adult life (Sawyer et al., 2018; Viner, 2003). This perhaps signifying the level of stress and concerns in mental health among adolescent nursing students, as well as the implications for retention of adolescent nursing students in nursing profession and healthcare settings (Moos, 2002; Price, 2002; Quinn, 2004). More, adolescent nurses

usually encounter higher level of stress during transition period, and it impacts their psychological well-being. For adolescent nursing students who are being transitioned from students to professional registered nurses, it certainly is one of the major social role transitions in their late adolescence.

New graduates' experience during transition period. Stressful working life in clinical setting is a challenging experience for new graduate nurses (NGNs) especially when they transit from studying as students to working as staff nurses. Where, role transition period, in general, refers to the first year of practice after graduation (Gardiner & Sheen, 2016; Pasila et al., 2017; van Rooyen et al., 2018). Review studies reported that having a difficult working environment, NGNs resulted in perceiving high level of stress. Like, new graduate nurses felt unprepared (Jarden, Jarden, Weiland, Taylor, Brockenshire, et al., 2021; Waite, 2004, 2006), stressed and overwhelmed by increased nursing responsibilities (Gardiner & Sheen, 2016; Higgins et al., 2010; Jarden, Jarden, Weiland, Taylor, Bujalka, et al., 2021; Pasila et al., 2017; Teoh et al., 2013; Tingleff & Gildberg, 2014), negative interactions with colleagues or even bullying or horizontal violence (Gardiner & Sheen, 2016). These may lead to prolonged stress and even burnout. Moreover, new graduate nurses viewed transition and change as an uncontrollable, ambiguous and overwhelming event (Catarelli et al., 2023; Higgins et al., 2010) that, transition period cause stress and anxiety, uncertainty and fear (Arrowsmith et al., 2016; Higgins et al., 2010), and they felt unprepared and overwhelmed by nursing responsibilities in the first year of practice (Catarelli et al., 2023; Gardiner & Sheen, 2016).

NGNs' role transition carries the risk for reality shock and burnout. Regular rotation through several clinical areas throughout their transition period benefits new graduate nurses with a diversity of clinical experiences and confidence; at the same

time, in turn, it added on as an unnecessary stressor to NGNs (Teoh et al., 2013). Studies reported that higher level of stress were associated with higher level of depression and anxiety (Melnyk et al., 2013), lowered job satisfaction (Cheng et al., 2015) and intention to quit (Wu et al., 2012). A study also found that unhealthy transition in NGNs not only impacted NGN themselves, but also has consequences for the patient care and outcomes, employers and the nursing profession (Cleary et al., 2009).

1.3.3 Current Transition Programmes for New Graduate Nurses

To facilitate new graduate nurses during transition period, review studies reported that hospital-based structural transitional programmes (Kenny et al., 2021; McVicar, 2003; Reinhard, 2017) have been commonly used in supporting transition of new graduate nurses to professional nurses. It could be conducted as a form of an orientation, preceptorship and mentorship programmes (Irwin et al., 2018; Whitehead et al., 2013), residency programmes (Reem et al., 2014), or clinical rotation (Gellerstedt et al., 2019). These strategies have been reported as effective and new graduate nurses benefited from the programmes with information of hospital information, regulations, and guidelines. Also, improvement in terms of confidence and competence, job satisfaction, and critical thinking during the transition period from student to new graduate nurses has been found (Edwards et al., 2015).

Although hospital-based transition have been adopting for supporting NGNs from novice for competency and found to be beneficial, program contents were focused on areas of knowledge, attitudes, and required skills (Irwin et al., 2018; Pasila et al., 2017; van Rooyen et al., 2018) clinical decision and leadership skills (Reem et al., 2014) that mental wellness has not been usually attended. In a recent systematic review, Kenny and her team (2021) reported that, among the 130 included studies,

there was only one study measured pre-post difference in dispositional mindfulness and perceived stress (Kulka et al., 2018). In which, an 8-week mindfulness-based stress reduction programme was introduced to a group of 40 newly graduated registered nurses at a regional hospital in rural area of the United States. This study found statistically significant reduction in the level of perceived stress at post-intervention, however, an insignificant difference in mindfulness awareness was noted. Findings interpretation of this study shall be cautious because intervention participation rate was 50% and the intervention adherence or attendance rate was not reported. Nevertheless, this study was the only study reporting a nurse role transition programme which extended programme content beyond clinical knowledge and skills.

Notably, there is a lack of research studied mental well-being or psychological well-being and its promotion in new graduate nurses (Edwards et al., 2015; Kenny et al., 2021), and few studies evaluated the effect of transitional program on the level of stress in new graduate nurses (Goode & Williams, 2004; Krugman et al., 2006). This may suggest that, from employers' perspective, clinical performance outweighs psychological well-being of new graduate nurses. And yet, it is differing from the viewpoint of public health, in which, promoting psychological well-being with a proactive approach, i.e., as a universal prevention intervention, is a way in promoting mental health.

Summary. Overall, the contemplation that the first year of practice among new graduate nurses after graduation as stressful is certain. However, current support for new graduate nurses during their stressful role transition period, in term of psychological well-being, appears inadequate.

1.4 Acceptance and Commitment Therapy

Acceptance and commitment therapy (ACT) is a mindfulness and value-based cognitive therapy that encourages individuals to better accept their psychological difficulties and work toward their value-based goals (Hayes et al., 2006). It targets a general goal of increasing psychological flexibility, which is the ability to contact the present moment more fully as a conscious human being and, based on what situation affords, to change or persist in behaviour in order to serve valued end (Hayes & Strosahl, 2004). Most importantly, psychological flexibility is the fundamental aspect of health. It stretches people's abilities to recognize and re-orient oneself in different challenges, shifts oneself' mindset or behavioural repertoires when their personal or social functioning are compromised, also, it makes people more easier in maintaining balance one's different life domains, as well as keeping aware, open and commit to behaviours which are in accord with one's deeply held values (Kashdan & Rottenberg, 2010). Hence, with psychological flexibility, people can manage themselves in the uncertain, unpredictable world around them, where novelty and change are the norm rather than the exception.

Psychological flexibility is established through six positive processes. Figure 1 shows the hexagon model of psychological flexibility (Hayes et al., 2012). The six core therapeutic processes are acceptance, defusion, being present, self-as-context, values and committed action (Hayes et al., 2006). For the first component, acceptance, it is an alternative to experiential avoidance. It involves the active and aware embrace of private events that are occasioned by one's history without unnecessary attempts to change their frequency of form, especially when doing so would cause psychological harm. Also, it is an on-going process, it fosters a person's willing towards valued-based action from time to time. For the second component,

cognitive defusion, it is a technique to observe one's thoughts by firstly noticing one's thoughts while holding them lightly without being governed by them. For the third component, being present, it promotes ongoing non-judgmental contact with psychological and environmental events as they occur. Its goal is present-moment awareness that, the attention would works flexibly, responsively and voluntary be located to here and now. For the fourth component, self-as-context, it is a result of relational frames, for example, I versus you, now versus then, here versus there. It is the perspective taking that a person can aware one's own flow of experience without attachment to them and views an event from different standpoint. In ACT, self-as-context could be fostered by mindfulness exercise, metaphors, and experiential processes to promote the understanding that experiences, thoughts, and feelings are just ever-changing content. They don't fundamentally affect the core self. For the fifth component, values, it is the chosen qualities of purposive action that can never be obtained as an object but can be instantiated moment by moment. In ACT, clarification of values would facilitate a person to choose life direction. For the last component, committed action, it encourages the development of larger and larger patterns of effective action linked to chosen values. It refers to "how" of building habits that can be a focus and has meaning. In ACT, committed action is the planning and organizing one's environment to foster value-based choices.

ACT is not a content specific intervention, rather, it cultivates psychological flexibility of an individual. Of which, an individual could aware one's believability or attachment and view things from different perspectives without losing their values and committed action, accompanied with one's ongoing self-acceptance and be contacted with psychological and environmental events non-judgmentally.

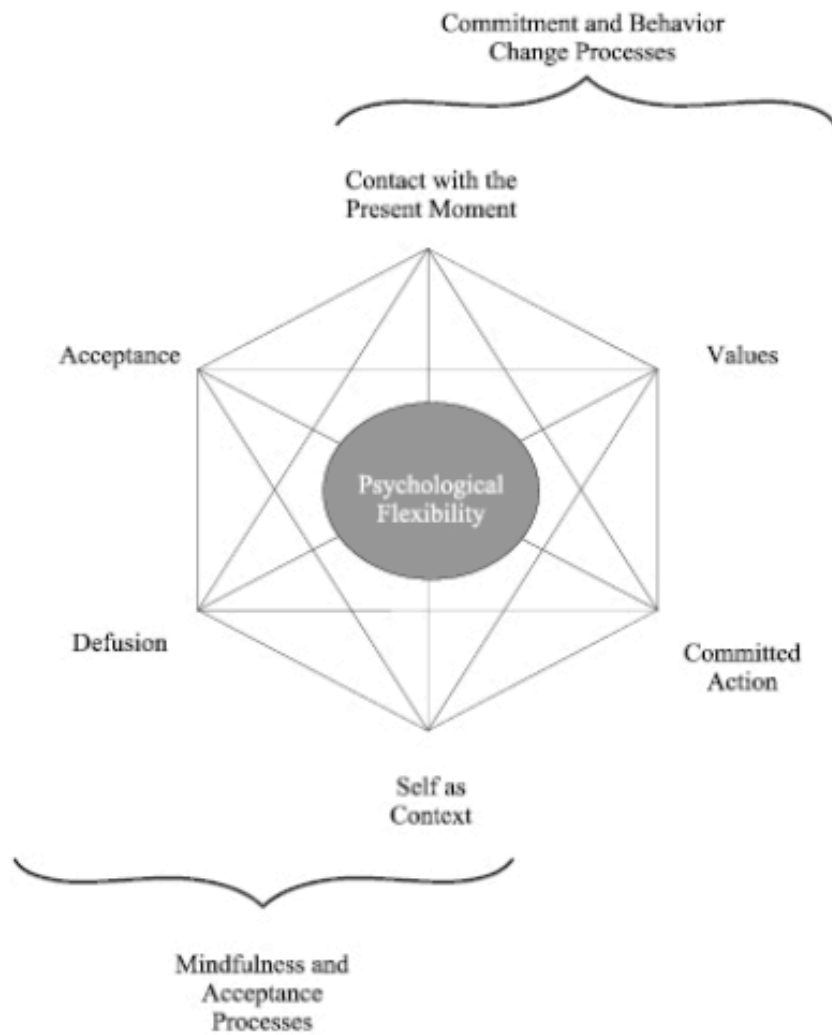


Figure 1 ACT Model of Psychological Flexibility

(Hayes et al, 2012, pp.63)

1.4.1 ACT: A Potential Intervention for Promoting Psychological Well-being

Review studies reported that ACT is an effective intervention for reducing symptoms of depression, anxiety, stress, chronic pain, obsessive compulsive disorders, etc. in a variety of population (Gloster et al., 2020; Ost, 2014; Ruiz, 2010; Stenhoff et al., 2020). Also, ACT has been used for preventing symptoms of depression, anxiety and stress in population who are at risk of psychological distress. For example, mother of children and youth with autism spectrum disorder (Lunsky et

al., 2018), support staff caring for adults with intellectual disabilities (Noone & Hastings, 2010), government employees (Flaxman & Bond, 2010) and secondary school teachers (Jeffcoat & Hayes, 2012), and significant preventive effects were observed in symptoms of depression, anxiety, and stress (Kashdan & Rottenberg, 2010).

Since ACT prioritizes to increase psychological flexibility, including enactment of personal values, valued-living rather than emphasis on symptoms reduction (Hayes et al., 2006; Hayes et al., 2012) and its application is possible be applied in a greater extent. ACT has been used as a universal level of intervention in adolescents for preventing depression and anxiety (Burckhardt et al., 2017; Kelson et al., 2017), and behavioural and mental problem (Van der Gucht et al., 2017).

Although, insignificant result was found in symptoms reduction in the RCTs, it may be due to comparable baseline and post-intervention measures in participants with minimal or even no symptoms of psychological, mental or behaviour problems.

Summary. The recollection and cultivation of psychological wellbeing – the basis of psychological flexibility – is the root of the wish to establish psychological health in persons. It mirrored the idea of mental health promotion as advocated by the World Health Organization. Therefore, it is possible that psychological well-being of new graduate nurses would be promoted with increased psychological flexibility via ACT.

1.5 Significance of study

The present study was aimed to assess the feasibility of a newly developed online group-based ACT intervention for promoting psychological well-being (PWB) in new graduate nurses (NGNs) during transition period. Specifically, this study was

designed to (a) to assess the process of the study, including recruitment, randomization, intervention and follow up assessment, (b) to assess and refine procedure of an intervention protocol of an online group-based intervention for promoting psychological well-being in new graduate nurses during transition period; (c) to examine the potential efficacy of an online group-based ACT intervention for promoting psychological well-being in new graduate nurses during transition period. More, the present study adopted a universal prevention approach in promoting psychological well-being in new graduate nurses. The result of this pilot study would provide necessary information to develop strategies to help new graduate nurses in role transition targeting on their psychological well-being. Also, the findings will help estimating effect size for a full powered trial for promoting psychological well-being in Chinese new graduate nurses. This proactive recruitment approach may reach study participants who might not be reached by using reactive approach.

1.6 Organization of the Thesis

This thesis consists of six chapters. In this introduction chapter, it introduces the backgrounds of psychological well-being and health, new graduate nurses and role transition, acceptance and commitment therapy (ACT), and the significance of present study. Chapter Two critically reviews the literature of the effects of ACT on psychological well-being of university students. Chapter Three provides a detailed description of the methods used in present study. It includes (a) study design, (b) study setting, study participants and study eligibility criteria, (c) sampling methods and recruitment procedures, (d) randomization, (e) interventions of the study, (f) measuring instruments, (g) data collection, management, and analyses, and (h) ethical considerations. The findings of this study are presented in Chapter Four. Chapter Five summarizes the findings and discusses the strength and limitation of the present study,

and recommendation for future studies. Last but not least, Chapter Six concludes the study at the end.

Chapter 2 Literature Review

This chapter describes the current knowledge of psychological well-being promotion in university students by using acceptance-based interventions or acceptance and commitment therapy (ACT). A systematic review was conducted to identify the knowledge. The following sections are: (a) introduction, (b) methods, (c) results, (d) discussion, and (e) conclusion.

2.1 Introduction

Acceptance-based intervention has been employed in the past decades, its application on promoting psychological well-being is of increasing interest. This review aimed to identify current literature and narratively summarized the current knowledge about the effectiveness of acceptance-based interventions on promoting psychological well-being in university students.

2.2 Methods

2.2.1 Literature Search

The studies were identified by an online search in five electronic databases for all years, including MEDLINE (1946+) via EBSCOhost, PsycINFO (1806+) via ProQuest, EMBASE via Ovid, CINAHL Complete via EBSCOhost and PubMed were searched for relevant literature from inception to December 2022. Search terms included combinations of the following keywords, including ((“undergraduate* OR baccalaureate* OR bachelor OR university*) AND student*)) AND (“acceptance and commitment therapy” OR acceptance-based) AND (psychological well-being OR psychological wellness OR psychological health OR mental wellness OR mental well-being OR mental health) AND (randomized controlled trial). Also, an additional

manual search was performed with other resources, e.g., reference list of identified articles.

2.2.2 Inclusion and Exclusion Criteria

The inclusion criteria were, (i) the article reported a primary randomized controlled study; (ii) acceptance-based intervention was used as a primary intervention, (iii) psychological well-being was measured as an outcome, and (iv) study participants were university students. Non-English written articles or articles without full text for examining were excluded. Since this review targeted at identifying the current knowledge of using acceptance-based intervention in promoting psychological well-being among university students that, studies were included in the review process when psychological well-being was measured as a primary or secondary outcome.

2.2.3 Data Extraction

Data were extracted from the included articles systematically, according to the following categories: (a) authors and year of publication, (b) studied population and country; (c) study designs; (d) sample characteristics, that is, percentage of female participants and mean age of the studied sample; (e) characteristics of intervention, e.g., guidance provided for intervention group, delivery mode, number of session, length of each session, duration of program; (f); control group; (g) assessment time-point(s); and (h) outcome measuring instruments. The outcome measures, i.e., psychological well-being (PWB), was extracted and reported.

2.2.4 Outcomes Measurement

In this review, psychological well-being was specifically examined. Also, the Cohen's *d* value was calculated at the post-intervention or at the longest follow-up

time point. Of which, a between-group effect size of 0.2 was considered small, 0.50 moderate, and above 0.8 large (Cohen, 1988).

2.2.5 *Quality Assessment of Included Studies*

The JBI Critical Appraisal Checklist for Randomized Controlled Trial was used (Tufanaru et al., 2020) was used to appraise the quality of the included randomized controlled trials. This checklist has been developed by the Joanna Briggs Institute (JBI) and is a highly valuable and widely used tool for evaluating quality and validity of RCT in a comprehensive and systematic approach. Paper appraisals focused on thirteen items as listed in the JBI checklist. Including (a) was true randomization used for assignment of participants to treatment groups? (b) was allocation to treatment groups concealed? (c) were treatment groups similar at the baseline? (d) were participants blind to treatment assignment? (e) were those delivering treatment blind to treatment assignment? (f) were outcomes assessors blind to treatment assignment? (g) were treatment groups treated identically other than the intervention of interest? (h) was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed? (i) were participants analysed in the groups to which they were randomized? (j) were outcomes measured in the same way for treatment groups? (k) were outcomes measured in a reliable way? (l) was appropriate statistical analysis used? (m) was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?

2.3 Results

2.3.1 *Selection of Studies*

Using the key search descriptors, 512 articles were retrieved, of which 16 were excluded as being identified as duplicated articles. A further 402 articles were then identified as not relevant to the topic with reference to the inclusion and

exclusion criteria. These articles were excluded due to the following reasons, (a) not peer-reviewed journal articles, (e.g., books, conference abstracts, theses), (b) non-experimental studies, (c) non-relevant, and (d) intervention were not delivered to university students.

Seventeen articles were included at the stage of full-text screening. Among these 17 peer-reviewed articles, another ten studies were further excluded because (a) two studies did not measure psychological well-being; (b) one study targeted non-university students; and two studies recruited both working adults and university students, in which separate data could not be achieved for calculating the effect of intervention on university students' psychological well-being, (c) two studies were secondary analysis of another RCT, (d) one pilot study; (e) one study reported data of three intervention groups were combined and analysed as a single-group, and (f) insufficient data was reported in one study.

Finally, seven articles were included in this review (Eustis et al., 2018; Grégoire et al., 2018; Levin, An, et al., 2020; Levin et al., 2016; Levin, Krafft, et al., 2020; Räsänen et al., 2016; Viskovich & Pakenham, 2020). The process of article selection followed the Preferred Reporting of Items for Systematic Reviews and Meta-analysis (PRISMA) Statement (Moher et al., 2009). Figure 2 shows a flowchart of the studies included in this review.

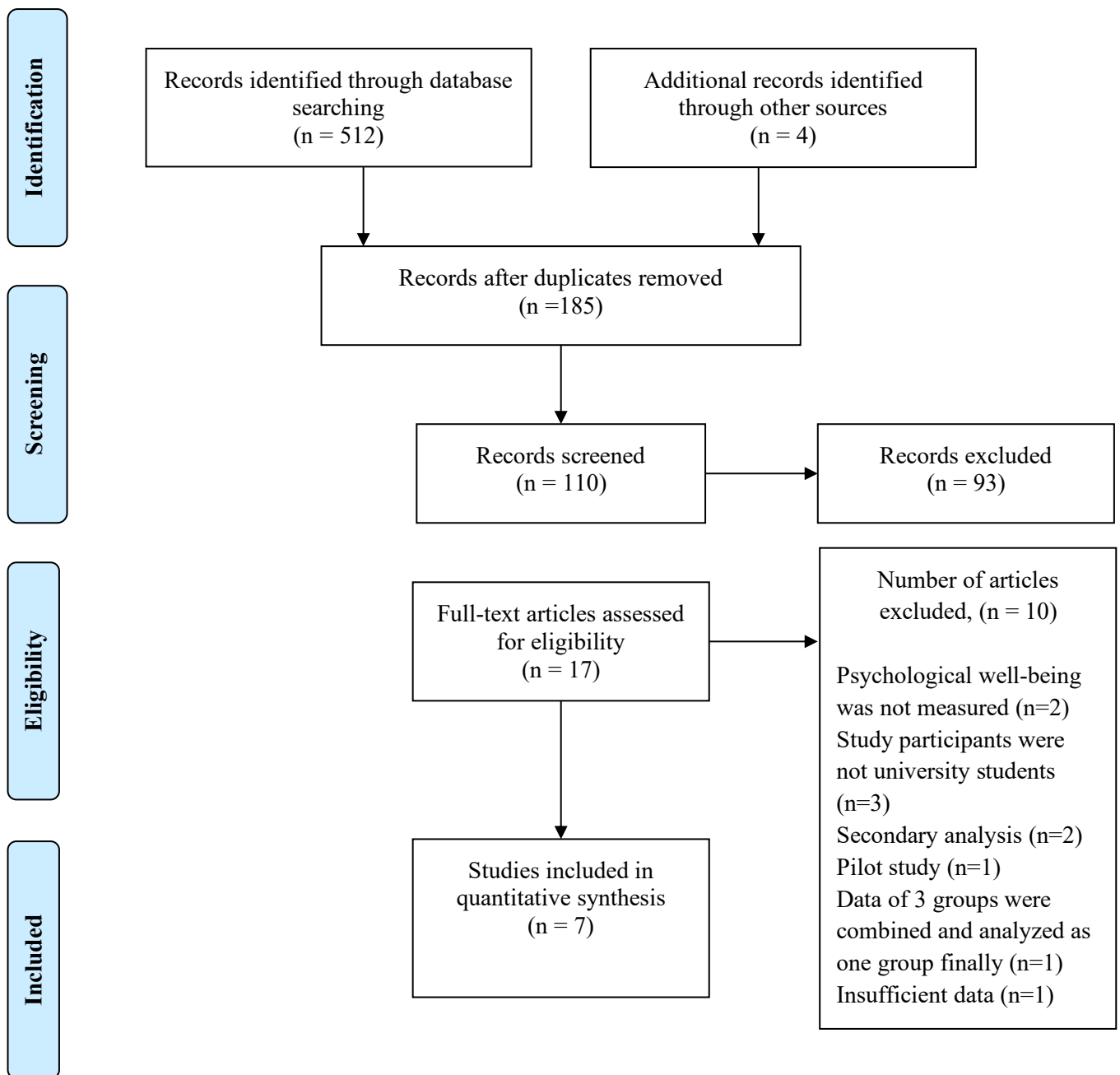


Figure 2 Flowchart of Study Selection Process

2.3.2 Description of Included Studies

Of the seven included randomized controlled studies, they were conducted in Australia (n = 1), Canada (n = 2), Finland (n = 1), and the United States (n = 3). These studies were published between 2016 and 2020. An overview of the seven studies is presented in Table 2.1.

2.3.3 Population Characteristics

The total population comprised 1,973 participants, where 991 were in the ACT condition and 982 were in the control condition. Most of the participants were female, ranged from 65.1% to 85.3%. Overall, studied participants were conveniently recruited students who studied in bachelor, master, and/or doctoral programmes in universities. The total sample size ranged from 68 to 1,162. Whilst specific interest was targeted on students who self-identified as psychological distressed in one study (Räsänen et al., 2016).

2.3.4 Intervention Characteristics

ACT Group and ACT Processes. Inclusion of ACT processes varied across the included studies. Most of the studies included all six core processes of ACT (n = 5) (Grégoire et al., 2018; Levin, An, et al., 2020; Levin, Krafft, et al., 2020; Räsänen et al., 2016; Viskovich & Pakenham, 2020), one study included values, acceptance and committed action of ACT model in its 2-session web-based self-help program (Levin et al., 2016) and one study adopted acceptance-based behavioural therapy (ABBT) (Eustis et al., 2018). For the study of Levin, Krafft, et al. (2020), study participants were allocated into four groups, namely, Open, Engage, Full and WLC; and only information of Full and WLC was analysed in this review.

Comparison Group. Among the included seven studies, difference between ACT group and comparison groups were examined. Comparison groups were wait list

control (WLC) (n = 5) (Eustis et al., 2018; Grégoire et al., 2018; Levin, An, et al., 2020; Räsänen et al., 2016; Viskovich & Pakenham, 2020), web-based medical health education (n = 1) (Levin et al., 2016), and electronic mindfulness-based stress reduction (MBSR) self-help book (n=1) (Levin, An, et al., 2020).

Mode of Delivery, Therapy Guidance and ACT Facilitators, Length of Intervention and Retention Rate. Treatment sessions were delivered in different delivery modes. Earlier studies delivered intervention via face-to-face and an increased use of technology in treatment delivery session was noticed. In which, Grégoire et al. (2018) used purely face-to-face format and Räsänen et al. (2016) used a combination of face-to-face and web-based mode. Three studies adopted exclusive web-based format (Eustis et al., 2018; Levin et al., 2016; Viskovich & Pakenham, 2020), one study adopted a combination of web-based format together with phone coaching or email prompts (Levin, Krafft, et al., 2020), and another study used electronic self-help book as an intervention tool (Levin, An, et al., 2020). Face-to face intervention were conducted in groups (Grégoire et al., 2018), whereas interventions incorporated web-based components were run in individual (Eustis et al., 2018; Levin, An, et al., 2020; Levin et al., 2016; Levin, Krafft, et al., 2020; Räsänen et al., 2016; Viskovich & Pakenham, 2020). Therapy guidance was offered in some studies (a) by trained students (n = 2) (Grégoire et al., 2018; Räsänen et al., 2016), (b) by phone coaching (n=1) (Levin, Krafft, et al., 2020), or (c) in terms of online written feedback (Eustis et al., 2018). For studies which delivered intervention in web-based mode, therapy guidance appeared not clearly reported.

In terms of total numbers of ACT contact hours, it varied from 1.5 hours to 10 hours among included studies. It was observed that web-based interventions (1.5 hours) were the shortest (Eustis et al., 2018; Levin et al., 2016) and face-to-face

intervention (10 hours) was the longest (Grégoire et al., 2018). Specifically, for studies used web-based ACT intervention, a reading period ranged from three to seven weeks were adopted (Eustis et al., 2018; Levin, An, et al., 2020; Levin et al., 2016; Levin, Krafft, et al., 2020; Räsänen et al., 2016; Viskovich & Pakenham, 2020); and for reading a self-help electronic book, an eight-week reading schedule was recommended (Levin, An, et al., 2020).

Regarding the assessment completion rate, studies with coaching components, for example, phone coaching, face-to-face coaching or written feedback reported higher assessment completion rates (ranged 37% - 84%) when compared to studies which adopted exclusively web-based intervention (ranged from 42% - 70%).

2.3.5 Outcome Measures

Among the included studies, psychological well-being was measured by three measuring instruments. The most common measuring instrument was the Mental Health Continuum –Short Form (MHC-SF). It was used in five studies (Levin, An, et al., 2020; Levin et al., 2016; Levin, Krafft, et al., 2020; Räsänen et al., 2016; Viskovich & Pakenham, 2020). Besides, the Well-being Manifestations Measure Scale (WBMMS) was used in one study (Grégoire et al., 2018) and the Quality of Life Inventory (QOLI) was used in another one study (Eustis et al., 2018). All instruments had good psychometric properties. Assessment timepoints varied across studies. In addition to the baseline and post-intervention assessment (Grégoire et al., 2018), or comparing baseline, mid-treatment and post-treatment (Levin, An, et al., 2020), longer follow-up assessment timepoints at 1-month follow-up (Eustis et al., 2018; Levin, Krafft, et al., 2020), 3-month follow-up (Levin et al., 2016; Viskovich & Pakenham, 2020) and 12-month follow-up (Räsänen et al., 2016) were reported.

Table 2.1 A Summary of the Included Studies (n = 7)

Author(s) (year)	Population, country	Study design	% Female; Mean age (SD)	IG (n)	Guidance/ Therapist (I/G)	Delivery mode	Total time (hr)	CG (n)	Measure ments	Outcome measures	Retention rate ^a (IG vs CG)
Eustis et al (2018)	U students, US	RCT	78.6%; 25.4 (7.9)	ABBT (78)	1 doctoral clinical psychology student trained with ABBT (I)	Computer-based (narrative ppt slides) + online written feedback given by therapist	1.5 hrs in 4wk [^]	WLC (78)	Pre, post, 1m	QOLI	37% vs 45%
Grégoire et al (2018)	UG/PG studied in FT/PT, Canada	RCT (multi- site)	73.6%; 31.7 (9.2)	ACT (72)	2 doctoral psychology students familiar with ACT (G)	F2F	2.5 hrs x 4 = 10hr	WLC (72)	Pre, post	WBMMS	79% vs 58%
Levin et al (2016)	UG, US	RCT	76.9%; 21.6 (5.5)	ACT (114)	NA (I)	Web-based	~1.5 hrs in 3wk [^]	MHE (130)	Pre, post, 1m, 3m	MHC-SF	63% vs 72%
Levin, An, et al. (2020)	U students, US	RCT	65.1%; 20.9 (3.8)	ACT (53)	NA (I)	Self-help book (e- copy)	8wk [^]	MBSR (56)	Pre, mid post	MHC-SF	70% vs 63%

Author(s) (year)	Population, country	Study design	% Female; Mean age (SD)	IG (n)	Guidance/ Therapist (I/G)	Delivery mode	Total time (hr)	CG (n)	Measure ments	Outcome measures	Retention rate ^a (IG vs CG)
Levin, Krafft, et al. (2020)	U students, US	RCT	72.4%; 22.3 (5.1)	Full (45)	2 doctoral psychology students (I)	Web-based + 10-15 min weekly phone coaching/email prompts	3-6 hrs in 6 wk [^]	WLC (45)	Pre, post, 1m	MHC-SF	84% vs 89%
Räsänen et al (2016)	U students, Finland	RCT	85.3% ; 24.3 (3.3)	ACT (33)	22 ACT trained psychology students (I)	Web-based + 2 F2F meetings with coach	7 wk [^]	WLC (35)	Pre, post, 12m	MHC-SF	79% vs 100%
Viskovich and Pakenham (2020)	U students, Australia	RCT	67.8%; 26.9 (8.8)	ACT (596)	NA (I)	Web-based	3 hrs in 4 wk [^]	WLC (566)	Pre, post, 3m	MHC-SF	42% vs 33%

Notes: US = United States; UK = United Kingdom; CG = comparison group; IG = intervention group; FT = full-time; PT = part-time; F2F = face-to-face; hr = hour; wk = week; m = month; G = group-based (groups of 8-15); I = individual-based; UG = undergraduate; PG = postgraduate; U = university; pre = pre-intervention; post = post-intervention; SD = standard deviation; RCT = randomized controlled trial; HS = Help-seeking adult sample; ^ = length of reading time/recommended schedule.

ABBT = acceptance-based behavioural therapy; ACT = acceptance and commitment therapy; Full = ACT intervention covered six ACT processes; MBCT = mindfulness-based cognitive therapy; WLC = wait list control; MHC-SF: Mental Health Continuum-Short Form; QOLI: Quality of Life Inventory; WBMMS: Well-being Manifestations Measure Scale

2.3.6 Quality of Studies

The quality of studies was assessed by the thirteen questions of JBI Critical Appraisal Checklist for Randomized Controlled Trials (Tufanaru et al., 2020). First, all studies reported appropriate randomization was performed by refereeing to a list of random assignment generated by a computer except one study (Viskovich & Pakenham, 2020). Of which, Viskovich and Pakenham (2020) reported they randomly assigned studied participants to either of the treatment sessions, yet, how the randomization was performed was unclear. Second, treatment concealment was achieved as automatic web-based survey platform, e.g., Qualtrics, was used to perform treatment assignment in a few studies, such as after participants consented to participate (Levin et al., 2016) or after they completed the baseline assessments (Levin, An, et al., 2020; Levin, Krafft, et al., 2020). Third, all studies reported similar characteristics between treatment groups at baseline, except Levin, Krafft, et al. (2020), which reported significant difference in psychological well-being as measured by Mental Health Continuum-Short Form (MHC-SF) (Levin, Krafft, et al., 2020) was found at baseline. For the fourth item of JBI checklist, it is about blinding. Participants were not blinded to the treatment assignment in all included studies because they were aware their treatment allocation, as either in a waitlist control group (Eustis et al., 2018; Grégoire et al., 2018; Räsänen et al., 2016; Viskovich & Pakenham, 2020) or received an active comparison treatment (Levin, An, et al., 2020; Levin et al., 2016; Levin, Krafft, et al., 2020). Fifth, for studies adopted exclusive web-based intervention (Levin et al., 2016; Viskovich & Pakenham, 2020), and electronic self-help book (Levin, An, et al., 2020), blinding in delivering treatment assignment were achieved. Sixth, with an increased use of online questionnaire, blinded to outcome assessors was able to establish in all studies. More, all studies

treated comparison groups identically other than intervention of interest and completed follow-up assessments as planned with validated measuring instruments. Last, appropriate statistical analysis were performed to examine treatment effects on psychological well-being, such as Hierarchical linear modelling (HLM) (Räsänen et al., 2016), Mixed Model Repeated Measures (MMRM) analysis (Levin, An, et al., 2020; Levin et al., 2016; Levin, Krafft, et al., 2020), multivariate analysis of covariance (MANCOVA) (Grégoire et al., 2018), and mixed-effects regression models (MRM) (Eustis et al., 2018) and repeated measures ANOVA (Viskovich & Pakenham, 2020). Overall, quality of studies was generally satisfactory with low to moderate risk. Table 2.2 presents a summary of quality assessment of the included studies.

Table 2.2 A Summary of Quality Appraisal by Using JBI Critical Appraisal Checklist for Randomized Controlled Trials (n = 7)

Author (year)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	% Yes	Risk
Eustis et al (2018)	Y	N	Y	U	U	Y	Y	Y	Y	Y	Y	Y	Y	76.9	Moderate
Grégoire et al (2018)	Y	Y	Y	U	N	Y	Y	Y	Y	Y	Y	Y	Y	84.6	Low
Levin et al (2016)	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	92.3	Low
Levin, An, et al. (2020)	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	92.3	Low
Levin, Krafft, et al. (2020)	Y	Y	N	U	U	Y	Y	Y	Y	Y	Y	Y	Y	76.9	Moderate
Räsänen et al (2016)	Y	Y	Y	N	U	Y	Y	Y	Y	Y	Y	Y	Y	84.6	Low
Viskovich and Pakenham (2020)	U	U	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	76.9	Moderate

Note: Y = Yes; N = No; U = unclear.

Q1 = Was true randomization used for assignment of participants to treatment groups? Q2 = Was allocation to treatment groups concealed? Q3 = Were treatment groups similar at the baseline? Q4 = Were participants blind to treatment assignment? Q5 = Were those delivering treatment blind to treatment assignment? Q6 = Were outcomes assessors blind to treatment assignment? Q7 = Were treatment groups treated identically other than the intervention of interest? Q8 = Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed? Q9 = Were participants analysed in the groups to which they were randomized? Q10 = Were outcomes measured in the same way for treatment groups? Q11 = Were outcomes measured in a reliable way? Q12 = Was appropriate statistical analysis used? Q13 = Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?

2.3.7 Intervention Efficacy on Psychological Well-being (PWB)

To compare the intervention effect on psychological well-being across the included studies, between-group effect sizes at post-intervention measure or at the longest follow-up assessment timepoint of each study were evaluated. Also, data were meta-analysed and the pooled random effect was 0.163. However, the I-squared was 0.61, H-squared was 2.55 and Tau-squared was 0.05, that the heterogeneity among included studies was considered as significant. Because the I-squared was larger than 0.50 (Higgins et al., 2003), a narrative summary was adopted in reporting findings of the included studies in this thesis. Appendices A and B show forest plot and funnel plot of the meta-analysis, respectively.

Among the included studies, the overall effect sizes ranged from $d = 0.025$ to $d = 0.67$. Of which, five studies compared ACT intervention with a WLC, and the reported effect size ranged from $d = 0.05$ to $d = 0.67$. When intervention effect of ACT was compared to an active control, for example, mental health education ($d = 0.16$) (Levin et al., 2016) and MBSR ($d = 0.025$) (Levin, An, et al., 2020), no observed effect was found. Amongst the included studies, face-to-face ACT intervention was found to be the most effective ($d = 0.67$) (Grégoire et al., 2018), whereas smaller effect was reported in studies adopted exclusively web-based approach (d ranged from 0.05 to 0.37) (Eustis et al., 2018; Levin, An, et al., 2020; Levin et al., 2016; Viskovich & Pakenham, 2020). For studies adopted a combination of web-based and other forms of manual supports, e.g., phone coach, face-to-face sessions, it yielded an approximately medium effect (d ranged from 0.43 to 0.52) (Levin, Krafft, et al., 2020; Räsänen et al., 2016).

Three studies (Grégoire et al., 2018; Levin, An, et al., 2020; Räsänen et al., 2016) examined intervention effect by pre-post assessment comparison, and the

reported intervention effect size ranged between $d = 0.025$ and $d = 0.67$. In addition to pre-post comparison, some studies also compared intervention effect from baseline to one-month follow-up ($n = 2$) (Eustis et al., 2018; Levin, Krafft, et al., 2020), from baseline to 3-month follow up ($n=1$) (Levin et al., 2016), and from baseline to 12-week follow up ($n = 1$) (Viskovich & Pakenham, 2020). A summary of between-group difference of psychological well-being among the included studies is presented in Table 2.3.

Table 2.3 Between-group Comparison on Psychological Well-being in the Included Studies (n = 7)

First author (year)	Intervention group vs Control group (Delivery mode)	Outcome measures	Mean (SD) at baseline and at the longest time point	<i>t</i> or <i>F</i>	<i>p</i>	Effect size ^a (<i>d</i>)
Eustis et al (2018)	ABBT vs WLC (computer-based narrative ppt slides)	QOLI	Pre: ABBT (n=78): 1.71 (1.76) vs WLC (N=78): 1.61 (1.81) 1m: ABBT (n=29): 1.61 (1.68) vs WLC (N=35): 1.41 (2.01)	<i>t</i> = 0.43	0.67	0.05
Grégoire et al (2018)	ACT vs WLC (F2F)	WBMMS	Pre: ACT (n=72): 3.10 (0.58) vs WLC (n=72) 3.15 (0.63) Post: ACT (n=57): 3.46 (0.51) vs WLC (n=42) 3.14 (0.59)	<i>t</i> = 2.89	0.00	0.67
Levin et al. (2016)	ACT vs MHE (web-based)	MHC-SF	Pre: ACT (n=110): 62.32 (13.26) vs MHE (n=118) 62.67 (12.34) 3m: ACT (n=69): 61.38 (15.96) vs MHE (n=85) 64.06 (13.62)	<i>t</i> = 1.12	0.26	-0.16
Levin, An, et al. (2020)	ACT vs MBSR (self-help)	MHC-SF	Pre: ACT (n=53): 55.00 (7.62) vs MBSR (n=56) 55.66 (13.54) Post: ACT (n=37): 61.18 (11.98) vs MBSR (n=35) 62.66 (11.48)	<i>t</i> = .54	.59	0.025
Levin, Krafft, et al. (2020)	Full ACT vs WLC (web-based + phone coach/email prompts)	MHC-SF	Pre: Full ACT (n=45) 48.32 (2.19) vs WLC (n=45): 53.76 (2.30) 1m: Full ACT (n=45) 55.97 (2.36) vs WLC (n=45): 55.89 (2.44)	<i>t</i> = -0.22	0.83	0.52

First author (year)	Intervention group vs Control group (Delivery mode)	Outcome measures	Mean (SD) at baseline and at the longest time point	<i>t</i> or <i>F</i>	<i>p</i>	Effect size ^a (<i>d</i>)
Räsänen et al (2016)	ACT vs WLC (web-based+F2F)	MHC-SF	Pre: ACT (n=33): 37.21 (11.94) vs WLC (n=35) 39.88 (13.04) Post: ACT (n=29): 44.81 (14.02) vs WLC (n=35) 41.80 (13.57)	<i>t</i> = 0.87	0.04	0.43
Viskovich and Pakenham (2020)	ACT vs WLC (web-based)	MHC-SF	Pre: ACT (n=596): 2.93 (0.97) vs WLC (n=566) 2.87 (0.97) 12wFU: ACT (n=249): 3.10 (0.66) vs WLC (n=188): 2.79 (0.86)	<i>t</i> = 3.58	.001	0.37

Notes: ^a: between group at post-intervention measure (longest follow-up time point); pre= pre-intervention; post = post-intervention; mFU = month follow-up; wFU = week follow-up; *d* = Cohen's *d*; SD: standard deviation; ppt = PowerPoint.

ABBT = acceptance-based behavioural therapy; ACT = acceptance and commitment therapy; MBSR = mindfulness-based stress reduction; WLC = wait list control

MHC-SF = Mental Health Continuum-Short Form; QOLI: Quality of Life Inventory; WBMMS: Well-being Manifestations Measure Scale

2.4 Discussion

The aim of this review was to identify and narratively summarize the current knowledge of acceptance-based intervention for promoting psychological well-being in university students. When all studies were considered, intervention effect with small to medium effect size were reported, except two studies. In which, one of these two studies compared ACT with MBSR (Levin, An, et al., 2020), and the other study compared ABBT with WLC (Eustis et al., 2018). For mode of intervention delivery, compared to web-based intervention, face-to-face interventions performed better with a medium effect size ($d = 0.67$). The effect of ACT appeared to be sustainable till 12-week follow-up with a small effect size ($d = 0.37$) in a WLC study (Viskovich & Pakenham, 2020). Moreover, intervention effect was minimal and comparable between interventions which used electronic self-help book of ACT and MBSR (Levin, An, et al., 2020). Attrition rate was relatively lower when face-to-face component was incorporated in the intervention. Overall, ACT intervention appeared to have a positive effect on promoting psychological well-being in university students. Even though there were studies using ACT for well-being of university students, there was no information for nursing students, especially for those who are approaching graduation. Thus, it is inadequate to conclude whether ACT is effective for NGNs' psychological well-being and further studies on this area is warrant.

2.5 Conclusion

The findings of this review contribute to a better understanding of the effectiveness of acceptance-based intervention for promoting psychological well-being in university students. The investigator found small to medium effect on psychological well-being promotion and an increased interest in studying, not only negative functioning, but also positive functioning of individual. An increased use of web-based intervention, which provide participants flexibility to complete modules at their preferred time, however, was relatively weaker than face-to-face

intervention, in terms of study adherence and completion, and retention rate. Based on the results on the literature review, it informed the intervention protocol design, i.e., the mode of delivery, size of intervention groups, number of hours of each ACT intervention, and numbers of core processes of ACT to be included in intervention, for piloting an online ACT group-based intervention for promoting psychological well-being in university students. Specifically, considering group-based face-to-face intervention reported the highest retention rate, ACT interventions included all six ACT core processes yielded better intervention effects and numbers of contact hours needed; potential sustainable effects of ACT after treatment implementation at three months, in addition to the anticipated and analysed difficulties of conducting face-to-face intervention during COVID-19 pandemic when the investigator implemented this study. And therefore, an online group-based ACT with each session of two hours for five weeks, with assessment timepoints at baseline, post-intervention and 3-month after intervention, was adopted in this study. The investigator argued that to integrate ACT intervention into school curriculum may be a possible way to promote psychological well-being in university students.

Chapter 3 Methods

This chapter describes the methods used to evaluate the feasibility and potential efficacy of a group-based ACT intervention in promoting psychological well-being in new graduate nurses, i.e., pre-licensure nursing students. With reference to the CONSORT guidelines (Butcher et al., 2022; Eldridge et al., 2016)

, the following sections will be presented: (a) study design, (b) study participants and eligibility criteria, and study setting,, (c) sampling methods and recruitment procedures, (d) interventions of the study, (e) measuring instruments, (f) data collection and management, (g) sample size calculation, (h) randomization, (i) data analysis plan, and (j) ethical considerations.

As the effectiveness of ACT on promoting psychological well-being has not been widely understand, the aim of this study was to evaluate a newly developed ACT intervention for promoting psychological well-being for NGNs by assessing its feasibility and investigating preliminary efficacy. Thus, this study was specifically designed to (a) to assess the process of the study, including recruitment, randomization, intervention and follow up assessment, (b) to assess and refine procedure of an intervention protocol of an online group-based intervention for promoting psychological well-being in new graduate nurses during transition period; (c) to examine the potential efficacy of an online group-based ACT intervention for promoting psychological well-being in new graduate nurses during transition period with assessments at baseline, post-intervention and 3-month after intervention.

3.1 Study Design

A pilot prospective, parallel-group, randomized controlled trial was used to examine the potential efficacy of a group-based ACT intervention for promoting psychological well-being in newly graduated nurses, and to evaluate its feasibility.

3.2 Study Participants, Eligibility Criteria, and Study Setting,

3.2.1 Study Participants and Eligibility Criteria

Study participants were invited to participate if they are currently enrolled in nursing programme at the universities in Hong Kong and are going to be graduated within one year. The inclusion criteria are: (a) pre-registration nursing students currently studying in a nursing programme in Hong Kong, and (b) able to read and communicate in Cantonese. Students who had a diagnostic history of mental disorders with or without pharmacological and/or cognitive therapy were excluded.

3.2.2 Study Setting

Study participants were recruited from two universities in Hong Kong, namely Hong Kong Polytechnic University and the Hong Kong Metropolitan University. Both universities offer Bachelor Programme with Honours in General Nursing and Mental Nursing. Potential participants from these two universities were believed to have similar learning exposure and contexts.

3.3 Sampling Methods and Recruitment Procedures

3.3.1 Sampling Methods

Convenience sampling method was employed in this study. Potential participants were approached during university activities. Also, invitation notice of study was made via announcements in university intranet or individual email. Interested participants were screened with screening questions. For example, (a) what year of study are the potential participants currently in? (b) are the potential participants going to be graduated in the coming academic year? (c) any history of mental disorder with or without pharmacological treatment and/or cognitive therapy. After that, potential participants were invited to join the study with explanations based on the information sheet. An informed consent before

completing baseline questionnaire was obtained. Appendix E shows the information sheet and informed consent of the study and Appendix F shows the layout of information sheet and consenting page at Qualtrics survey software.

3.3.2 Recruitment Procedures

Students were recruited at two universities through face-to-face and online advertisements made in classes, and invitation emails. Recruitment materials described the study as a role transition programme specially designed for new graduate nurses. It provided information of the study, for example, purpose of study, study schedule, time commitment and compensation. Student contacts within department assisted in distributing email invitation throughout each department's email listserv and posting invitation notice on the virtual learning environment after seeking approval from School Deans and/or Department Heads. Reminder emails were sent to boost participation rates. Social media, for example, Instagram, was also considered as an additional channel to approach potential participants. Representatives of student associations were contacted to increase the publicity of this study.

Potential participants who had interest to join the study were asked to register the study via a Qualtrics survey link. Their eligibility was identified by their student status, ability to read and communicate in Cantonese, and history of mental disorders. Students' phone number and email address was asked to record. It was used for sending reminders, emails, and follow-up purpose.

For eligible participants, the implications of consenting to the survey were also described in the information sheet. When they have consented to participate, study participants were asked to complete a baseline assessment. This facilitated identification of eligible study participants. After that, they were randomly assigned to either control group or intervention group according to a list of random permutations prepared by block randomization. It was performed by a research assistant who did not involve in the process of

study participant recruitment. Potential participants were informed their participation were voluntary and had no relation with graduation requirement. Also, they could receive a compensation of HKD \$200, which serves as a compensation of their time for completing the three assessments; those who completed only the baseline and post-intervention assessment were compensated HKD \$100.

3.4 Interventions of the Study

3.4.1 *Delivery Mode of Treatment Sessions*

Group-based online treatment delivery mode was used in this study. It was selected because, compared to face-to-face, group-based intervention provides emotional, appraisal and informational supports to participants which may encourage group members to be persistent and optimistic (Dennis, 2003). Also, an online mode was relatively more feasible and stable under the influence of COVID-19 pandemic. Moreover, with real time interactions, it allowed collaborated learning with experiential activities and thus immediate feedback clarification could be provided by the investigator. All treatment sessions were conducted in Zoom. This teleconferencing platform was chosen because study participants were familiar in using it since the time of social unrest in Hong Kong in 2019 and during COVID-19 pandemic. Also, it was provided by the two universities for free. Links for joining treatment sessions were sent to all study participants via WhatsApp messages by a research assistant. Also, WhatsApp reminders were given to study participants on the day before treatment session and on the day of treatment session.

3.4.2 *Schedule of Treatment Sessions*

The overall schedule, for both control group and intervention group, was determined with consideration on the expected dates of study participants' graduation and work appointment. Specifically, the first session was delivered after they completed all assessment

requirement for programme graduation and before they registered and be appointed as a staff nurse in clinical workplace. Since potential participants completed course requirements in June 2022, the treatment sessions were scheduled to commence in July 2022. This arrangement minimized the potential conflicts of interests between the investigator and potential participants as well as separated the potential participants' worries on programme requirement for graduation and study participation.

3.4.3 Control Group

One two-hour group-based online career information seminar was provided to the study participants of control group by an experienced nurse. With reference to the current practice for NGN in local clinical settings, an introduction of hospital policies and guidelines was regularly arranged. To mirror present clinical practice as much as possible, a career information seminar was designed as the choice of comparator in this study. The two-hour group-based online career information seminar provided study participants with (a) information of career path and development in Hong Kong, (b) forthcoming hospital-based in-house trainings and assessments on clinical skills, and (c) expectations from hospital administrators on NGN. To maximize the attending possibility, multiple identical online career information seminars were arranged. Hence, study participants selected a preferred time slot according to their schedules.

The experienced nurse, who conducted the career information seminar, was a Senior Nursing Officer of Hospital Authority, Hong Kong. He had clinical experience in several specialties, for example, intensive care nursing and surgical nursing. Also, he had managerial experience of hospital administrations, such as training and development, coordination of clinical attachments, services of patient relationship, occupational safety, and staff recruitment. As the objectives of career information seminar were to provide study participants with an overview on the professional nursing career path in Hong Kong,

forthcoming hospital-based training for new staff, and expectations on new staff from administrative perspectives, therefore, the investigator identified this experienced nurse as an appropriate speaker for the career information seminar.

3.4.4 Intervention Group

Participants of intervention group received two kinds of treatment sessions. It included (a) one two-hour group-based online career information seminar, and (b) five two-hour group-based online ACT weekly sessions.

The two-hour group-based online career information seminar is the same seminar as for study participants of control group. Of which, this session provided information of career path and development in Hong Kong, forthcoming hospital-based in-house trainings and assessments on clinical skills, and expectations from hospital administrators on new graduate nurses.

In addition to the online career information seminar, study participants of intervention group (i.e., ACT group) received five two-hour group-based online ACT sessions in five consecutive weeks. Study participants were allocated into groups of six to eight. The investigator, whom had been trained with ACT training, conducted the ACT sessions based on the treatment protocol developed in this study, which is also guided by ACT for mental illness prevention for undergraduates. To maximize the attending possibility, multiple identical ACT sessions were arranged. Hence, study participants selected a preferred time slot according to their schedules. More, an experienced ACT facilitator supervised the investigator in conducting ACT sessions.

3.4.5 Intervention Protocol

Protocol Development. The investigator developed an intervention protocol for this study, i.e., an online group-based ACT intervention for promoting psychological well-being for new graduate nurses (NGN). The protocol was developed based on Acceptance and

Commitment Therapy (Hayes et al., 2012) with additional Acceptance and Commitment Therapy worksheets adapted from Harris (2009). Metaphors and other ACT materials relevant to the NGN and Chinese context were specifically selected (see Appendix C) and first reviewed by Chief Supervisor of investigator. After that, it was reviewed by two scholars, including Dr. Lisa W. COYNE and Dr. Hui CAO, who had representable works and publications of adopting ACT in adolescents and youth of Western and Chinese populations. Values of experiential exercises were advocated by scholars, hence, sequence of focus and contents, and selection of exercises were further discussed and revised according to comments received from two scholars. Re-arrangements and modifications of intervention contents included, (a) the value process of ACT brought to the beginning of the programme to enhance participants' engagement, (b) two more experiential exercises were added to the defusion and value processes of ACT to reinforce participants' understanding, (c) committed action process of ACT was reinforced in session four which aimed to encourage participants to make plans on their professional paths and development, and (d) the number of videos were reduced from two to three videos per session to one to two videos per session, , as such, reserving more time for participants to learning via experiential exercises.

ACT Facilitators. The investigator was the primary ACT facilitator of the study. Also, an experienced ACT facilitator supervised the investigator throughout the study. This experienced ACT facilitator has been trained with ACT and has experience in training others as ACT facilitator. The investigator received ACT trainings from courses of face-to-face and online formats (see Appendix I). More, the Chief Supervisor and the experienced ACT facilitator offered intensive ACT trainings for the investigator, together with peer doctoral students and other ACT facilitators, on practicing how to guide ACT metaphors, experiential exercises, and debrief participants before implementing ACT intervention of this study.

Thorough discussions and practices were held between the investigator and the experienced ACT facilitator before actual implementation of study protocol onto study participants.

Treatment Contents. The six core processes of ACT were covered in the five two-hour online ACT consecutive weekly sessions. All sessions were conducted in Cantonese and supplemented with English PowerPoints and worksheets. Three online videos were used in this study. Including The Unwelcomed Party guest Online videos of (English version) (Oliver, 2011 January), Sushi Train (Cantonese version) (TWGHs Ho Yuk Ching Educational Psychology Service Centre, 2020 September) and Internal Struggle (TWGHs Ho Yuk Ching Educational Psychology Service Centre, 2020 October). After each ACT session, homework included daily mindfulness practice and ACT worksheets (Harris, 2016; Harris, 2019) were distributed to study participants. Table 3.1 presents an outline of content for the ACT Sessions.

Table 3.1 Outline of Contents for the ACT Sessions

Objectives	Exercises	Homework
Session-1: Programme introduction, ACT core processes: Present, Values		
<ul style="list-style-type: none"> • To introduce the programme • To develop rule of confidentiality • To clarify personal values in nursing professions • To discuss creative hopelessness. 	<ul style="list-style-type: none"> • Mindfulness exercise • Why you are here? • Overview of ACT • Don't think of the Pink Elephant • ACT in a Nutshell 	<ul style="list-style-type: none"> • [Mindfulness] Daily Mindfulness Exercise (Breathing) • [Worksheet] The Mindful Breathing Exercise
Session-2: ACT processes: Acceptance, Present		
<ul style="list-style-type: none"> • To cultivate acceptance and letting go with struggles related to role changes. • To unlock from difficult and unhelpful thoughts 	<ul style="list-style-type: none"> • Mindfulness exercise • Homework review • [Video^a] Sushi Train • Your struggles... 	<ul style="list-style-type: none"> • [Mindfulness] Daily mindfulness exercise • [Worksheet] A Quick Look at Your Values • [Worksheet] Vitality and Suffering Diary • [Worksheet] Daily Willingness Diary
Session-3: ACT processes: Values, committed action		
<ul style="list-style-type: none"> • To differentiate goals and values in relation to nursing profession 	<ul style="list-style-type: none"> • Mindfulness exercise • Homework review • Why, why, why? (exercise) 	<ul style="list-style-type: none"> • [Mindfulness] Clouds in the Sky • [Worksheet] The Problems and Value Worksheet

Objectives	Exercises	Homework
	<ul style="list-style-type: none"> • [Video^b] The Unwelcomed Party Guest • [Metaphor] Passenger on a bus • Why you wanna be a nurse? 	
Session-4: ACT processes: Self-as-context, Defusion		
<ul style="list-style-type: none"> • To notice thoughts and defuse it from reason-giving. • To differentiate self and thoughts. 	<ul style="list-style-type: none"> • Mindfulness exercises • Homework review • Your Life as a Movie • [Video^a] Internal Struggle • When there is a difficult co-worker/patient... 	<ul style="list-style-type: none"> • [Mindfulness] Daily mindfulness exercise • [Worksheet] Fear and Dare-1 and 2 • [Worksheet] I notice I am having the thought...
Session-5: Revision on ACT 6 core process, Planning Forward		
<ul style="list-style-type: none"> • To summarize ACT core processes. • To plan forward during role transition. • Blessing on each other. 	<ul style="list-style-type: none"> • Mindfulness exercise • Revision on ACT 6 core processes 	<ul style="list-style-type: none"> • [Mindfulness] Continue daily mindfulness exercise • [Worksheets] The Willingness and Action Plan

Note. [Video^a] = Video in Cantonese version; [Video^b] = Video in English version

[Video^a] Sushi Train (TWGHs Ho Yuk Ching Educational Psychology Service Centre, 2020 September)

[Video^a] Internal Struggle (TWGHs Ho Yuk Ching Educational Psychology Service Centre, 2020 October)

[Video^b] The Unwelcomed Party Guest (Oliver, 2011 January)

3.5 Measuring Instruments

A total of seven measuring instruments were used in this study to measure psychological well-being (Psychological Well-being Scale-18, PWBS-18; and World Health Organization Well-being Index, WHO-5), level of perceived stress (Perceived Stress Scale, PSS-10), level of perceived professional quality of life (Professional Quality of Life Scale, ProQOL), level of psychological flexibility (Acceptance and Action Questionnaire-II, AAQ-II), dispositional mindfulness (Mindfulness Attention Awareness Scale, MAAS) and demographic characteristics of study participants. For psychological well-being, as it has been recommended to use different indices for measuring the purposive aspect and subjective feeling of happiness of psychological well-being (Howell & Passmore, 2019), two measuring instruments were used in this study. Study participants were asked to complete assessments at baseline, post-intervention, and 3-month after intervention. All measuring instruments were in English (see Appendix E). All measuring instruments were administered at each time point of the study, that is, (a) at baseline, (b) on completion of the intervention, and (c) at 3-month after intervention. For demographic characteristics of study participants, it was asked at baseline. For information of employment status, it was asked at post-intervention and 3-month after intervention.

3.5.1 *Psychological Well-being Scale-18 (PWBS-18)*

The English version of the 18-item Psychological well-being scale-18 (PWBS) was used to assess six distinct dimensions of wellness of participants, including autonomy, environment mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff & Keyes, 1995b). Internal consistency, Cronbach's alpha, for subscales were ranged from 0.86 to 0.93 (Kállay & Rus, 2014; Ryff & Keyes, 1995b). Also, PWBS has been found to have satisfactory reliability and internal consistency with Chinese of different

ages (Li, 2014; Xie, 2006) and nurses (Lee et al., 2019). In the current sample, the Cronbach's alpha for the PWBS-18 was .734.

Study participants were asked to rate how much they agree or disagree with each item on a 7-point Likert scale from 1 to 7 (1 = strongly agree; 2 = somewhat agree; 3 = a little agree; 4 = neither agree or disagree; 5 = a little disagree; 6 = somewhat disagree; 7 = strongly disagree). The score theoretically ranged from 7 to 126, with the higher scores indicating higher level of psychological well-being.

For the subscale of autonomy, an example item is Q17, "I have confidence in my own opinions, even if they are different from the way most other people think.". For the subscale of environmental mastery subscale, an example item is Q8, "In general, I feel I am in charge of the situation in which I live.". For the subscale of personal growth, an example item is Q11, "For me, life has been a continuous process of learning, changing, and growth.". For the subscale of positive relations with others, an example item is Q16, "I have not experienced many warm and trusting relationships with others.". For the subscale of purpose in life, an example item is Q3, "Some people wander aimlessly through life, but I am not one of them.". For the subscale of self-acceptance, an example item is Q1, "I like most parts of my personality.".

3.5.2 World Health Organization Well-being Index (WHO-5)

The English version of the 5-item of World Health Organization Well-being Index (WHO-5) was used to assess subjective psychological well-being of study participants. Study participants were asked to rate how well each of the five statements applies to them when considering the past 14 days. This instrument has been used as an outcome measure balancing the wanted and unwanted effects of treatments and is a sensitive and specific screening tool for depression across a wide range of study fields (Topp et al., 2015). Also, the WHO-5 has been found to have satisfactory reliability and internal consistency in Chinese

(Pan et al., 2009) and nurses (Tyler & Ellison, 1994). In the current sample, the Cronbach's alpha for the WHO-5 was .880.

An example WHO-5 item is "I have felt cheerful and in good spirits.". Items were rated on a 6-point Likert scale from 0 to 5 (0 = at no time; 1 = some of the time; 2 = less than half the time; 3 = more than half the time; 4 = most of the time; 5 = all of the time). The raw score theoretically ranged from 0 (absence of wellbeing) to 25 (maximal wellbeing), is multiplied by four to get the final score, with higher scores indicating a higher level of subjective wellbeing.

3.5.3 Perceived Stress Scale (PSS-10)

The English version of the 10-item Perceived Stress Scale (PSS-10) was used for measuring the degree to which situations in participants' lives were appraised as stressful during the last month. This instrument was originally developed by Cohen et al. (1983), and has demonstrated adequate internal reliability and correlated with a range of self-reported measurement and suggested for examining the role of non-specific appraisal of stress (Cohen, 1983). PSS has been found to have satisfactory reliability and internal consistency with Chinese of different population with satisfactory psychometric properties and Cronbach's alpha ranged from .79 to .87 (Chen et al., 2021; Leung et al., 2010; Liu et al., 2020). In the current sample, the Cronbach's alpha for the PSS-10 was .802.

An example PSS-10 item is "In the past month, how often have you been upset because of something that happen unexpectedly?". Participants were asked to rate each item using a 5-point Likert scale ranging from 0 to 4 (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, and 4 = very often). Among the 10 items, there were six negative and four positive items. A total scoring reflecting the experienced level of stress was calculated by adding up all item values after recoding the positive items, i.e., ranging from 0 – 40. As such, the higher the score is, the higher the level of perceived stress.

3.5.4 Professional Quality of Life Scale (ProQOL) (Version 5)

The English version of 30-item Professional Quality of Life Scale (ProQOL) (Stamm, 2005, 2010) was used to measure participants' perceived quality of life towards healthcare duties. Specifically, professional quality of life is the quality an individual feels in relation to work duties as a professional helper. It includes positive aspect (compassion satisfaction, CS) and negative aspect (compassion fatigue, CF) of professional quality of life. Compassion fatigue made up of two parts, i.e., burnout (BO) and secondary traumatic stress (STS). Participants were asked to rate how frequent each of the 30 statements in relation to work situation experienced in the last 30 days. This instrument has been used to measure professional quality of life among people of different ethics and has satisfactory reliability with Cronbach alpha of .88, .75 and .81 for CS, BO and STS respectively (Stamm, 2010). Also, it has been commonly used in nursing profession (Boni, 2022; Hegney et al., 2015). In the current study, the Cronbach's alpha for the compassion satisfaction, burnout and secondary traumatic stress subscales were .860, .723, .859 respectively.

Participants were asked to rate each item using a 5-point Likert scale ranging from 1 to 5 (1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = very often). For research purpose, Stamm (2010) recommended using t-scores rather than the raw score of the instrument. Thus, all ProQOL scores reported in the study were t-scores.

Compassion satisfaction (CS). Compassion satisfaction (CS) refers to the positive aspect of professional quality of life. It is about the pleasure an individual derives from being able to do professional work well. An example of item of ProQOL-CS is, "I get satisfaction from being able to [help] people.". Higher scores indicate greater satisfaction related to individual's ability to be an effective caregiver of individual's job.

Burnout (BO). Burnout (BO) is one of the components of compassion fatigue. It is associated with feelings of loneliness and difficulties in dealing with work or in doing the job

effectively. An example item of ProQOL-BO is, “I feel worn out because of my work as a [helper].”. Higher scores indicate higher risk of burnout. Also, with a score higher than 57, it may indicate an individual is not effective in one’s position.

Secondary traumatic stress (STS). Another component of compassion fatigue is Secondary traumatic stress (STS). It is the work-related, secondary exposure to extremely or traumatically stressful events. An example item of ProQOL-STS is “I jumped or am startled by unexpected sounds.”.

3.5.5 Acceptance and Action Questionnaire (AAQ-II)

The English version of the 7-item Acceptance and Action Questionnaire-II (AAQ-II) (Bond et al., 2011) was used to measure participants’ psychological flexibility. The AAQ-II provides a broad measure of a person’s experiences with avoidance, immobility, acceptance, and action. Also, it has been found to have satisfactory reliability and internal consistency with Chinese college students with Cronbach’s alpha for the AAQ-II ranged from 0.86 to .88 (Cao et al., 2013; Zhang et al., 2014). The AAQ had a Cronbach’s alpha of .891 in the current study.

An example AAQ-II item is “I’m afraid of my feelings.”. Participants were asked to rate the items on a 7-point Likert scale from 1 to 7 (1 = never true; 2 = very seldom true; 3 = seldom true; 4 = sometimes true; 5 = frequently true; 6 = almost always true; 7 = always true). Higher scores indicating a higher level of psychological inflexibility.

3.5.6 Mindfulness Attention Awareness Scale (MAAS)

The English version of the 15-item Mindful Attention Awareness Scale (MAAS) (Brown & Ryan, 2003) was used to assess the respective awareness and attention to present moment of participants. It provides a measure of a person’s everyday experiences. Also, the MAAS has been found to have satisfactory reliability and internal consistency in university students and Chinese adolescents with Cronbach’s alpha for the MAAS was 0.82 (Brown &

Ryan, 2003) and 0.89 (Black et al., 2012) respectively. The MAAS had a Cronbach's alpha of .896 in the current study.

An example MAAS item is "I could be experiencing some emotion and not be conscious of it until sometime later.". Participants were asked to rate on a 6-point Likert scale from 1 to 6 (1 = almost always; 2 = very frequently; 3 = somewhat frequently; 4 = somewhat infrequently; 5 = very infrequently; 6 = almost never). Higher scores indicating a higher level of dispositional mindfulness.

3.5.7 Demographic characteristics

Demographics. Demographic Questionnaire was used to capture the information on participants' age, gender, level of study, types of nursing program, place of birth, citizenship, current marital status, perceived financial hardship, presence of chronic illness, perceived academic achievements, and religious belief. Also, previous working experience in healthcare setting, excluding clinical practicums as arranged by universities, will be collected in the baseline assessment. This information was useful in identifying study participants who have been employed in clinical setting as a part-time nursing student during study period. Employment-related information, such as, the name of working hospital, settings and nursing specialty were collected at 3-month follow up.

Clinical experience as TUNS. Apart from gaining clinical experience as arranged by universities as in clinical placement, nursing students worked as a part-time staff in hospitals, that is, they were employed as Temporarily Undergraduates Nursing Students (TUNS).

Worked as a pre-RN TUNS at hospital. Pre-RN TUNS is a hospital-based arrangement for pre-licensure nursing students to work closely with staff nurses before the effective date of registered nurse employment at hospital. It is usually arranged to pre-licensure nursing students when a conditional employment offer is given.

3.6 Data Collection and Data Management

All assessment data was collected via Qualtrics. It is a secure online survey system. A web-link address was sent to study participants via WhatsApp Messenger. Study participants were asked to access to a designed web-link and to complete the online questionnaire either with their cell phone or electronic devices. Reminders were sent to study participants about assessment schedule via WhatsApp Messenger and phone calls. More, except inputting optional text answer on some of the selective items of demographics, all assessment items were set as compulsory that study participants had to answer all assessment items before leaving online questionnaire. To keep anonymous, each study participant was given with a unique study code. All study participants were asked to input their own study code together with their mobile phone number when filling online assessments in Qualtrics. On the whole, a trained research assistant was responsible in collecting data and communicating with study participants during the study period.

Collected data was then exported from Qualtrics to excel files by the investigator, and these excel files was stored in a computer with personal password. Only the authorized personnel of research team had the access to these collected data. Initial data screening was performed by checking for data completeness and out of range values in excel files. After that, all data were exported from excel files into the Statistical Package for Social Science (SPSS) for Macintosh (Version 29.0).

3.7 Sample Size Calculation

With regard to the nature of this pilot study, and for a main trial designed with a power of 80% and two-sided 5% of significance Whitehead et al. (2016) recommended pilot trial sample size per treatment arm of 25 for standardized effect sizes that are small (0.20), which the required sample size is 50. In relation to an approximated attrition rate at 30%, with reference to the current literature of implementing ACT intervention to university

students as presented in Chapter Two, the required sample size would be 36 per arm. Therefore, a total of 72 participants were needed.

3.8 Randomization, Allocation Concealment, and Blinding

After the completion of screening process, consent for participation, and baseline assessment, study participants were randomly assigned to either control group or intervention group at an allocation ration of 1:1 by using an online computer-generated random number. It was a computerized sequence generation randomization tool (www.randomizer.org). This allocation process was conducted by a research assistant who did not involve in providing treatment to either control group or intervention group. Also, the randomization was concealed from the investigator. As such, the investigator was blinded on the assignment to interventions. Due to the nature of intervention, study participants aware of group allocation and they were informed of their group allocation via WhatsApp Messenger. Because of the nature of the study, study participants were recruited from the same class although from different institution. To avoid contamination, study participants were thus reminded not to communicate with other study participants about the group allocation and expose session contents with their fellow students.

3.9 Data Analyses Plan

3.9.1 Feasibility of the Study

Feasibility of the study was assessed by study recruitment and retention rate. Specifically, it included (a) recruitment methods in accessing potential participants, (b) recruitment rate, (c) percentage of potential participants meet inclusion criteria, (d) percentage of consenting participants complete all baseline assessments, (e) percentage of consented participants commenced their randomly allocated treatment, and (f) percentage of participants complete all follow-up assessments within two week of target data.

3.9.2 Preliminary Analyses

Data normality of outcome variables were examined by descriptive statistics, i.e., histograms, estimates of skewness and kurtosis. Skewness values between -1 and 1 (Tabachnick et al., 2013) was considered as acceptable. Positive skewed data was only found in the PWBS-18 at baseline (skewness value = 1.246). Because generalized estimating equations (GEE) models were used to estimate intervention effects in this study, no transformation of data was required before further analyses (Ballinger, 2004). Also, Cronbach's alpha for each measure were assessed.

Descriptive statistics were used to examine each outcome variables by time point and groups to get an overview on the data set. To assess the baseline difference between intervention group and control group as well as dropouts, independent t-tests were used for continuous variables and Chi-square test of independence with Yates Community Correction were used for categorical variables. Also, baseline relationships between outcome variables and process variables were examined by zero-order correlations.

Given that assessment items were overall configured as compulsory in Qualtrics, except a few items which required text input, missing data was checked.

3.9.3 Intervention Effect

Generalized estimating equations (GEE) models were used to investigate the time-by-group interactions of each outcome variable for (i) ITT sample, (ii) programme completers of two conditions, and (iii) programme completers and non-completers of ACT group. GEE was considered as appropriate in investigating the intervention effect between the two groups across time as it allows modelling by making use of all available data for each subject, accommodates missing data without imputation and models the average response (Ballinger, 2004; Bell & Fairclough, 2014; Liang & Zeger, 1986). Also, GEE relaxes the assumption of data normality (Liang & Zeger, 1986), and suits for data with assessments time points of

unequal spacing (e.g. baseline, post-intervention and 3-month after intervention) (Ballinger, 2004; Kwok et al., 2008).

GEE models were specified with the first-order autoregressive (AR(1)) working correlation matrix structure, identity link function, with maximum likelihood estimates. AR(1) was selected as possible decrease in correlation between consecutive measurements in longitudinal data are expected. Also, time, effects, group effects and time-by-group effects were estimated for each outcome in GEE models. The statistics was performed by the Statistical Product and Service and Solution (SPSS) for Macintosh version 29 at 5% significance level.

3.10 Ethical Considerations

Approval was sought from the Human Subjects Ethics Application Review Committee of The Hong Kong Polytechnic University (see Appendix C) and the Research Ethics Committee of the Hong Kong Metropolitan University (see Appendix D). Participation in this study was voluntary. Study participants had the rights to withdraw from the study at any point. Also, collected data was kept confidential that, only members of research team could have the right to access.

Besides, the investigator monitored study participants' psychological well-being by observing and noticing participants' responses and participations during the entire study process. If unusual signs of psychological well-being were noted or be reported by study participants, the investigator would recommend the study participants to seek professional help. Cue cards of professional services hotlines and addresses were available for study participants when in need.

Chapter 4 Results

This chapter presents the findings of the study in the following sections. It firstly evaluates the feasibility of the study. It then describes the experience of implementing intervention protocol. After that, characteristics of study participants will be reported. Finally, it reports the potential efficacy of the group-based online ACT intervention for promoting psychological well-being for new graduate nurses.

4.1 Process of the Study

This section presents findings of study feasibility. It includes (a) recruitment, (b) randomization and effectiveness of blinding, (c) capacity and resource to conduct all process, (d) access to equipment, space, and time, (e) process to ensure treatment fidelity, (f) assessment process and data completeness, and (g) participation retention and intervention adherence among allocation groups.

4.1.1 Recruitment.

Repeated invitations to 450 final year baccalaureate students of general nursing and mental nursing programme at the Hong Kong Polytechnic University (PolyU) and Hong Kong Metropolitan University (HKMU) were made via face-to-face, emails, online promotion, social media and spoken communication between January and October 2022. Precisely, this covered three periods of time, that is, (a) before potential participants completing all course requirement for programme graduation, (b) between the completion of course requirement for graduation and confirmation of course results for graduation, and (c) after potential participants graduated from programme.

Before potential participants completing all course requirement for programme graduation (i.e., from January to May 2022), the investigator approached potential participants in three ways. It included meeting students in either face-to-face events or online events and publicized the study by sending invitation emails. Specifically, the investigator

met potential participants of PolyU in one face-to-face and three online occasions. The one face-to-face occasion was arranged when students submitting documents for nurse profession registration at university. For the three online occasions, these were arranged when students attending online briefing and got updates on study progress from Programme Leaders of general and mental bachelor nursing programmes. For approaching potential participants of HKMU, the investigator met them in fourteen face-to-face occasions. Under the influence of COVID-19, some students of both general and mental nursing programme lacked clinical hours for nurse profession registration and programme graduation. That, they were arranged to attend simulation trainings and clinical assessments at university. Of which, it substituted clinical hours and assessment requirements for nurse profession registration and programme graduation. Thus, the investigator was able to meet potential participants before or after simulation training or clinical assessment sessions. In both face-to-face and online occasions, in addition to the provision of study aims and contents, potential participants were informed about the planned schedule of interventions. Where, online career information seminar and ACT sessions were arranged after potential participants completed all required trainings for profession registration and assessment requirement for programme graduation. Before leaving the face-to-face or online occasions, potential participants were encouraged to join the study by registering at a Qualtrics link and/or via a QR code. To further publicize the study, two invitation emails were sent to potential participants after meeting them in face-to-face or online occasions. All emails were sent with reference to the listserv, thus study information reached to potential participants who had not been met in either face-to-face or online occasions.

Later from June to August 2022, it was a period when potential participants completed all course requirement for graduation and waiting for the confirmation of course results for graduation. During that time, on one hand, when the research assistant arranged

registered participants with online career information seminar, the research assistant sought help from registered participants to encourage their fellow students to join the study by spoken communication. On the other hand, the investigator continued to promote the study by contacting student representatives for posting promotion advertisements in students' Instagram group to publicize information about the study and sending the third invitation email to potential participants with reference to listserv.

After potential participants graduated from the nursing programme (i.e., from September to October 2022). the fourth invitation email was sent to them with reference to the listserv. Also, the investigator continued effort in recruiting study participants by spoken communication. Table 4.1 shows the numbers of monthly recruitment from January to October 2022.

Table 4.1 Recruitment in Universities.

Period	Ways of Approach	Number of NGN indicated interest to join the study
Jan 2022	Face-to-face ^a , email	45
Feb 2022	Face-to-face ^b	14
Mar 2022	Face-to-face ^b	0
Apr 2022	Face-to-face ^a , email	6
May 2022	Face-to-face ^b	14
Jun 2022	Email, social media	3
Jul 2022	Social media, word of mouth	11
Aug 2022	Word of mouth	0
Sept 2022	Word of mouth	0
Oct 2022	Email	0
Total		93

Note. Face-to-face ^a = face-to-face recruitment with subsequent invitation emails; Face-to-face ^b = face-to-face recruitment

A total of 93 final year nursing students indicated their interest and registered in the study. All of them met the inclusion criteria, i.e., final year pre-licensing nursing student who were studying in Hong Kong and able to communicate in Cantonese and English, except five students. These five students were screened out because of (a) students' histories of mental illness without pharmacological treatment (n=3), and (b) students' unreadiness to be graduated within one year (n=2). Hence, the percentage of potential participants meet inclusion criteria was 94.6% and face-to-face recruitment was observed as the most effective way in recruiting study participants (see table 4.1). More, another six students were unable to contact after they registered in the study. Therefore, the investigator arranged the study consenting procedures, baseline assessment and the online career information seminar to the remaining 82 students. After that, another eighteen students did not join the online career information seminar nor consented to the study and completed baseline assessment; thus, they were not included in the randomization. Reasons for not participating the online career information seminar were (a) students' lack of time (n=8), (b) students were unable to contact further (n=5), (c) students' unavailability due to work (n=4), and (d) students' unavailability due to travel (n=1). Finally, 64 final year nursing students consented to participate, completed the baseline assessment, and attended the online career information seminar. They were then randomized into control group or intervention group (i.e., ACT group). Recruitment was stopped when no further study registration was received after three months. The recruitment rate was 14.2% and the consent rate was 68.8%. A single Qualtrics link was sent to study participants for consenting to the study and completing baseline assessment, thus the percentage of consenting participants completed baseline assessment was 100%. Figure 4 shows the flow of study participants as recommended by the CONSORT statement (Moher et al., 2012).

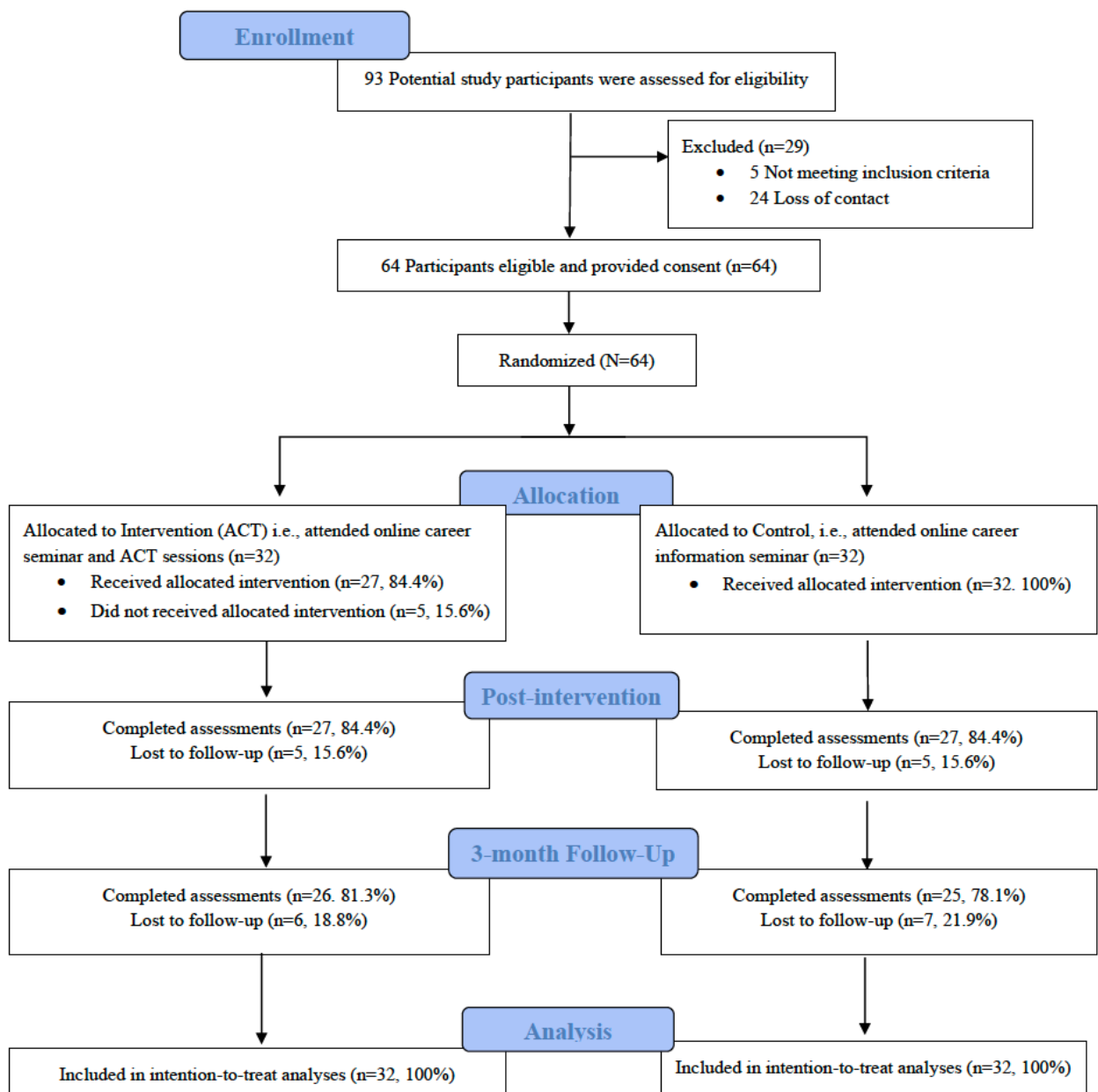


Figure 3 Flow of Study Participants as Recommended by the CONSORT Statement

4.1.2 Randomization and Effectiveness of Blinding

This allocation process was conducted by a research assistant who did not involve in providing either ACT group or control group and be concealed from the investigator. That, after potential study participants registered to the study via an online survey link, they were arranged to attend an online career information seminar. Then, a research assistant randomized the attended student participants into either ACT group or control group by using a list of computer-generated random numbers with block size of four. This list was generated by using an online, computerized sequence generation randomization tool (www.randomizer.org). The investigator and treatment providers of both ACT group and control group were blinded to this process.

Due to the nature of intervention, study participants aware of group allocation and they were informed of their group allocation via WhatsApp Messenger. Also, because the number of treatment sessions was different between ACT group (i.e., one 2-hour online career information seminar and five 2-hour online ACT sessions) and control group (i.e., one 2-hour online career information seminar) that, study participants were aware of group allocation. Study participants were reminded not to communicate with other study participants about the allocation with their fellow students.

4.1.3 Capacity and Resource to Conduct All Process

All treatment content of both ACT group and control group, i.e., career information seminar and ACT sessions, were delivered via a videoconferencing software (i.e., Zoom). This videoconferencing software provided videotelephony and online chat services. When study participants, intervention providers and members of research team registered to the software, they communicated smoothly with video and audio online. With the experience of social unrest in Hong Kong and COVID-19 pandemic, students of the two Universities had Zoom accounts which were provided by the Universities, and they were familiar with online

mode of teaching. In this regard, no additional cost had to be paid by study participants, whereas extra cost in storing recorded videos at Zoom cloud was paid by the research team.

4.1.4 Access to Equipment, Space and Personal Time

First, all treatment sessions of ACT group and control group were scheduled in afternoons or evenings and students were able to join sessions after school and/or work. For all study participants of ACT group and control group, a total of three identical online career information seminars were arranged. For study participants of ACT group, they were assigned in four groups and four cycles of ACT sessions were delivered. Where, multiple identical sessions were arranged, and study participants were allowed to join sessions which fit their schedule. A trained research assistant was responsible in scheduling and recording intervention attendance of study participants.

Also, this study adopted an online mode of delivery of treatment sessions both in control group and ACT group. Hence, students were able to access treatment sessions at their convenience. It was observed that most of the students accessed to sessions at home via computer or laptop, while a few of them accessed to sessions at school, at park, at transportation, etc., via mobile phone.

4.1.5 Process to Ensure Treatment Fidelity

The investigator was the primary ACT facilitator of all ACT session. Also, an experienced ACT facilitator was invited to supervise the investigator throughout the course of online ACT sessions. Two preparatory meetings were held between the investigator and the experienced ACT facilitator one month before formal launching of ACT sessions. The two meetings aimed (a) to confirm the arrangement of ACT core processes were appropriately scheduled, (b) to discuss the arrangement of presentation content and ACT worksheets were appropriately selected of each ACT session, (c) to have a final preview on the presentation contents with reference to the study protocol and to ensure all were included, and (d) to

provide a time for the investigator to rehearse the experiential and mindfulness exercise and get immediate feedback from experienced ACT facilitator. Study participants of ACT group were allocated into four small classes (i.e., Class-A, Class-B, Class-C and Class-D) and a total of 20 online ACT sessions were conducted. All sessions were videotaped for reviewing purpose and verbal consent was sought from study participants at the beginning of each session.

Performance of ACT Facilitators. The investigator was the ACT facilitator of each ACT session and an experienced ACT facilitator provided supervision in every session either simultaneously during Zoom sessions (for Class A, B and C) or as a post-session consultation via Zoom (for Class D). The investigator prepared all presentation material and ACT worksheets according to the study protocol to ensure the overall schedule of ACT was kept in pace. Session briefing was regularly held at one to two hours before each ACT session by investigator and the experienced ACT facilitator. It commonly took half to one hour. Briefing contents generally included the focus of ACT processes of that session, the presentation agenda and flow of activities, for example, the sequence of mindfulness and experiential exercises. More, the investigator held a basic assumption that all study participants were intended to learn. It was important as study participants preferred attending session without turning on video camera and facilitators had no cues on whether study participants were attending the sessions or not. Therefore, by holding the basic assumption helps the investigator to conduct sessions naturally as in face-to-face sessions.

Comments Received for Improving ACT Skills. To receive comments from experienced ACT facilitator, debriefings were held immediately after each online ACT sessions via Zoom and it commonly took 1.5 to 2 hours. Debriefing contents generally covered two main components, that is, learning points of the finished session and prospective preparation for the next session. Learning points of the finished sessions mostly focused on

(a) investigator's used technique in guiding experiential exercises and mindfulness exercises, and (b) investigator's responsiveness to study participants' reactions. The experienced ACT facilitator used plus-delta debriefing approach to facilitate investigator in building capacity for self-assessment. This helped improving investigator's skills and confidence in guiding ACT metaphors, experiential and mindfulness exercises. Examples of comments were, the use of wordings when guiding experiential exercises, consistency of presenting ACT concept and the six ACT processes in Cantonese, use acceptance when interacting with difficult study participants, etc. The investigator made notes during each debriefing session for later reference. More, the investigator discussed identified difficulties from ACT sessions with Chief Supervisor. For example, how to respond to study participants' reactions appropriately and adhered to ACT processes.

Fidelity Assessment Checklist. The investigator watched the recorded video recordings and check it against the ACT Core Competency Self-Assessment for Clinicians (Hayes & Strosahl, 2004). This allowed investigator to revisit and review on self-performance and identified area to improve.

4.1.6 Assessment Process and Data Completeness

About collecting data of baseline, post-intervention and 3-month after intervention, the research assistant sent a Qualtrics survey link to study participants of both control group and ACT group via WhatsApp Messenger and asked them to complete the online questionnaire in 7 days. In each assessment timepoint, three WhatsApp reminding messages and three follow-up phone calls were conducted alternatively on alternative days to remind study participants who did not complete the assessment on time. That, it took around two to three weeks for collecting data in each assessment time point.

The overall completion rate of online questionnaire at each assessment time point, i.e., baseline, post-intervention, and 3-month after intervention, was 100%, 84.4%, and 79.7%. As

mentioned, all study participants completed baseline assessment before group allocation assignment that contributed the completion rate of baseline assessment as 100% in both control group and ACT group. At post-intervention, both in ACT group and control, there were 27 participants (84.4%) completed on the online questionnaire. At 3-month after intervention, 26 study participants of ACT group (81.3%) and 25 study participants of control group (78.1%) completed the online questionnaire. Overall, 24 study participants of ACT group (75.0%) and 25 study participants of control group (78.1%) completed all three online questionnaires. Hence, an overall 76.6% of study participants completed all three assessments. The completion rate of online questionnaire between ACT group and control group at post-intervention and 3-month after intervention was found comparable. Table 4.2 shows the completion rate of online questionnaire at three assessment time points among study participants.

Table 4.2 The Completion Rate of Online Questionnaire at Three Assessment Time Points Among Study Participants (N=64).

Assessment Time Point	Full sample (N=64)	ACT Group (n=32)	Control Group (n=32)
Baseline	64 (100%)	32 (100%)	32 (100%)
Post-intervention	54 (84.4%)	27 (84.4%)	27 (84.4%)
3-month after intervention	51 (79.7%)	26 (81.3%)	25 (78.1%)
All three time points	49 (76.6%)	24 (75.0%)	25 (78.1%)

Regarding data completeness, except some selective demographic questions, for example, name of hospital, all instrument items of assessment were set as compulsory answered in Qualtrics that, the completeness of data was good.

4.1.7 Participation Retention and Intervention Adherence Among Allocation Groups

Online career information seminar. Three identical 2-hour online sessions of career information seminar were held in July 2022. It was conducted by an experienced nurse via Zoom. Because group allocation assignment was conducted after study participants had attended the online career information seminar, the attendance rate of career information seminar of both ACT group and control group was 100%.

Online ACT sessions. For study participants of ACT group, they were divided into four groups according to their available schedule and four cycles of ACT session were thus conducted. Study participants were allocated into groups of six to eight. Links for joining ACT sessions via Zoom were sent to study participants of ACT group via WhatsApp message by research assistant. WhatsApp reminders were given to study participants on the day before each intervention session and on the day of intervention session. The facilitators, both the investigator and the experienced ACT facilitator, were blinded in this process. The attendance rate of the five ACT sessions was ranged from 50.0% to 84.4%. Table 4.3 shows the attendance rate of each ACT session among study participants of ACT group.

Table 4.3 The Attendance Rate of Each ACT Session Among Study Participants of ACT Group (n=32).

ACT Session	Number of Attendees
1 st session	27 (84.4%)
2 nd session	17 (53.1%)
3 rd session	17 (53.1%)
4 th session	16 (50.0%)
5 th session	17 (53.1%)

More than half of the study participants of ACT group (n=18, 56.3%) attended three or more ACT sessions. Whereas nine study participants of ACT group (28.1%) attended one or two ACT sessions. However, five study participants of ACT group (15.6%) did not show up since the first ACT session. Table 4.4 shows the number of attended ACT sessions among study participants of ACT group.

Table 4.4 Number of Attended ACT Sessions Among Study Participants of ACT Group (n=32).

ACT Session	Number of Attendees
0 session	5 (15.6%)
1 session	5 (15.6%)
2 sessions	4 (12.5%)
3 sessions	2 (6.3%)
4 sessions	5 (15.6%)
5 sessions	11 (34.4%)

Summary. Overall, the investigator approached 450 potential participants and 93 of them registered in the study. Recruitment in face-to-face was observed as more effective than recruitment via emails, social media or by word of mouth. Five registered participants were excluded from the study because of mental illness history or unreadiness in graduation, the percentage of potential participants meet inclusion criteria was 94.6%. While 64 NGN finally consented and participated in the study, the recruitment rate of the study was 14.2% and the consent rate was 68.8%. All consented study participants completed baseline questionnaire hence the percentage of completing baseline assessment was 100%. The percentage of consented participants commenced their randomly allocated treatment was 84.4% in ACT

group as five study participants did not attend any of ACT sessions after randomization. Online assessments were used in the study. By configuring assessment items as compulsory contributes to relatively good in data completeness, except a few items which required text input. There were 84.4% and 79.7% of participants completed follow-up assessment at post-intervention and 3-month after intervention respectively.

Randomization at block size of four was used in the study. A research assistance was trained to conduct the randomization process and the investigator, the experienced ACT facilitator, and the nurse speaker of career information seminar were blind in the procedure. Since the treatments of ACT group and control group was different, study participants, however, were aware of their group assignment.

Implementation of ACT intervention was mainly supervised by the experienced ACT facilitator. The investigator was debriefed and received feedbacks immediately after each ACT session. Self-rating by using the ACT Core Competency Self-Assessment for Clinicians provided the investigator opportunity to revisit self-performance.

4.2 Implementation of Intervention Protocol

This section describes the experience of implementing intervention sessions, i.e., online ACT sessions. It included mode of delivery, scheduling of ACT sessions, barrier to participation, performance of study participants, and adverse events.

4.2.1 Mode of delivery and Participants' Engagement

This study adopted an online mode of delivery for all treatment sessions, i.e., career information seminar and ACT sessions. Overall, the sessions were presented smoothly and in order. Study participants had confidence to attend online sessions and handled internet connection problem by themselves without very much other anticipated difficulties. No obvious barrier of joining online session was reported by study participants, the speaker of career information seminar, the experienced ACT facilitator during the study.

Whether to turn on or off video camera during sessions, the investigator allowed study participants to decide. As expected, almost all the study participants joined sessions without turning on the video camera except one. In view of this, the investigator encouraged study participants to turn video camera on when doing experiential exercise. More, the investigator used various tools to engage participants during sessions, for example participants' responses were collected by using Zoom features "pooling" and "raising hands", chat boxes, and shared screen, thus participants' interactions, collaborative learning and synchronized progression were established during session. Overall, it appeared that online mode of delivery was appropriate to this study.

4.2.2 Scheduling of Treatment Sessions

During the time when potential study participants indicating their interest to join this study via Qualtrics, they were asked for which days of a week would be preferred for attending online sessions. Of which, afternoons and evenings of Friday, Saturday and Sunday were the most frequently selected. Also, when planning the schedule of ACT sessions, the investigator anticipated study participants had complicated schedules and shifting work duties, and clashes between their works and ACT sessions was expected. To maximize participation in ACT sessions, although study participants were arranged and encouraged to attend ACT sessions in sequential order during the five consecutively weeks, they were allowed to join ACT sessions of another class if unavailability was noted, except the first ACT session. For the four ACT classes, the first class was arranged on Saturdays, the second class was arranged on Mondays, the third class was arranged on Fridays, and the fourth class was arranged on Saturdays. All classes were conducted from 5 to 7 pm (Mondays and Fridays) and from 6 to 8pm (Saturdays). With this flexible arrangement, 56.3% of study participants completed at least three of the five ACT sessions.

4.2.3 *Barrier to Participation*

Among the study participants of ACT group (n=32), except five study participants who were lost to follow-up, the most common reasons of non-attendance were related to busy schedule and clashes between ACT session and shift duties.

4.2.4 *Metaphor, Experiential and Mindfulness Exercises*

The investigator firstly prepared several options of experiential exercise for each ACT process, it allowed the investigator to choose a relatively appropriate or an easier one for different study participants. On one hand, it provided the investigator to gain more experience with different exercise. On the other hand, the investigator found focusing on a few central metaphor and experiential exercises, such as, ACT in a Nutshell metaphor, Sushi Train metaphor, etc., would be more manageable by investigator, a young ACT facilitator.

4.2.5 *Performance of Study Participants in ACT Sessions*

There were 53% (n=18) of study participants attended at least three out of five weekly consecutively ACT sessions. All online ACT sessions were conducted via Zoom and study participants were observed as actively participated. Although study participants generally preferred to participate ACT sessions without video, it was observed that they responded quickly whenever they were invited to share their feelings, thoughts, or reflections. Also, the investigators invited study participants to turn on video occasionally during some of the experiential exercises, such as, imagining a pinky elephant. This provided facilitator with evidence that study participants were paying attention to sessions and knowing their facial responses.

At the end of each session, the investigator provided one to two ACT worksheets and one mindfulness exercise to study participants as a weekly homework. Also, they were asked to complete it before joining next session. Most of the time, study participants replied they practiced mindfulness exercise, however, just a few of study participants completed ACT

worksheets before joining next session. More, some study participants shared they establish a habit practicing mindfulness exercise, for example, when they just woke up in the morning and still laying on the bed, when they were on the way to go to work and travelled in public transport, when they were resting on bed before sleeping.

In the last ACT session, study participants were asked to name one to two of the most useful exercise or activities of the role transition programme. Identified examples, such as the Sushi Train metaphor, ACT in a Nutshell metaphor, Don't think of Pink Elephant, Clouds in the Sky, The Unwelcome Party Guest, etc. Study participants shared that ACT in a Nutshell metaphor introduced them the concept of opening up and accepting unpleasant feelings; Don't think of Pink Elephant and Sushi Train metaphors allowed them to notice their thoughts were somehow automated, and yet, it was come and go; the Unwelcome Party Guest metaphor provided them opportunities to reflect on their past experiences and to learn stay focused on adjustment to the new role but not putting energy into avoiding unpleasant feelings or experience. Nevertheless, some study participants expressed gratitude to investigator and peers study participants, in particularly to the sincere guiding and useful metaphors and mindfulness exercises. Study participants also revealed that it immediately helped them to adapt to new working environment, socializing with new colleagues, and interacting with difficult patients.

4.2.6 Adverse Events

The investigator monitored study participants' responses and level of engagement during sessions. This provided factual information on whether study participants had distressed emotion, or others, throughout the programme. No adverse events were received in the entire period of study.

Summary. Overall, the implementation of the online group-based ACT intervention for NGN was smooth and in order. The overall performance of study participants was good. Conducting ACT intervention via Zoom was considered as appropriate to both study participants and facilitators with limited cost. Study participants were actively participated in the study and were willing to share their feelings, thoughts, and reflection with group members. Metaphor and mindfulness exercises were appropriately selected and appeared to be well accepted by study participants. Nevertheless, by assessing the mode of delivery and scheduling, and content of intervention, it provided possible refinement on the newly developed intervention protocol of promoting psychological well-being by using ACT for NGN during transition period. To address the feedback from experienced ACT facilitator and Chief Supervisor, further practice was recommended.

4.3 Characteristics of Study Participants

This section reports the characteristics of study of participants. Demographic characteristics of study participants at baseline were assessed. It includes age, gender, programs of study, place of birth, years of immigration, marital status, perceived financial hardship, experience of special event in the past year. More, study participants' clinical experience as TUNS, perceived performance of academic and clinical performance, religious belief, mindfulness experience, worked as a pre-RN TUNS at hospital were asked. Information of employment status of study participants at post-intervention and 3-month follow-up are then reported. After that, it reports findings of outcome measures of psychological wellness, subjective psychological well-being, perceived stress, professional quality of life, psychological inflexibility, and dispositional mindfulness. Table 4.5 presents the demographic characteristics of study participants.

4.3.1 Demographics Characteristics of Study Participants at Baseline

Age. The overall mean age of study participants was 23.1 (SD = 1.1, ranged 22-27). For the mean age of ACT group and control group, it was 23.1 (SD = 1.3, ranged 22-27) and 23.1 (SD = 0.9, ranged 22-25) respectively.

Gender. About gender of study participants, 52 female (81.3%) and 12 male (18.8%) students joined the study. For participants of ACT group, there were 25 females (78.1%) and 7 males (21.9%). For participants of control group, there were 27 females (84.4%) and 5 males (15.6%).

Programme of study. Among the full sample, 51 out of 64 participants (79.7%) studied general nursing programme and 13 out of 64 participants (20.3%) studied mental nursing programme. For participants of ACT group, 24 out of 32 participants (75.0%) studied general nursing programme and 8 out of 32 participants (25.0%) studied mental nursing programme. For participants of control group, 27 out of 32 participants (84.4%) studied general nursing programme and 5 out of 32 participants studied mental nursing programme.

Place of birth. About place of birth of study participants, 53 out of 64 participants (82.8%) were born in Hong Kong and the remaining 11 study participants (17.2%) were born in Mainland China or other places. For participants of ACT group, 27 out of 32 participants (84.4%) and 5 out of 32 participants (15.6%) participants were born in Hong Kong and Mainland China or other places respectively. For participants of control group, 26 out of 32 participants (81.3%) and 6 out of 32 participants (18.8%) participants were born in Hong Kong and Mainland China or other places respectively.

Years of immigration. About information of the number of immigrated years among study participants who born in Mainland China or other places, the 11 study participants immigrated to Hong Kong for a range of 11 to 23 years. The overall mean years and standard deviation of immigrated study participants was 16.9 (SD = 3.4). For the mean year of

immigration of ACT group and control group, it was 17.8 (SD = 4.4, ranged 11 – 23) and 16.2 (SD = 2.3, ranged 14 – 20) respectively.

Marital status. About marital status of study participants, 62 out of 64 participants (96.9%) were single and 2 out of 64 participants (3.1%) were married or cohabited. Of which, both participants who reported as married (n = 1) and cohabited (n = 1) were participants of ACT group. Also, all study participants had no children.

Perceived financial hardship. About perceived financial hardship of study participants, five out of 64 study participants (7.8%) perceived financial hardship in the past one year. These five participants were participants of ACT group (n = 2, 6.3%) and control group (n = 3, 9.4%). Also, none of the study participants nor their families received the Comprehensive Social Security Assistance (CSSA) in the past year.

Experience of special events in the past year. Among the full sample, seven out of 64 participants experienced special events in the past year (10.9%). Of which, they experienced death of relative (n = 4), permanent damage of body part (n = 1), had relationship problem with partner (n = 1), and experienced both death of relative and had relationship problem with partner (n = 1). These seven study participants were participants of ACT group (n = 3, 4.7%) and control group (n = 4, 6.3%).

Religious belief. About religious belief of study participants, 15 out of 64 participants had a religious belief (23.4%). Of which, they were Christian (n = 11), Catholic (n = 2), Buddhist (n = 1) and follower of other religion (n = 1). Among these 15 participants, eight (25.0%) and seven (21.9%) of them were participants of ACT group and control group respectively.

Mindfulness experience. Among the full sample, 40 out of 64 participants learnt mindfulness exercise at a previous time (62.5%). Of which, 23 (71.9%) and 17 (53.1%) of them were participants of ACT group and control group respectively.

For study participants who had learnt mindfulness exercise, they learnt it in the past one month ($n = 2$), in the past six month ($n = 2$), in the past 12 months ($n = 8$), or more than 12 months ($n = 28$). Also, only three of them (7.5%) practices mindfulness regularly at a frequency of once a week ($n = 2$) or twice a week ($n = 1$).

Table 4.5 Demographic Characteristics of Study Participants at Baseline (N = 64)

Baseline characteristic	Full sample (N=64)		ACT group (n=32)		Control group (n=32)	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Age (yrs), M (SD)	23.11 (1.13)		23.13 (1.36)		23.09 (.86)	
[range]	[22-27]		[22-27]		[22-25]	
Gender						
Female	52	81.3	25	78.1	27	84.4
Male	12	18.8	7	21.9	5	15.6
Study programme						
General nursing	51	79.7	24	75.0	27	84.4
Mental nursing	13	20.3	8	25.0	5	15.6
Place of birth						
Hong Kong	53	82.8	27	84.4	26	81.3
Mainland China or others	11	17.2	5	15.6	6	18.8
Yrs in HK (M, SD)	16.9 (3.4)		17.8 (4.4)		16.2 (2.3)	
Marital status						
Single	62	96.9	30	93.8	32	100
Married/cohabiting	2	3.1	2	6.2	0	0

Baseline characteristic	Full sample (N=64)		ACT group (n=32)		Control group (n=32)	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Perceived financial hardship						
No	59	92.2	30	93.8	29	90.6
Yes	5	7.8	2	6.3	3	9.4
Received CSSA (Self/ Family)	0	0	0	0	0	0
Experienced special event in the past year						
No	57	89.1	29	90.6	28	87.5
Yes	7	10.9	3	9.4	4	12.5
Religious belief						
No	49	76.6	24	75.0	25	78.1
Yes	15	23.4	8	25.0	7	21.9
Had learnt mindfulness exercise						
No	24	37.5	9	28.1	15	46.9
Yes	40	62.5	23	71.9	17	53.1
Regular practice of mindfulness						
	3	4.7	1	3.1	2	6.3

Table 4.6 presents Information of study participants' clinical experience as TUNS, perceived performance in academic and clinical, and pre-RN TUNS at hospital were collected at baseline.

Clinical experience as TUNS. Among the full sample, 60 participants (93.8%) were working part-time as TUNS at hospitals and four participants (6.2%) were not during the five

years of undergraduate studies. Where, both in ACT group and control group, 30 participants (93.8%) were working part-time as TUNS at hospitals and two participants (6.2%) were not.

Also, the overall mean length of TUNS experience of study participants was 18.2 months (SD = 10.5, ranged 2 – 36). For the mean length of TUNS experience of ACT group and control group, it was 19.3 months (SD = 11.3, ranged 2 – 36) and 17.0 months (SD = 9.8, ranged 3 – 36) respectively.

Perceived academic performance. Among the full sample, study participants rated their academic performance as excellence (n = 1, 1.6%), good (n = 7, 10.9%), satisfactory (n = 29, 45.3%), fair (n = 25, 39.1%) or unsatisfactory (n = 2, 3.1%). More than half of the participants rated their academic performance as satisfactory, good or excellence. The percentage of such ratings among participants of ACT group and control group was 57.8% and 53.1% respectively.

Perceived clinical performance. Among the full sample, study participants rated their clinical performance as excellent (n = 1, 1.6%), good (n = 9, 14.1%), satisfactory (n = 36, 56.3%), fair (n = 15, 23.4%) and unsatisfactory (n = 3, 4.7%). Most of participants rated their clinical performance as satisfactory, good or excellence. The percentage of such ratings among participants of ACT group and control group was 68.7% and 75.0% respectively.

Worked as a pre-RN TUNS at hospital. Among the full sample, 21 out of 64 participants (32.8%) worked as a pre-RN TUNS at hospital. Of which, 11 (34.4%) and ten (31.3%) of them were participants of ACT group and control group respectively.

Summary. At baseline, A total of 64 study participants joined this study. The overall mean age and standard deviation of study participants was 23.1 (1.1), ranged 22 – 27 years of age. Most of them were female (81.3%), indigenous Hong Kong Chinese (82.8%), single (96.9%), and studied in general nursing programme (79.7%), perceived no financial hardship

in the past year (92.2%), did not experience special event in the past year (89.1%), and had no religious belief (76.6%). Also, more than half of them (57.8%) rated their academic performance as satisfactory, good or excellence and almost three quarters of them (71.9%) rated their clinical performance as satisfactory, good or excellence. In addition to the clinical attachment as arranged by universities, majority of the study participants (93.8%) worked part-time as TUNS at hospitals. The mean length of TUNS experience was 18.2 months (SD = 10.5) during studying. More, around one third of study participants worked as a pre-RN TUNS at hospitals. Although around two third of study participants (62.5%) learnt mindfulness exercise at a previous time, only three study participants practiced mindfulness regularly at a frequency of once to twice a week.

Table 4.6 Clinical Experience of Study Participants at Baseline (N = 64)

Baseline characteristic	Full sample		ACT group		Control	
	(N=64)		(n=32)		group (n=32)	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Clinical experience as TUNS						
No	4	6.2	2	6.2	2	6.2
Yes	60	93.8	30	93.8	30	93.8
Length of TUNS experience (m), M (SD)						
	18.2 (10.5)		19.3 (11.3)		17.0 (9.8)	
Perceived academic performance						
Excellence	1	1.6	0	0	1	3.1
Good	7	10.9	6	18.8	1	3.1
Satisfactory	29	45.3	14	43.8	15	46.9
Fair	25	39.1	11	34.4	14	43.8

Baseline characteristic	Full sample		ACT group		Control	
	(N=64)		(n=32)		group (n=32)	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Unsatisfactory	2	3.1	1	3.1	1	3.1
Perceived clinical performance						
Excellence	1	1.6	0	0	1	3.1
Good	9	14.1	5	15.6	4	12.5
Satisfactory	36	56.3	17	53.1	19	59.4
Fair	15	23.4	8	25.0	7	21.9
Unsatisfactory	3	4.7	2	6.3	1	3.1
Worked as pre-RN TUNS at hospital						
No	43	67.2	21	65.8	10	31.3
Yes	21	32.8	11	34.4	22	68.7

Note: ACT = acceptance and commitment therapy; CSSA = Comprehensive Social Security Allowance; HK = Hong Kong; TUNS = Temporarily Undergraduates Nursing Students; yrs = years; m = month; M = mean; SD = standard deviation; χ^2 = Chi-square; *t* = *t*-statistics; *df* = degree of freedom.

4.3.2 Employment status of Study Participants at Post-intervention and 3-month Follow-up Assessment

At post-intervention and 3-month follow-up assessment, study participants were asked to provide information of employment status. At post-intervention, among the 54 responses, 50 study participants were employed and the employment rate was 92.6%. Of which, 26 participants of ACT group and 24 participants of control were employed, the employment rate was 96.3% and 88.9% respectively. Majority of study participants worked in hospitals (*n*

= 44, 88%) and a few of them work at old-age home (n = 5, 10.0%) and other non-clinical setting, i.e., secondary school (n=1, 2.0%).

At 3-month after intervention, among the 51 responses, all study participants were employed, and the employment rate was 100.0%. Majority of them worked at hospitals (n = 42, 82.3%), some of them worked at old-age home (n = 6, 11.8%) and other non-clinical settings, such as secondary school (n =1), clinical trial centre at university (n = 1) and healthcare agency (n = 1). Table 4.7 presents the employment status of study participants at post-intervention and 3-month follow-up.

Table 4.7 Employment Status of Study Participants at Post-intervention (n = 54) and 3-month Follow-up (n = 51).

Baseline characteristic	Received responses		ACT group		Control group	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Post-intervention (n = 54)			(n=27)		(n=27)	
Employment status						
Was not employed	4	7.4	1	3.7	3	11.1
Was employed	50	92.6	26	96.3	24	88.9
Hospital	44	88.0	22	84.7	22	91.7
Old-age home	5	10.0	3	11.5	2	8.3
Non-clinical ^a	1	2.0	1	3.8	0	0
3-month after intervention (n = 51)			(n=26)		(n=25)	
Employment status						
Was not employed	0	0	0	0	0	0
Was employed	51	100.0	26	100.0	25	100.0

Baseline characteristic	Received responses		ACT group		Control group	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Hospital	42	82.3	21	80.8	20	80.0
Old-age home	6	11.8	3	11.5	3	12.0
Non-clinical ^a	3	5.9	2	7.7	1	4.0

Note. ACT = acceptance and commitment therapy; NA = not applicable; χ^2 = Chi-square.

^a secondary school, clinical trial centre at university, or healthcare agency.

4.3.3 Outcome Measures Reported by Study Participants at Baseline

In this study, the investigator used six measuring instruments to measure the psychological well-being (Psychological Well-being Scale-18 and World Health Organization Well-being Index), level of perceived stress (Perceived Stress Scale), perceived professional quality of life (Professional Quality of Life Scale), level of psychological flexibility (Acceptance and Action Questionnaire-II), and dispositional mindfulness (Mindfulness Attention Awareness Scale) of study participants.

Preliminary analyses. Data distribution was assessed with histograms, estimates of skewness and kurtosis, and Kolmogorov-Smirnov statistic on each variable. Skewness values were found between -1 and 1, and kurtosis values were between -3 and 3. For Kolmogorov-Smirnov statistic, Sig. value were found lesser than .05 in PWBS-18, WHO-5 and AAQ-II. That, it suggested a violation of assumption of normality.

Psychological well-being. Psychological well-being of study participants was measured by two measuring instruments, i.e., PWBS-18 and WHO-5. Where, PWBS-18 measured six dimensions of wellness and WHO-5 measured subjective well-being of study participants. Table 4.8 presents the summary data of psychological well-being as reported by study participants at baseline.

Six Dimensions of Wellness. The PWBS-18 was used to assess six distinct dimensions of wellness of study participants, namely autonomy, environment mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff & Keyes, 1995b). There were 18 items in this instrument and each subscale composed of three items. Study participants were asked to rate each item on a 7-point Likert scale. Theoretically, the range of raw score of overall scale and individual subscale was 7 – 126 and 7 – 21 respectively. Of which, higher scores indicating higher level of wellness.

The overall mean score of PWBS-18 of study participants at baseline was 83.16 (SD = 9.63, ranged 64 – 120). Also, the mean score of PWBS-18 among study participants of ACT group and control group at baseline was 82.72 (SD = 7.87, range = 71 – 103) and 83.66 (SD = 11.21, range = 64 – 120) respectively. That, the mean score of PWBS-18 was comparable between two groups.

Autonomy. The overall mean score of autonomy subscale of study participants at baseline was 11.52 (SD = 2.64, ranged 4 – 19). For the mean score of autonomy subscale among study participants of ACT group and control group at baseline, it was 11.25 (SD = 2.00, range = 7 – 14) and 11.78 (SD = 3.17, range = 4 – 19) respectively. That, the mean score of autonomy subscale between two groups was comparable with a mean difference at 0.53.

Environmental Mastery. The overall mean score of environmental mastery subscale of study participants at baseline was 13.20 (SD = 2.51, ranged 7 – 20). For the mean score of environmental mastery subscale among study participants of ACT group and control group at baseline, it was 13.06 (SD = 2.27, range = 9 – 20) and 13.34 (SD = 2.76, range = 7 – 19) respectively. That, the mean score of environmental mastery subscale between two groups was comparable with a mean difference at 0.28.

Personal Growth. The overall mean score of personal growth subscale of study participants at baseline was 15.86 (SD = 2.62, ranged 9 – 21). For the mean score of personal growth subscale among study participants of ACT group and control group at baseline, it was 16.00 (SD = 2.16, range = 12 – 20) and 15.72 (SD = 3.04, range = 9 – 21) respectively. That, the mean score of personal growth subscale between two groups was comparable with a mean difference at 0.28.

Positive Relationship with Others. The overall mean score of positive relationship with others subscale of study participants at baseline was 14.45 (SD = 2.46, ranged 10 – 20). For the mean score of positive relationship with others subscale among study participants of ACT group and control group at baseline, it was 14.59 (SD = 2.18, range = 11 – 19) and 14.31 (SD = 2.73, range = 10 – 20) respectively. That, the mean score of positive relationship with others subscale between two groups was comparable with a mean difference at 0.28.

Purpose in Life. The overall mean score of purpose in life subscale of study participants at baseline was 13.63 (SD = 2.71, ranged 8 – 21). For the mean score of purpose in life subscale among study participants of ACT group and control group at baseline, it was 13.28 (SD = 2.19, range = 8 – 18) and 13.97 (SD = 3.14, range = 8 – 21) respectively. That, the mean score of purpose in life subscale between two groups was comparable with a mean difference at 0.69.

Self-acceptance. The overall mean score of self-acceptance subscale of study participants at baseline was 15.40 (SD = 2.47, ranged 7 – 21). For the mean score of self-acceptance subscale among study participants of ACT group and control group at baseline, it was 14.53 (SD = 2.53, range = 7 – 20) and 14.47 (SD = 2.45, range = 10 – 21) respectively. That, the mean score of self-acceptance subscale between two groups was comparable with a mean difference at 0.06.

The mean scores of PWBS-18 and six dimensions of wellness among study participants in ACT group and control group was comparable. Table 4.8 presents means scores of PWBS-18 and six dimensions reported by study participants at baseline.

Table 4.8 Psychological Well-being Reported by Study Participants at Baseline (N = 64)

Measure	Condition	Mean (SD) [range]
PWBS-18	Full sample	83.16 (9.63), [64-120]
	ACT	82.72 (7.87), [71-103]
	Control	83.66 (11.21), [64-120]
PWBS-18 – Autonomy	Full sample	11.52 (2.64), [4-19]
	ACT	11.25 (2.00), [7-14]
	Control	11.78 (3.17), [4-19]
PWBS-18 – Environmental Mastery	Full sample	13.20 (2.51), [7-20]
	ACT	13.06 (2.27), [9-20]
	Control	13.34 (2.76), [7-19]
PWBS-18 – Personal growth	Full sample	15.86 (2.62), [9-21]
	ACT	16.00 (2.16), [12-20]
	Control	15.72 (3.04), [9-21]
PWBS-18 – Positive relationship with others	Full sample	14.45 (2.46), [10-20]
	ACT	14.59 (2.18), [11-19]
	Control	14.31 (2.73), [10-20]

Measure	Condition	Mean (SD) [range]
PWBS-18 – Purpose in life	Full sample	13.63 (2.70), [8-21]
	ACT	13.28 (2.19), [8-18]
	Control	13.97 (3.14), [8-21]
PWBS-18 – Self-acceptance	Full sample	14.50 (2.47), [7-21]
	ACT	14.53 (2.53), [7-20]
	Control	14.47 (2.45), [10-21]

Note. PWBS-18 = Psychological Well-being Scale-18

Subjective well-being. Subjective well-being of study participants was measured by WHO-5. There were 5 items in this instrument. Study participants were asked to rate each item on a 6-point Likert scale. Theoretically, the range of calculated score was 0 – 100. Of which, higher scores indicating higher level of perceived well-being (Topp et al., 2015).

The overall mean score of WHO-5 of study participants at baseline was 57.69 (SD = 15.50, ranged 16 – 84). For the mean score of this measuring instrument among study participants of ACT group and control group at baseline, it was 53.50 (SD = 14.85, range = 16 – 80) and 61.88 (SD = 15.20, range = 20 – 84) respectively. That, the mean score of study participant of ACT group was lower than control group at a mean difference of 8.38. Table 4.9 presents means scores of WHO-5 reported by study participants at baseline.

When referring to an indicative score of WHO-5 at 50, the prevalence of probable depression population in ACT group and control group at baseline was 31.3% (n=10) and 15.6% (n=5) respectively. It constituted 23.4% of the study sample.

Table 4.9 Subjective well-being Reported by Study Participants at Baseline (N = 64)

Measure	Condition	Mean (SD)
WHO-5	Full sample	57.69 (15.50), [16-84]
	ACT	53.50 (14.85), [16-80]
	Control	61.88 (15.21), [20-84]

Note. WHO-5 = World Health Organization Well-being Index

Perceived Stress. In this study, perceived stress was measured by Perceived Stress Scale-10 (PSS-10). There were 10 items in this instrument. Study participants were asked to rate each item on a 5-point Likert scale. Theoretically, the range of calculated score was 0 – 40. Of which, higher scores indicating higher level of perceived stress (Cohen et al., 1983).

The overall mean score of PSS-10 of study participants at baseline was 20.27 (SD = 4.66, ranged 12 – 35). For the mean score of this measuring instrument among study participants of ACT group and control group at baseline, it was 20.16 (SD = 4.69, range = 13 – 35) and 20.37 (SD = 4.70, range = 12 – 30) respectively. That, the mean score of PSS-10 between study participants of ACT group and control group was comparable with a mean difference at 0.21. Table 4.10 presents means scores of PSS-10 reported by study participants at baseline.

Table 4.10 Perceived Stress Reported by Study Participants at Baseline (N = 64)

Measure	Condition	Mean (SD)
PSS-10	Full sample	20.27 (4.66), [12-35]
	ACT	20.16 (4.69), [13-35]
	Control	20.37 (4.70), [12-30]

Note. PSS-10 = Perceived Stress Scale-10

Professional Quality of Life. In this study, Professional Quality of Life (ProQOL) was used to assess professional quality of life towards healthcare duties of study participants in both positive (compassion satisfaction, (CS) and negative aspects (burnout, BO, and secondary traumatic stress, STS). There were 30 items in this instrument. Study participants were asked to rate each item on a 5-point Likert scale. Although the maximum raw score of ProQOL was 50 (Stamm, 2010), it uses standardized t-score for statistical calculation. Theoretically, higher scores indicating higher level of CS, BO, and STS in respective subscales.

Compassion Satisfaction. The overall mean score of ProQOL-CS of study participants at baseline was 52.10 (SD = 9.60, ranged from 23.71 to 76.19. For the mean score of this measuring instrument among study participants of ACT group and control group at baseline, it was 52.41 (SD = 8.36, range = 35.82 – 76.19) and 51.78 (SD = 10.83, range = 23.71 – 74.17) respectively. That, the mean score of ProQOL-CS between study participants of ACT group and control group was comparable with a mean difference at 0.63.

Burnout. The overall mean score of ProQOL-BO of study participants at baseline was 48.13 (SD = 9.68, ranged from 16.74 to 71.04. For the mean score of this measuring instrument among study participants of ACT group and control group at baseline, it was 49.18 (SD = 10.33, range = 16.74 – 66.70) and 47.08 (SD = 9.02, range = 29.77 – 71.04) respectively. That, the mean score of ProQOL-BO between study participants of ACT group and control group was comparable with a mean difference at 2.10.

Secondary traumatic stress. The overall mean score of ProQOL-STS of study participants at baseline was 49.43 (SD = 9.54, ranged from 30.04 to 68.60. For the mean score of this measuring instrument among study participants of ACT group and control group at baseline, it was 49.64 (SD = 10.39, range = 30.04 – 63.34) and 49.21 (SD = 8.78, range =

31.79 – 68.60) respectively. That, the mean score of ProQOL-STS between study participants of ACT group and control group was comparable with a mean difference at 0.43.

Overall, the mean score of the three subscales of ProQOL between study participants of ACT group and control group was comparable. Table 4.11 presents means scores of PSS-10 reported by study participants at baseline.

Table 4.11 Professional Quality of Life Reported by Study Participants at Baseline (N = 64)

Measure	Condition	Mean (SD) [range]
ProQOL-CS	Full sample	52.10 (9.60), [23.71-76.19]
	ACT	52.41 (8.36), [35.82-76.19]
	Control	51.78 (10.83), [23.71-74.17]
ProQOL-BO	Full sample	48.13 (9.68), [16.74-71.04]
	ACT	49.18 (10.33), [16.74-66.70]
	Control	47.08 (9.02), [29.77-71.04]
ProQOL-STS	Full sample	49.43 (9.54), [30.04-75.61]
	ACT	49.64 (10.39), [30.04-63.34]
	Control	49.21 (8.78), [31.79-68.60]

Note. ProQOL-CS = Professional Quality of Life – Compassion Satisfaction, ProQOL-BO = Professional Quality of Life – Burnout, ProQOL-STS = Professional Quality of Life – Secondary Trauma Stress

Psychological Flexibility. In this study, psychological flexibility of study participants was measured by AAQ-2. There were 7 items in this instrument. Study participants were asked to rate each item on a 7-point Likert scale. Theoretically, the range of calculated score was 7 – 49. Of which, higher scores indicating higher level of psychological inflexibility. In

another words, a lower score indicates a higher level of psychological flexibility (Bond et al., 2011).

The overall mean score of AAQ-2 of study participants at baseline was 25.89 (SD = 6.79, ranged 7 – 49). For the mean score of this measuring instrument among study participants of ACT group and control group at baseline, it was 25.62 (SD = 7.08, range = 7 – 42) and 26.16 (SD = 6.58, range = 17 – 49) respectively. That, the mean score of study participant of ACT group and control group at baseline was comparable with a mean difference at 0.54. Table 4.12 presents means scores of AAQ-2 reported by study participants at baseline.

Table 4.12 Psychological Flexibility Reported by Study Participants at Baseline (N = 64)

Measure	Condition	Mean (SD) [range]
AAQ-2	Full sample	25.89 (6.79), [7 – 49]
	ACT	25.62 (7.08), [7 – 42]
	Control	26.16 (6.58), [17 – 29]

Note. AAQ-II = Acceptance and Action Questionnaire-II

Dispositional Mindfulness. Dispositional mindfulness of study participants was measured by the MAAS. There were 15 items in this instrument. Study participants were asked to rate each item on a 6-point Likert scale. A higher score indicates a higher level of dispositional mindfulness. The overall means of MAAS of study participants at baseline was 3.62 (SD = .70, range = 2 – 6). For the mean score of this measuring instrument among study participants of ACT group and control group at baseline, it was 3.70 (SD = .72, range = 2 – 6) and 3.55 (SD = .69, range = 2 – 5) respectively. The mean score of dispositional mindfulness among study participant of ACT group and control group at baseline was comparable with a

mean difference at 0.15. Table 4.13 presents means scores of MAAS reported by study participants at baseline.

Table 4.13 Dispositional Mindfulness Reported by Study Participants at Baseline (N = 64)

Measure	Condition	Mean (SD) [range]
MAAS	Full sample	3.62 (.70), [2.47 – 5.67]
	ACT	3.70 (.72), [2 – 6]
	Control	3.55 (.69), [2 – 5]

Note. MAAS = Mindfulness Attendance Awareness Scale.

4.3.4 Correlations Between Variables at Baseline

Zero-order correlations were conducted to examine the relationship between outcome and process variables at baseline. Within the outcome variables, greater level of perceived wellness (PWBS-18) was significantly correlated with subjective well-being (WHO-5) with a correlation coefficient of .417. Also, greater level of compassion satisfaction (ProQOL-CS) was significantly correlated with greater level perceived wellness (PWBS-18) and lowered level of perceived stress (PSS-10) at a correlation coefficient of .455 and -.250 respectively. More, greater level of perceived stress (PSS-10) and burnout (ProQOL-BO) were significant correlated with lower level of psychological well-being (PWBS-18 and WHO-5) with correlation coefficients ranging from .285 to .528. Whereas greater secondary traumatic stress (ProQOL-STTS) was significantly correlated with greater burnout with a correlation coefficient of .589. Within the process variables, greater psychological inflexibility (AAQ-II) was significantly related to lower dispositional mindfulness (MAAS) at a correlation coefficient of -.445.

Regarding the relationship between outcomes and process variables, greater psychological inflexibility was significantly related to lower psychological well-being (PWBS-18 and WHO-5) and greater perceived stress (PSS-10), burnout (ProQOL-BO) and secondary traumatic stress (ProQOL-STS) with correlation coefficients ranging from -.251 to -.469. Whereas greater dispositional mindfulness (MAAS) was significantly related to lower perceived stress (PSS-10), burnout (ProQOL-BO), secondary traumatic stress (ProQOL-STS) and psychological inflexibility (AAQ-II) with correlation coefficients ranging from -.445 to -.349. Table 4.14 presents the zero-order correlations between variables at baseline.

Table 4.14 Zero-order Correlations Between Outcome and Process Variables at Baseline (N = 64)

Variable	PWBS	WHO-5	PSS-10	ProQO L-CS	ProQO L-BO	ProQO L-STs	AAQ-II	MAAS
PWBS-18	—							
WHO-5	.417**	—						
PSS-10	-.512**	-.528**	—					
ProQOL-CS	.455**	.244	-.250*	—				
ProQOL-BO	-.393**	-.285*	.359**	-.516**	—			
ProQOL-STs	-.067	-.041	.243	.057	.589**	—		
AAQ-II	-.437**	-.251*	.469**	-.135	.390**	.417**	—	
MAAS	.176	.066	-.352**	.087	-.349**	-.351**	-.445**	—

* $p < .05$. ** $p < .01$.

Note. PWBS-18 = Psychological Well-being Scale -18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; ProQOL-CS = Professional Quality of Life – Compassion Satisfaction, ProQOL-BO = Professional Quality of Life – Burnout, ProQOL-STs = Professional Quality of Life – Secondary Trauma Stress,

AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

Summary. Overall, study participants of both ACT group and control group reported comparable level of psychological well-being (as measured by PWBS-18), perceived stress (as measured by PSS-10), professional quality of life (as measured by ProQOL-CS, ProQOL-BO, and ProQOL-STs), psychological flexibility (as measured by AAQ-2), and dispositional mindfulness (as measured by MAAS) at baseline, except subjective well-being (as measured by WHO-5). Where, study participants of ACT group reported poorer subjective well-being than study participants of control group. Also, the relationship between outcome and process variables were consistent with theoretical model that, psychological inflexibility and dispositional mindfulness was related to psychological well-being, perceived stress, and professional quality of life.

4.4 Characteristics of Programme Non-completers

Due to the nature of study, randomization was conducted after study participants attended online career information seminar hence the attendance rate of online career information was 100% for both ACT group and control group. While the online career information seminar was the only treatment component offered to study participants of control group, therefore, all of them were regarded as programme completers of control group. In other words, there was no programme non-completers in the control group. For the ACT group, study participants who completed at least four ACT sessions were regarded as programme completers. Of which, they completed 80% of ACT contact hours. With reference to the intervention protocol, all six ACT core processes were introduced and practiced from Session-1 to Session-4, and Session-5 was designed as a summary session on ACT concept with activities designed for planning future. Therefore, study participants who attended at least four ACT sessions were viewed as programme completers (n = 16, 50%).

All the 16 programme completers of ACT groups had attended Session-5. For study participants who completed three or less than three ACT sessions were regarded as programme non-completers (n = 16, 50%).

4.5 Potential Efficacy of a Group-based Online ACT Intervention for NGN

This section describes the potential efficacy of a newly developed group-based online ACT intervention for NGN. The intervention was specifically designed for this study which aimed to promote study participants' psychological well-being during the transition period from student nurse to graduated nurse. Generalized estimating equations (GEE) were used to examine time-by-group interactions, within-group and between-group difference on outcome measures across time among (a) intention-to-treat (ITT) sample (ACT n = 32; Control n = 32) and (b) programme completers and non-completers of ACT group (completer n = 16; non-completers n=16).

4.5.1 ITT Sample Analyses

GEE was conducted to examine the time-by-group interactions across time for all study participants (ACT n = 32; Control n = 32). Table 4.15 presents descriptive statistics of measurable outcomes among ITT sample by group and time point. Table 4.16 shows the results of GEE analyses for all outcome measures between groups across time, i.e., psychological wellness, subjective well-being, perceived stress, professional quality of life, psychological inflexibility, and dispositional mindfulness; and table 4.17 shows the post-hoc comparisons from the GEE models for these outcomes, including within-group and between-group comparisons.

Table 4.15 Descriptive Statistics of Raw Means (SDs) for Measurable Outcomes Among ITT Samples at Three Time Points.

Variables (Measure)	Condition	Baseline	Post-intervention	3-month Follow-up
Psychological Well-being (PWBS-18)	Full sample	83.19 (9.62)	81.15 (10.82)	79.63 (8.99)
	ACT	82.72 (7.87)	82.37 (11.78)	79.58 (9.49)
	Control	83.66 (11.21)	79.93 (9.84)	79.68 (8.64)
Subjective Well-being (WHO-5)	Full sample	57.69 (15.50)	57.63 (16.58)	55.76 (13.56)
	ACT	53.50 (14.85)	54.96 (15.79)	56.46 (14.98)
	Control	61.88 (15.21)	60.30 (17.22)	55.04 (12.18)
Perceived Stress (PSS-10)	Full sample	20.27 (4.66)	20.28 (4.51)	20.20 (4.07)
	ACT	20.16 (4.69)	20.33 (5.14)	19.65 (4.37)
	Control	20.38 (4.70)	20.22 (3.88)	20.76 (3.72)
Compassion Satisfaction (PQOL-CS)	Full sample	52.10 (9.60)	49.50 (9.89)	47.89 (10.28)
	ACT	54.41 (8.36)	51.15 (9.76)	48.48 (11.45)
	Control	51.78 (10.83)	47.86 (9.93)	47.29 (9.10)
Burnout (PQOL-BO)	Full sample	48.13 (9.68)	50.69 (10.04)	51.62 (9.12)
	ACT	49.18 (10.33)	48.68 (11.46)	49.99 (10.15)
	Control	47.08 (9.02)	52.70 (10.23)	53.32 (7.75)
	Full sample	49.43 (9.54)	50.13 (10.04)	50.59 (10.66)

Variables (Measure)	Condition	Baseline	Post-intervention	3-month Follow-up
Secondary Traumatic Stress (PQOL-STS)	ACT	49.64 (10.39)	48.54 (10.04)	47.76 (9.79)
	Control	49.21 (8.78)	51.72 (9.96)	53.52 (10.92)
Psychological Flexibility (AAQ-2)	Full sample	25.89 (6.79)	24.91 (5.48)	24.92 (5.61)
	ACT	25.63 (7.08)	23.70 (5.68)	24.58 (6.57)
	Control	26.16 (6.58)	26.11 (5.09)	25.28 (4.51)
Dispositional Mindfulness (MAAS)	Full sample	3.62 (.70)	3.48 (.60), n=54	3.53 (.55)
	ACT	3.70 (.72)	3.57 (.65), n=27	3.60 (.57)
	Control	3.55 (.69)	3.39 (.56), n=27	3.46 (.53)

Note. PWBS-18 = Psychological Well-being Scale -18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; ProQOL-CS = Professional Quality of Life – Compassion Satisfaction, ProQOL-BO = Professional Quality of Life – Burnout, ProQOL-STS = Professional Quality of Life – Secondary Trauma Stress, AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

Primary Outcomes: Psychological Well-being.

Psychological Well-being. There was no significant time-by-group interaction for psychological well-being (PWBS-18) ($Wald X^2 = 3.016, p = .221$) (see table 4.16). Post-hoc analyses indicated a trend of worsening psychological wellness in ACT group from baseline to post-intervention ($Mdiff = -0.48, 95\% CI [-1.71, 0.75], p = .848$) and from baseline to 3-month follow-up ($Mdiff = -3.00, 95\% CI [-3.29, -2.72], p = .161$) (see table 4.17). Similarly, a trend of worsening psychological wellness in control group from baseline to post-intervention

($M_{diff} = -4.08$, 95% CI [-3.94, -4.22], $p = .105$) and a non-significant reduction from baseline to 3-month after intervention ($M_{diff} = -4.48$, 95% CI [-3.86, -5.11], $p = .058$) was found (see 4.16). The between-group comparisons indicated that when compared to control group, ACT group had an insignificantly better psychological wellness at post-intervention ($M_{diff} = 2.48$, 95% CI [1.83, 3.12], $p = .358$, $d = 0.389$) and at 3-month after intervention ($M_{diff} = 0.36$, 95% CI [0.17, 0.54], $p = .867$, $d = 0.160$) (see table 4.17).

Subjective Well-being. Significant time-by-group interaction was found in WHO-5 ($Wald X^2 = 8.286$, $p = .016$) (see table 4.16). Post-hoc analyses indicated a trend of improvement in subjective well-being in ACT group from baseline to post-intervention ($M_{diff} = 2.59$, 95% CI [1.79, 3.37], $p = .520$) and from baseline to 3-month follow-up ($M_{diff} = 5.33$, 95% CI [4.83, 5.83], $p = .176$). Whereas the control group demonstrated a significant worsening in subjective well-being from baseline to 3-month follow-up ($M_{diff} = -7.78$, 95% CI [-7.77, -7.80], $p = .037$). However, there was no significant between-group difference for subjective well-being at post-intervention ($M_{diff} = -4.88$, 95% CI [-4.40, -5.37], $p = .278$, $d = 0.306$) and at 3-month after intervention ($M_{diff} = 3.67$, 95% CI [3.09, 4.27], $p = .346$, $d = 0.880$) (see table 4.17).

Secondary Outcomes: Perceived Stress and Professional Quality of Life.

Perceived Stress. There was no significant time-by-group interaction for PSS-10 ($Wald X^2 = 1.721$, $p = .423$) (see table 4.16). Also, no significant within-group and between-group differences were found from baseline to post-intervention and from baseline to 3-month after intervention (p values ranged from .295 to .906) (see table 4.17).

Professional Quality of Life. The time-by-group interaction was significant for the ProQOL-BO ($Wald X^2 = 6.130$, $p = .047$), but not for the ProQOL-CS ($Wald X^2 = 1.344$, $p = .511$) and ProQOL-STTS ($Wald X^2 = 5.410$, $p = .067$) (see table 4.16). Post-hoc analyses found no significant difference in ProQOL-CS, ProQOL-BO and ProQOL from baseline to

post-intervention and from baseline to 3-month after intervention (p values ranged from .079 to .984) (see table 4.17) in the ACT group; while the control group demonstrated significant decrease in ProQOL-CS from baseline to 3-month after intervention ($Mdiff = 5.60$, 95% CI [-5.27, -5.94], $p = .032$), also a significant increase in burnout from baseline to post-intervention ($Mdiff = 5.68$, 95% CI [5.22, 6.14], $p = .018$) and a greater increase from baseline to 3-month after intervention ($Mdiff = 6.90$, 95% CI [6.94, 6.87], $p = .002$) in the control group. The between group comparisons indicated that when compared to control group, ACT group had significant lowered secondary traumatic stress at 3-month after intervention with medium effect ($Mdiff = -5.89$, 95% CI [-5.34, -6.44], $p = .044$, $d = 0.631$) (see table 4.17). There was no significant between-group difference in burnout and compassions satisfaction across the study period (p values ranged from .128 to .571) (see table 4.16).

Process Measures: Psychological Inflexibility and Dispositional Mindfulness.

Psychological inflexibility. There were no significant time-by-group interactions for the AAQ-II ($Wald X^2 = 2.774$, $p = .250$) (see table 4.16).

Post-hoc analyses found no significant within-group difference in AAQ-II across the study period (p values ranged from .156 to .691) (see table 4.17) in both ACT group and control. The between-group comparisons indicated that when compared to control group, ACT group had a significant decrease in psychological inflexibility at post-intervention with small effect ($Mdiff = -2.84$, 95% CI [-3.13, -2.56], $p = .045$, $d = 0.373$) (see table 4.17).

Dispositional Mindfulness. There were no significant time-by-group interactions for the MAAS ($Wald X^2 = .192$, $p = .909$) (see table 4.16). Also, no significant within-group or between-group difference were found from baseline to post-intervention and from baseline to 3-month after intervention (p values ranged from .315 to .713) (see table 4.17).

Summary. Overall, analyses with ITT sample found a significant time-by-group interactions in the WHO-5 and ProQOL-STS. It is also important to note that, a significant within-group difference was found in the control from baseline to 3-month after intervention, which increased burnout and worsening of subjective well-being and compassion satisfaction. However, there were no significant difference in all outcome and process variables within ACT group. More, significant between-group differences in the (a) AAQ-II from baseline to post-intervention with small effect, and (b) ProQOL-STS at 3-month after intervention with medium effect were found. Therefore, when compared to control group, ACT group demonstrated improvement in psychological flexibility and decreased secondary traumatic stress. For the PSS-10 and MAAS, all results were insignificant.

Table 4.16 Intervention Effect on Outcome Measures by Group Across Time Among ITT Sample Using GEE

Variable(Measures)	Mean (SE)						GEE model effects (Time-by-group)					
	Baseline		Post-intervention		3-month follow-up after intervention		Time effect		Condition effect		Time-by-group effect	
	ACT	Control	ACT	Control	ACT	Control	<i>Wald X²</i>	<i>p</i>	<i>Wald X²</i>	<i>p</i>	<i>Wald X²</i>	<i>p</i>
PWB (PWBS-18)	82.74 (1.42)	83.86 (1.79)	82.26 (2.05)	79.78 (1.72)	79.74 (1.56)	79.38 (1.47)	18.407	<.001	.072	.788	3.016	.221
SWB (WHO-5)	52.24 (2.62)	61.98 (2.58)	55.13 (3.02)	60.01 (3.27)	57.87 (2.88)	54.20 (2.57)	.554	.758	1.344	.246	8.286	.016
PS (PSS-10)	20.32 (.82)	20.30 (.82)	20.52 (1.00)	20.17 (.74)	19.65 (.83)	20.86 (.79)	.024	.988	.098	.755	1.721	.423
CS (PQOL-CS)	52.30 (1.46)	52.05 (1.88)	50.63 (1.79)	47.89 (1.67)	47.93 (1.95)	46.45 (1.71)	12.927	.002	.536	.464	1.344	.511
BO (PQOL-BO)	49.15 (1.78)	46.67 (1.52)	49.09 (2.16)	52.35 (1.76)	49.81 (1.91)	53.58 (1.51)	7.656	.022	.529	.467	6.130	.047

Variable(Measures)	Mean (SE)						GEE model effects (Time-by-group)					
	Baseline		Post-intervention		3-month follow-up after intervention		Time effect		Condition effect		Time-by-group effect	
	ACT	Control	ACT	Control	ACT	Control	<i>Wald X²</i>	<i>p</i>	<i>Wald X²</i>	<i>p</i>	<i>Wald X²</i>	<i>p</i>
STS (PQOL-STS)	49.52 (1.77)	49.38 (1.57)	49.00 (1.81)	51.56 (1.92)	48.05 (1.87)	53.95 (2.15)	1.335	.513	1.681	.195	5.410	.067
PF (AAQ-2)	25.88 (1.24)	26.20 (1.12)	23.55 (1.05)	26.39 (.90)	24.61 (1.24)	25.62 (.92)	1.701	.427	1.305	.253	2.774	.250
DM (MAAS)	3.69 (.12)	3.54 (.12)	3.58 (.12)	3.42 (.11)	3.57 (.11)	3.48 (.11)	1.488	.475	1.239	.266	.192	.909

Note. PWB = psychological well-being; SWB = subjective well-being; PS = perceived stress; CS = compassion satisfaction; BO = burnout; STS = secondary traumatic stress; PF = psychological flexibility; DM = dispositional mindfulness.

ACT = Acceptance and commitment therapy; SE = standard error; *Wald X²* = *Wald Chi-square*; *p* = *p-value*; GEE = generalized estimating equations; PWBS-18 = Psychological Well-being Scale -18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; PQOL-CS = Professional Quality of Life – Compassion Satisfaction, PQOL-BO = Professional Quality of Life – Burnout, PQOL-STTS = Professional Quality of Life – Secondary Trauma Stress, AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

Table 4.17 Post-hoc Comparison From the GEE Models for Outcome Measures Within-group and Between-group Across Time

Variable (Measures)	Within-group comparison				Between-group comparison			
	Baseline to Post-intervention		Baseline to 3-month after intervention		Baseline to Post-intervention		Baseline to 3-month after intervention	
	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>
PWB (PWBS-18)								
ACT	-0.48 [-1.71, 0.75]	.848	-3.00 [-3.29, -2.72]	.161	2.48 [1.83, 3.12]	.358	0.36 [0.17, 0.54]	.867
Control	-4.08 [-3.94, -4.22]	.105	-4.48 [-3.86, -5.11]	.058				
Effect size	--		--		0.389		0.160	
SWB (WHO-5)								
ACT	2.59 [1.79, 3.37]	.520	5.33 [4.83, 5.83]	.176	-4.88 [-4.40, -5.37]	.278	3.67 [3.09, 4.27]	.346
Control	-1.97 [-3.32, -0.62]	.639	-7.78 [-7.77, -7.80]	.037				
Effect size	--		--		0.306		0.880	
PS (PSS-10)								
ACT	0.20 [-0.14, 0.53]	.878	-0.67 [-0.68, -0.66]	.568	0.35 [-0.16, 0.86]	.779	-1.21 [-1.28, -1.13]	.295
Control	-0.13 [0.04, -0.30]	.906	0.56 [0.62, 0.5]	.625				
Effect size	--		--		0.007		0.261	

Variable (Measures)	Within-group comparison				Between-group comparison			
	Baseline to Post-intervention		Baseline to 3-month after intervention		Baseline to Post-intervention		Baseline to 3-month after intervention	
	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>
CS (PQOL-CS)								
ACT	-1.67 [-2.33, -1.02]	.473	-4.37 [-5.44, -3.40]	.079	2.74 [2.51, 2.98]	.268	1.48 [1.01, 1.96]	.571
Control	-4.16 [-3.75, -4.58]	.104	-5.60 [-5.27, -5.94]	.032				
Effect size	--		--		0.258		0.127	
BO (PQOL-BO)								
ACT	-0.06 [-0.81, 0.70]	.984	0.66 [0.40, 0.92]	.800	-3.26 [-4.05, -2.48]	.247	-3.77 [-4.56, -2.98]	.128
Control	5.68 [5.22, 6.14]	.018	6.90 [6.94, 6.87]	.002				
Effect size	--		--		0.605		0.659	
STS (PQOL-STS)								
ACT	-0.52 [-0.59, -0.45]	.838	-1.47 [-1.66, -1.28]	.571	-2.56 [-2.34, -2.78]	.336	-5.89 [-5.34, -6.44]	.044
Control	2.19 [1.49, 2.88]	.382	4.57 [3.43, 5.71]	.092				
Effect size	--		--		0.283		0.631	
PF (AAQ-2)								
ACT	-2.33 [-1.97, -2.70]	.156	-1.27 [-1.28, -1.26]	.471	-2.84 [-3.13, -2.56]	.045	-1.01 [-1.64, -0.37]	.516
Control	0.19 [0.63, -0.24]	.896	-0.58 [-0.17, -0.99]	.691				
Effect size	--		--		0.373		0.102	

Variable (Measures)	Within-group comparison				Between-group comparison			
	Baseline to Post-intervention		Baseline to 3-month after intervention		Baseline to Post-intervention		Baseline to 3-month after intervention	
	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>	<i>Mdiff</i> [95% CI]	<i>p</i>
DM (MAAS)								
ACT	-0.11 [-0.10, -0.11]	.516	-0.12 [-0.08, -0.14]	.459	0.16 [0.14, 0.18]	.315	0.09 [0.10, 0.09]	.549
Control	-0.12 [-0.09, -0.15]	.465	-0.016 [-0.03, -0.09]	.713				
Effect size	--		--		0.014		0.086	

Note. PWB = psychological well-being; SWB = subjective well-being; PS = perceived stress; CS = compassion satisfaction; BO = burnout; STS = secondary traumatic stress; PF = psychological flexibility; DM = dispositional mindfulness.

ACT = Acceptance and commitment therapy; SE = standard error; $Wald X^2 = Wald$ Chi-square; $p = p$ -value; GEE = generalized estimating equations; PWBS-18 = Psychological Well-being Scale -18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; PQOL-CS = Professional Quality of Life – Compassion Satisfaction, PQOL-BO = Professional Quality of Life – Burnout, PQOL-STTS = Professional Quality of Life – Secondary Trauma Stress, AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

4.5.2 Programme Completers Analyses

As described in section 4.4, all study participants of control group were regarded as programme completers as they had received the only treatment component, i.e., online career information seminar, whereas study participants who attended at least four out of the five ACT sessions were regarded as programme completers of ACT group (n=16). GEE was used to examine the time-by-group interactions across time for programme completers (ACT n = 16; Control n = 32). Table 4.18 presents descriptive statistics of measurable outcomes among ITT sample by group and time point. Table 4.19 shows the results of GEE analyses for all measurable outcomes among programme completers across time, i.e., psychological wellness, subjective well-being, perceived stress, professional quality of life, psychological inflexibility, and dispositional mindfulness; and table 4.20 shows the post-hoc comparisons from the GEE models for these outcomes, including within-group and between-group comparisons.

Table 4.18 Descriptive statistics of raw means for Measurable Outcomes Among Programme Completers at Three Time Points (n=48)

Variable (Measure)	Condition	Baseline	Post-intervention	3-month Follow-up
PWB (PWBS-18)	ACT	83.31(8.38), n=16	82.69 (13.39), n=16	80.25 (10.74), n=16
	Control	83.66 (11.21), n=32	79.93 (9.84), n=27	79.68 (8.64), n=25
SWB (WHO-5)	ACT	53.73 (18.01), n=16	50.75 (16.44), n=16	55.25 (16.60), n=16
	Control	61.88 (15.21), n=32	60.30 (17.22), n=27	55.04 (12.18), n=25
PS (PSS-10)	ACT	20.31 (6.19), n=16	20.31 (5.58), n=16	19.06 (4.20), n=16
	Control	20.38 (4.70), n=32	20.22 (3.88), n=27	20.76 (3.72), n=25

Variable (Measure)	Condition	Baseline	Post-intervention	3-month Follow-up
CS (PQOL-CS)	ACT	53.61 (9.62), n=16	50.71 (11.25), n=16	47.18 (12.95), n=16
	Control	51.78 (10.83), n=32	47.86 (9.93), n=27	47.29 (9.10), n=25
BO (PQOL-BO)	ACT	47.42 (11.81), n=16	47.55 (11.74), n=16	47.83 (11.24), n=16
	Control	47.08 (9.02), n=32	52.70 (10.23), n=27	53.32 (7.75), n=25
STS (PQOL-STTS)	ACT	47.78 (10.88), n=16	46.91 (8.42), n=16	44.71 (9.45), n=16
	Control	49.21 (8.78), n=32	51.72 (9.96), n=27	53.52 (10.92), n=25
PF (AAQ-2)	ACT	26.37 (8.10), n=16	23.50 (5.81), n=16	23.81 (7.95), n=16
	Control	26.16 (6.58), n=32	26.11 (5.09), n=27	25.28 (4.51), n=25
DM (MAAS)	ACT	3.86 (.82), n=16	3.72 (.55), n=16	3.73 (.68), n=16
	Control	3.55 (.69), n=32	3.39 (.56), n=27	3.46 (.53), n=25

Note. PWB = psychological well-being; SWB = subjective well-being; PS = perceived stress; CS = compassion satisfaction; BO = burnout; STS = secondary traumatic stress; PF = psychological flexibility; DM = dispositional mindfulness.

PWBS-18 = Psychological Well-being Scale -18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; ProQOL-CS = Professional Quality of Life – Compassion Satisfaction, ProQOL-BO = Professional Quality of Life – Burnout, ProQOL-STTS = Professional Quality of Life – Secondary Trauma Stress, AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

Primary Outcomes: Psychological Well-being.

Psychological Well-being. There was no significant time-by-group interaction for the psychological well-being (PWBS-18) ($Wald X^2 = 1.758, p = .415$) (see table 4.19). Post-hoc analyses indicated a trend of worsening psychological wellness in ACT group from baseline to post-intervention ($M_{diff} = -0.62, 95\% CI [-2.53, 1.28], p = .865$) and from baseline to 3-

month follow-up ($Mdiff = -3.00$, 95% CI [-4.19, -1.94], $p = .361$) (see table 4.20), whereas a trend of worsening psychological wellness in control group from baseline to post-intervention ($Mdiff = -4.29$, 95% CI [-4.07, -4.51], $p = .115$) and a from baseline to 3-month after intervention ($Mdiff = -3.98$, 95% CI [-3.35, -4.51], $p = .124$) was found greater (see 4.20). The between-group comparisons indicated that when compared to control group, ACT group had an insignificant relatively better psychological wellness at post-intervention ($Mdiff = 3.32$, 95% CI [1.05, 5.60], $p = .354$, $d = 0.355$) and at 3-month after intervention ($Mdiff = 0.36$, 95% CI [-1.33, 2.46], $p = .854$, $d = 0.089$) (see table 4.20).

Subjective Well-being. There was no significant time-by-group interaction for the subjective well-being (WHO-5) ($Wald X^2 = 4.027$, $p = .134$) (see table 4.19). Post-hoc analyses indicated a trend of worsening in subjective well-being in ACT group from baseline to post-intervention ($Mdiff = -3.00$, 95% CI [2.26, -3.74], $p = .615$), and a trend of improvement from baseline to 3-month follow-up ($Mdiff = 1.50$, 95% CI [2.16, 0.84], $p = .802$), while the control group demonstrated a significant worsening in subjective well-being from baseline to 3-month follow-up ($Mdiff = -7.14$, 95% CI [6.58, -7.69], $p = .049$). However, there was no significant between-group difference in subjective well-being at post-intervention ($Mdiff = 8.61$, 95% CI [-10.0, -7.22], $p = .104$, $d = 0.030$) and at 3-month after intervention ($Mdiff = 0.51$, 95% CI [-2.74, 3.76], $p = .914$, $d = 0.537$) (see table 4.20).

Secondary Outcomes: Perceived Stress and Professional Quality of Life.

Perceived Stress. There were no significant time-by-group interactions for perceived stress (PSS-10) ($Wald X^2 = 1.306$, $p = .520$) (see table 4.19). Post-hoc analyses found no significant within-group and between-group differences from baseline to post-intervention and from baseline to 3-month after intervention (p values ranged from .174 to 1.000) (see table 4.20).

Professional Quality of Life. The time-by-group interaction was significant for the secondary traumatic stress (ProQOL-STS) ($Wald X^2 = 6.367, p = .041$), but not for the compassion satisfaction (ProQOL-CS) ($Wald X^2 = 1.450, p = .484$) and burnout (ProQOL-BO) ($Wald X^2 = 2.614, p = .271$) (see table 4.19). Post-hoc analyses found no significant difference in compassion satisfaction (ProQOL-CS) and secondary traumatic stress (ProQOL-STS) from baseline to post-intervention and from baseline to 3-month after intervention (p values ranged from .111 to .794) (see table 4.20) in the ACT group; while the control group demonstrated significant increase in burnout (ProQOL-BO) from baseline to post-intervention ($Mdiff = 5.32, 95\% CI [4.70, 5.94], p = .035$), and from baseline to 3-month after intervention ($Mdiff = 5.98, 95\% CI [6.15, 5.81], p = .008$). The between-group comparison found, when compared to control group, ACT group had lesser secondary traumatic stress at 3-month follow-up with medium to large effect ($Mdiff = -8.54, 95\% CI [-8.93, -8.15], p = .009, d = 0.752$) (table 4.20).

Process Measures: Psychological Inflexibility and Dispositional Mindfulness.

Psychological Inflexibility.

There were no significant time-by-group interactions for psychological flexibility (AAQ-II) ($Wald X^2 = 1.914, p = .384$) (see table 4.19). Post-hoc analyses found no significant within-group difference and between-group difference in AAQ-II across the study period (p values ranged from .243 to .849) (see table 4.20).

Dispositional Mindfulness. There were no significant time-by-group interactions for the dispositional mindfulness (MAAS) ($Wald X^2 = .088, p = .957$) (see table 4.19). Post-hoc analyses found no significant within-group difference and between group differences across the study period (p values ranged from .061 to .613) (see table 4.20).

Summary. Overall, analyses with programme completers indicated significant time-by-group interactions in secondary traumatic stress (ProQOL-STS). It is important to note

that, although significant within-group differences in increased burnout and worsening of subjective well-being were found from baseline to 3-month follow up in the control, there were no significant differences in all outcome variables within ACT group. More, significant between-group difference was only found in secondary traumatic stress (ProQOL-STS) at 3-month after intervention with medium to large effect. That, when compared to control group, ACT group had lesser secondary traumatic stress. For the perceived (PSS-10), psychological flexibility (AAQ-II), and dispositional mindfulness (MAAS), all results were insignificant.

Table 4.19 Intervention Effect on Outcome Measures by Condition Across Time Among Programme Completer Using GEE (n=48)

Variable (Measures)	Mean (SE)						GEE model effects (Time-by-condition)					
	Baseline		Post-intervention		3-month follow-up after intervention		Time effect		Condition effect		Time-by-condition effect	
	ACT	Control	ACT	Control	ACT	Control	Wald X ²	p	Wald X ²	p	Wald X ²	p
PWB (PWBS-18)	83.31 (2.03)	83.66 (1.95)	82.69 (3.00)	79.37 (1.84)	80.25 (2.60)	79.38 (1.64)	9.16	<.001	.181	.067	1.758	.415
SWB (WHO-5)	53.75 (4.36)	61.88 (2.65)	50.75 (3.98)	59.36 (3.27)	55.25 (4.02)	54.74 (2.36)	1.134	.567	1.964	.161	4.027	.134
PS (PSS-10)	20.31 (1.50)	20.38 (.82)	20.31 (1.35)	20.44 (.74)	19.06 (1.02)	20.80 (.73)	.392	.822	.301	.583	1.306	.520
CS (PQOL-CS)	53.61 (2.33)	51.78 (1.88)	50.71 (2.72)	47.37 (1.81)	47.17 (3.14)	46.98 (1.76)	12.042	.002	.397	.528	1.450	.484
BO (PQOL-BO)	47.42 (2.86)	47.07 (1.57)	47.55 (2.84)	52.40 (1.89)	47.83 (2.72)	53.06 (1.48)	3.238	.198	1.451	.228	2.614	.271

Variable (Measures)	Mean (SE)						GEE model effects (Time-by-condition)					
	Baseline		Post-intervention		3-month follow-up after intervention		Time effect		Condition effect		Time-by-condition effect	
	ACT	Control	ACT	Control	ACT	Control	<i>Wald X²</i>	<i>p</i>	<i>Wald X²</i>	<i>p</i>	<i>Wald X²</i>	<i>p</i>
STS (PQOL-STS)	47.78 (2.63)	49.21 (1.53)	46.91 (2.04)	51.11 (1.88)	44.71 (2.29)	53.25 (2.09)	.120	.942	3.733	.053	6.367	.041
PF (AAQ-2)	26.38 (1.96)	26.16 (1.15)	23.50 (1.41)	26.45 (1.00)	23.81 (1.93)	25.48 (.87)	2.139	.343	.807	.369	1.914	.384
DM (MAAS)	3.86 (.20)	3.55 (.12)	3.72 (.13)	3.39 (.10)	3.73 (.16)	3.46 (.10)	1.432	.489	4.251	.039	.088	.957

Note. PWB = psychological well-being; SWB = subjective well-being; PS = perceived stress; CS = compassion satisfaction; BO = burnout; STS = secondary traumatic stress; PF = psychological flexibility; DM = dispositional mindfulness.

ACT = Acceptance and commitment therapy; SE = standard error; *Wald X²* = *Wald Chi-square*; *p* = *p-value*; GEE = generalized estimating equations; PWBS-18 = Psychological Well-being Scale -18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; PQOL-CS = Professional Quality of Life – Compassion Satisfaction, PQOL-BO = Professional Quality of Life – Burnout, PQOL-STTS = Professional Quality of Life – Secondary Trauma Stress, AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

Table 4.20 Post-hoc Comparison from the GEE Models for Outcome Measures of Programme Completers Within-group and Between-group Across Time (n=48)

Variable (Measures)	Within-group comparison				Between-group comparison			
	Baseline to Post-intervention		Baseline to 3-month after intervention		Baseline to Post-intervention		Baseline to 3-month after intervention	
	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>
PWB (PWBS-18)								
ACT	-0.62 [-2.53, 1.28]	.865	-3.06 [-4.19, -1.94]	.361	3.32 [1.05, 5.60]	.354	0.57 [-1.33, 2.46]	.854
Control	-4.29 [-4.07, -4.51]	.115	-3.98 [-3.35, -4.51]	.124				
Effect size	--		--		0.355		0.089	
SWB (WHO-5)								
ACT	-3.00 [-2.26, -3.74]	.615	1.50 [2.16, 0.84]	.802	-8.61 [-10.0, -7.22]	.104	0.51 [-2.74, 3.76]	.914
Control	-2.52 [-3.74, -1.29]	.552	-7.14 [-6.58, -7.69]	.049				
Effect size	--		--		0.030		0.537	
PS (PSS-10)								
ACT	0.00 [0.29, -0.29]	1.00	-1.25 [-3.00, -2.19]	.496	-0.13 [-1.33, 1.07]	.933	-1.74 [-2.31, -1.16]	.174
Control	0.06 [0.22, -0.09]	.957	0.56 [0.61, 0.24]	.702				
Effect size	--		--		0.012		0.321	

Variable (Measures)	Within-group comparison				Between-group comparison			
	Baseline to Post-intervention		Baseline to 3-month after intervention		Baseline to Post-intervention		Baseline to 3-month after intervention	
	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>
CS (PQOL-CS)								
ACT	-2.90 [-3.68, -2.13]	.424	-6.43 [-8.01, -4.85]	.111	3.34 [1.54, 5.13]	.321	0.188 [-2.51, 2.88]	.959
Control	-4.41 [-4.26, -4.55]	.097	-4.79 [-4.54, -5.04]	.068				
Effect size	--		--		0.145		0.158	
BO (PQOL-BO)								
ACT	0.14 [0.17, 0.10]	.973	0.41 [0.68, 0.13]	.918	-4.84 [-6.72, -2.97]	.167	-5.23 [-7.66, -2.80]	.104
Control	5.32 [4.70, 5.94]	.035	5.98 [6.15, 5.81]	.008				
Effect size	--		--		0.521		0.560	
STS (PQOL-STTS)								
ACT	-0.88 [0.29, -2.04]	.794	-3.07 [-2.39, -3.75]	.386	-4.21 [-4.51, -3.91]	.138	-8.54 [-8.93, -8.15]	.009
Control	1.91 [1.21, 2.61]	.435	4.05 [2.95, 5.15]	.125				
Effect size	--		--		0.295		0.752	

Variable (Measures)	Within-group comparison				Between-group comparison			
	Baseline to Post-intervention		Baseline to 3-month after intervention		Baseline to Post-intervention		Baseline to 3-month after intervention	
	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>	<i>Mdiff</i> [95% <i>CI</i>]	<i>p</i>
PF (AAQ-2)								
ACT	-2.88 [-1.79, -3.96]	.243	-2.57 [-2.49, -2.63]	.357	-2.95 [-3.76, -2.14]	.097	-1.67 [-3.74, -0.40]	.438
Control	0.29 [0.59, 0.00]	.849	-0.68 [-0.13, -1.21]	.638				
Effect size	--		--		0.449		0.267	
DM (MAAS)								
ACT	-0.14 [-0.02, -0.27]	.563	-0.13 [-0.05, -0.21]	.613	0.33 [0.26, 0.38]	.061	0.27 [0.16, 0.37]	.165
Control	-0.16 [-0.12, -0.18]	.316	-0.09 [-0.05, -0.11]	.570				
Effect size	--		--		0.028		0.055	

Note. PWB = psychological well-being; SWB = subjective well-being; PS = perceived stress; CS = compassion satisfaction; BO = burnout; STS = secondary traumatic stress; PF = psychological flexibility; DM = dispositional mindfulness.

ACT = Acceptance and commitment therapy; SE = standard error; $Wald X^2 = Wald$ Chi-square; $p = p$ -value; GEE = generalized estimating equations; PWBS-18 = Psychological Well-being Scale -18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; PQOL-CS = Professional Quality of Life – Compassion Satisfaction, PQOL-BO = Professional Quality of Life – Burnout, PQOL-STSS = Professional Quality of Life – Secondary Trauma Stress, AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

4.5.3 Programme Completers and Non-completers of ACT Group Analyses

GEE was conducted to examine the time-by-group interactions across time for study participants of ACT group (Completers n = 16; Non-completers n = 16). Table 4.21 presents descriptive statistics of measurable outcomes among programme completers and non-completers across of ACT group at three time points.

A series of GEE were conducted to examine the time-by-group interactions across time for study participants of ACT group (Completers n=16; Non-completers n=16). There were no significant time-by-group interactions for all outcome measures (p values ranged from .159 to .961). Post-hoc analyses found no significant within-group difference in programme completers and non-completers (p values ranged from .111 to 1.000) across the study period. Also, between-group comparison found no difference (p values ranged from .093 to .947) at both post-intervention and 3-month after intervention. That, all outcome measures among programme completers and non-completers of ACT group were comparable.

Table 4.21 Descriptive Statistics of Raw Means for Measurable Outcomes Among Completers and Non-completers of ACT Group at Three Time Points.

Variable (Measure)	Condition	Baseline	Post-intervention	3-month Follow-up
PWB (PWBS-18)	ACT group	82.72 (7.87), n=32	82.37 (11.78), n=27	79.58 (9.49), n=26
	Completers	83.31(8.38), n=16	82.69 (13.39), n=16	80.25 (10.74), n=16
	Non-Completer	82.13 (7.54), n=16	81.91 (11.40), n=11	78.50 (7.46), n=10
SWB (WHO-5)	ACT group	53.50 (14.85), n=32	54.96 (15.79), n=27	56.46 (14.98), n=26
	Completers	53.73 (18.01), n=16	50.75 (16.44), n=16	55.25 (16.60), n=16
	Non-completers	53.25 (11.48), n=16	61.09 (13.16), n=11	58.40 (12.54), n=10
PS (PSS)	ACT group	20.16 (4.69), n=32	20.33 (5.14), n=27	19.65 (4.37), n=26

Variable (Measure)	Condition	Baseline	Post-intervention	3-month Follow-up
	Completers	20.31 (6.19), n=16	20.31 (5.58), n=16	19.06 (4.20), n=16
	Non-completers	20.00 (2.66), n=16	20.36 (4.70), n=11	20.60 (4.70), n=10
CS (PQOL- CS)	ACT group	54.41 (8.36), n=32	51.15 (9.76), n=27	48.48 (11.45), n=26
	Completers	53.61 (9.62), n=16	50.71 (11.25), n=16	47.18 (12.95), n=16
	Non-completers	51.21 (6.99), n=16	51.79 (7.58), n=11	50.56 (8.77), n=10
BO(PQOL- BO)	ACT group	49.18 (10.33), n=32	48.68 (11.46), n=27	49.99 (10.15), n=26
	Completers	47.42 (11.81), n=16	47.55 (11.74), n=16	47.83 (11.24), n=16
	Non-completers	50.95 (8.63), n=16	50.31 (11.39), n=11	53.45 (7.35), n=10
STS(PQOL- STS)	ACT group	49.64 (10.39), n=32	48.54 (10.04), n=27	47.76 (9.79), n=26
	Completers	47.78 (10.88), n=16	46.91 (8.42), n=16	44.71 (9.45), n=16
	Non-completers	51.51 (9.86), n=16	50.91 (12.05), n=11	52.65 (8.64), n=10
PF(AAQ-2)	ACT group	25.63 (7.08), n=32	23.70 (5.68), n=27	24.58 (6.57), n=26
	Completers	26.37 (8.10), n=16	23.50 (5.81), n=16	23.81 (7.95), n=16
	Non-completers	24.88 (6.06), n=16	24.00 (5.76), n=11	25.80 (3.43), n=10
DM(MAAS)	ACT group	3.70 (.72), n=32	3.57 (.65), n=27	3.60 (.57), n=26
	Completers	3.86 (.82), n=16	3.72 (.55), n=16	3.73 (.68), n=16
	Non-completers	3.55 (.58), n=16	3.36 (.74), n=11	3.39 (.30), n=10

Note. PWB = psychological well-being; SWB = subjective well-being; PS = perceived stress; CS = compassion satisfaction; BO = burnout; STS = secondary traumatic stress; PF = psychological flexibility; DM = dispositional mindfulness.

PWBS-18 = Psychological Well-being Scale-18; WHO-5 = World Health Organization Well-being Index; PSS-10 = Perceived Stress Scale; ProQOL-CS = Professional Quality of Life-Compassion Satisfaction, ProQOL-BO = Professional Quality of Life-Burnout, ProQOL-STSS = Professional Quality of Life-Secondary Trauma Stress, AAQ-II = Acceptance and Action Questionnaire-II, MAAS = Mindfulness Attendance Awareness Scale.

Chapter 5 Discussion

This study sought to investigate the preliminary efficacy of a novel online ACT programme combined with an online career information seminar for promoting psychological well-being among NGNs and to evaluate its feasibility by comparing it to a control of online career information seminar in a pilot RCT. In this chapter, it firstly summarizes and discusses the findings of the present study. Limitations and implications of the study, and recommendation for future study are then discussed.

5.1 Intervention Effects on Outcomes and Process Measures

5.1.1 Summary of Results

Among ITT sample. Significant time-by-group interactions were found for the subjective well-being (WHO-5) and burnout (ProQOL-BO) among ITT sample. Also, significant between-group differences were found for the psychological flexibility (AAQ-II) with small effect ($d = 0.373$) at post-intervention and for the secondary traumatic stress (ProQOL-STTS) with medium effect ($d = 0.631$) at 3-month after intervention. Whereas, among study participants of control group, significant within-group differences in (a) subjective well-being (WHO-5) and compassion satisfaction (ProQOL-CS) from baseline to 3-month after intervention, and (b) burnout (ProQOL-BO) from baseline to post-intervention and from baseline to 3-month after intervention were found; however, no significant within-group difference in all outcome and processes variables were found in ACT group. For psychological well-being as measured by PWBS-18, although insignificant results were found in time-by-group interactions and post-hoc analyses, a decreased trend in PWBS-18 across the assessment period in both ACT group and control group was observed, where the with-in group difference in control group was larger than ACT group. Last, for perceived stress (PSS-10) and dispositional mindfulness (MAAS), insignificant results were found in time-by-group interactions and post-hoc analyses.

Among Sample of Programme Completers. When examining intervention effects on programme completers of ACT group (n = 16) and control group (n = 32), significant time-by-group interaction only for the secondary traumatic stress (ProQOL-STS) was found. Like the ITT sample, significant between-group difference in secondary traumatic stress (ProQOL-STS) with almost a large effect ($d = 0.752$) from baseline to 3-month after intervention was found; and yet, significant between-group difference in psychological flexibility (AAQ-II) was not detected. Whereas, among study participants of control group, significant within-group differences in (a) subjective well-being (WHO-5) from baseline to 3-month after intervention, and (b) burnout (ProQOL-BO) from baseline to post-intervention and from baseline to 3-month after intervention were found. For the psychological well-being (PWBS-18), similar result as found in ITT sample was noticed. That, although insignificant results were found in time-by-group interactions and post-hoc analyses, a decreased trend in PWBS-18 across the assessment period in both ACT group and control group was observed, where the with-in group difference in control group was larger than ACT group. Last, all results were insignificant in PSS-10 and MAAS.

Among Sample of Programme Completers and Non-completers of ACT Group.

When examining intervention effects on programme completers (n = 16) and non-completers (n = 16) of ACT groups, insignificant time-by-group interactions was found. Also, insignificant within-group and insignificant between-group difference in all outcome and process variables from baseline to post-intervention and from baseline to 3-month after intervention were found.

5.1.2 *Interventional Effects and New Graduate Nurses*

Results of this study indicated that, compared to study participants who did not receive ACT intervention, those received ACT intervention became more psychological flexible at post-intervention with small effect and had lesser secondary traumatic stress at 3-

month after intervention with medium effect. This result is consistent with Grégoire et al. (2018), which improvement of psychological flexibility in Canadian university students was found.

It is worthy to note that study participants who did not receive ACT was found to have poorer subjective well-being, decreased compassion satisfaction and increased burnout, and their situation was getting worsen and worsen as time evolved; in contrast, no significant difference was detected among those who received ACT intervention. Similar results were obtained when making comparison between programme completers of ACT group and control group. Study participants, who received 80% of ACT intervention, worked comparatively more effective than study participants who did not receive ACT intervention, in terms of having lesser secondary traumatic stress, at 3-month after intervention. These findings appear to be inconsistent with existing evidence from meta-analyses of RCTs, suggesting that ACT has a significant small to medium effect on improving psychological well-being in university students (Howell & Passmore, 2019) and general population (van Agteren et al., 2021). More, results of this study may reflect the true reactions of NGNs when transiting from students to qualified nurses. Many review studies reported new graduate nurses perceived high level of stress, burnout, or intent to quit (Higgins et al., 2010; Teoh et al., 2013), however, limited studies reported the impact of role transition on the positive functioning of new graduate nurses and how it affects their psychological well-being and quality of working life across time (Edwards et al., 2015; van Rooyen et al., 2018). Now, this study revealed the fact that there were unfavourable changes in psychological well-being, perceived stress, professional quality of life among new graduate nurses during role transition. Therefore, this study suggests the importance of implementing universal prevention program on promoting psychological well-being and health in new graduate nurses, and it shall be taken place before an anticipated stressful and challenging role

transition period arrives. In contrast to a decreased subjective well-being in control group, a trend of gradual improvement in subjective well-being along with increased psychological flexibility in ACT group rather control group between baseline and 3-month after intervention. This implied NGNs were more psychological flexible and had a better psychological well-being in terms of feeling more happier in ACT group than control group. Regarding the purposive aspect of psychological well-being as measured by PWBS-18, although the result was insignificant, a comparative larger difference was noted in control group than in ACT group. While happiness is a kind of sense and feeling, and purposive aspect is somehow a kind of core of an individual, findings of this study may suggest changes in happiness feeling prompted up quicker than losing one's purposive side. More attention may be needed in this area, and future studies with longer follow-up period may be useful in examining sustainability of psychological flexibility on psychological well-being. Overall, interpretation of the findings of this study shall be cautious as the sample size of each subgroup was very small, thus there was insufficient statistical power to detect a difference between two groups (Hackshaw, 2008).

Another point worthy of note is the insignificant difference in all outcome and process variables between programme completers and non-completers of ACT group across the assessment period of study, i.e., baseline, post-intervention, and 3-month after intervention. This might suggest that regardless of how much ACT contact hours were received, intervention effect was similar in a small sample NGNs who had comparable baseline demographic characteristics. Because the sample size of this study was small and the number of samples in each subgroup was even smaller that it was unable to achieve the least required frequency for statistical tests, e.g., Chi-squared test, at different time points. Examples of subgroups were gender (females vs males), past experience of mindfulness (yes vs no), level of psychological flexibility as measured AAQ-2 at baseline (median score of the current

sample at 26), and suggested depressive mood as measured by WHO-5 at baseline (cut-off score at 50). And therefore, further GEE subgroup analyses nor mediation analyses were unfavourable to perform. Future studies may consider investigating, first, examining how much ACT contact hours would be suggested to obtain a significant effect on psychological well-being; second, predictors of programme engagement among new graduate nurses; and third, identify potential confounding factors, such as gender.

5.2 Feasibility of the Study

Study Recruitment. Although the investigator approached 450 NGNs of two universities in 28 countable occasions via face-to-face, online, email, or social media in a period of 10-month of recruitment, a total of 64 NGNs agreed consented to join the study and it yielded a low recruitment rate at 14.2%. Among the used strategies, it appeared that face-to-face approach was the most effective way in recruiting study participants. The investigator had made the best efforts in approaching potential study participant during their mandatory training sessions at university, however, it was feasible only in one university. For approach potential study participants of another university, meeting them via online and sending them invitation emails appeared as the most possible way at that time. More, because the society was still under the impact of COVID-19 pandemic and social distancing was in act, university students were not allowed to back to school unless special approval was sought. Thus, even there might be many other better ways for recruiting study participants, at least, posting printed posters around universities campus was not a workable option, the investigator was not allowed to set.

Randomization. All consented study participants (N=64) were arranged with an online career information seminar before group allocation assignment. Block randomization at an allocation ratio of 1:1 by using an online computer-generated random number was performed by a trained research assistant. The random number was generated from an online

computerized sequence generation randomization tool. To work more efficiently, randomization could be done by Qualtrics survey software at the time when study participants completed the baseline assessment. Yet, to ensure a proper concealment and investigator was blinded to the group allocation, randomization by Qualtrics survey software was not preferred in the current study as the investigator was responsible to manage assessment data in Qualtrics survey software.

Programme Completion. The overall programme completion rate was good (75.0%); and the programme completion rate of control group was excellent (100.0%), however, the programme completion rate of ACT group was poor (50.0%). Because randomization was conducted after study participant attended the online career information seminar, therefore, it contributed to the excellent programme completion rate of control group. For the ACT group, half of the study participants ($n = 16$) completed at least four ACT sessions, i.e., at least 80% of total ACT contact hour, and only 34.4% of them completed all five 2-hour online ACT sessions. This great contrast between control group and ACT group was probably be related to the differed number of sessions of two groups, in which, the 2-hour online career information seminar was designed as the only treatment session for study participants of control group, whereas a total of six 2-hour sessions, i.e., five 2-hour online ACT sessions and one 2-hour online career information seminar, was designed for ACT group. Another point to note is that five study participants of ACT group did not commence ACT training and they were lost to contact even after multiple instant WhatsApp messages or phone call. As such, it is hard to conclude what kind of barrier prevent their participation.

Scheduling difficulties was reported as the most common reasons of absence. It was understandable if scheduling difficulties were rooted from shifting duties and clashes between work and ACT sessions were thus unavoidable. To facilitate study participants in attending weekly ACT session, the investigator conducted multiple identical ACT sessions

and offered study participants with flexibility in joining sessions whichever fit their schedule regardless of the recommended session sequence.

The poor programme completion rate may also be related to the level of acceptability among study participants, however, it was not properly asked or measured in the present study. Further, the observed poor completion rate may reflect the fact that it is more and more hard to engage new generation in groups and to attend classes at weekly basis.

Online Delivery Mode. Implementation of this study were all gone online. Of which, study registration, assessments collection at baseline, post-intervention, and 3-month after intervention were done via Qualtrics survey software, and treatment sessions of career information seminars and ACT sessions were conducted via Zoom videoconference. All study participants and intervention providers, i.e., speaker of the online career information seminar and the experienced ACT facilitator, were found very much familiar with the use of Zoom, the selected videoconferencing software, and no obvious barriers or technical issues were observed or reported. This suggested that to implement ACT intervention via online is feasible and appropriate for NGNs, i.e., university students.

Attrition. A perfect programme completion rate was noted in control group at 100%, yet a fair programme completion rate was noted in ACT group at 50%. When compared to the mean retention rate of intervention group (64.9%) as found in the literature as reported in Chapter Two, a larger attrition rate was reported in the present study. Nevertheless, an acceptable responses rate of data assessment was observed at baseline (100%), post-intervention (84.4%), and 3-month after intervention (79.7%). With an almost 80% of responses at 3-month after intervention, it may suggest using online questionnaire is practicable and convenient to study participants as it provides them with flexibility to complete the assessment in their preferred time.

Implementation of ACT session and Fidelity Monitoring. The ACT intervention protocol used was specially developed for this pilot study by the investigator. Revision and refinement of intervention contents and presentation sequence of ACT processes were made after receiving comments and advice from Chief Supervisor and two scholarly ACT researchers who were experienced in ACT for adolescents. Interactive exercises were included in ACT sessions, including ACT metaphors, experiential exercises, ACT worksheets and online videos. Among the three selected videos, even the study participants could communicate both in English and Cantonese, the two videos with voice-over in Cantonese were purposively identified aimed to serve as a culturally adapted material for easier understanding and discussion.

All ACT sessions were delivered by the investigator and was supervised by an experienced ACT facilitator. To ensure the accuracy of delivering ACT metaphors and experiential exercises, two preparatory Zoom meetings before intervention implementation as well as briefings and debriefings before and after each ACT session were conducted between investigator and the experienced ACT facilitator. This also helps in ensuring the progress of ACT intervention for study participants of ACT group. The implementation of ACT intervention was conducted smoothly, and no adverse event was reported. Although the investigator revisited the recorded videos of ACT sessions and checked it against the ACT Core Competency Self-Assessment for Clinicians (Hayes & Strosahl, 2004), a systematic record of fidelity checks was not created. The investigator argued the adopted strategies for maintaining intervention fidelity were appropriate. Nevertheless, for better planning and evaluating ACT intervention implementation in future studies, in addition to the current adopted strategies, having session evaluation against a standard checklist, which includes all planned components for each ACT sessions, and assessor reports from blinded inter-raters, would be recommended.

5.3 Strength of the Study

In the current pilot study, the investigator delivered group-based ACT to NGNs at university via online. This mode of delivery minimizes the time and travel burden on study participants. Also, this probably serve as the best possible strategies for fostering participation and group engagement, as well as encourage social support and peer learning among study participants. For the contents of ACT intervention, all ACT metaphors, experiential exercises, videos, and worksheets were selected from scholarly works and classical ACT textbooks and manuals. Modifications were made only to fit NGNs' language in nursing profession when presenting challenging situation in working with nursing colleagues or other healthcare professionals, and patients. As a result, NGNs might be better engaged in participating in ACT sessions. Because the targeted population of the study was NGNs that, pre-licensure nursing students who would be graduated in a year was considered as an appropriate study population of this study. The results of this study may provide evidence of implementing ACT for promoting psychological well-being of NGNs, or university students, by a universal prevention approach.

5.4 Limitations of the Study

This study had several limitations. For a pilot study without hypothesis testing, although the primary purpose was to explore the preliminary efficacy of an intervention and to understand the feasibility of its implementation; with a small sample, it was difficult to determine if the outcomes were true findings or it may be a result of type II error. Analyzed the ITT sample with GEE perhaps provided the best possible calculation for examining intervention effect in current small sample. Although a non-significant p-value does not prove equivalence (Dworschak & Campbell, 2015) for pilot studies with small sample, caution in interpretation of results is needed. While the preliminary intervention efficacy was examined in the current pilot study, future full-powered double-blind randomized trials with

adequate sample would provide better understanding on whether group-based online ACT intervention could be an effective intervention for promoting psychological well-being among NGNs and allow further subgroup analyses. Another limitation was that participant's involvement in homework and exercise outside treatment sessions were not collected. Although the investigator asked study participants' responses for their experience of daily mindfulness exercise and homework, how much time they spent on homework was not formally collected. As study participants were self-selected in the study, hence self-selection bias may be another limitation of this study and results may not be greatly generalizable to NGNs of other universities. Self-reported data was collected in the study; thus, unavoidable socially desirable answer might be resulted and yet, it was not easily be verified. Despite of it, this study contributes to the knowledge of implementing a universal prevention programme in a group of general population, i.e., NGNs, at universities, via online is feasible.

5.5 Implications for Practice

The results from this pilot study suggested several important issues for further refinement and revision. First, the ACT intervention was developed with assumption that it promotes psychological well-being of NGNs during role transition period, which has been viewed as a vulnerable timing for nursing students when transiting from students to qualified nurses. It is crucial, not only for NGNs, but also for nursing profession. However, the low recruitment rate and the poor programme completion rate in ACT group might indicate that, even an imagined stressful role transition period was understandable, NGNs might not aware what are and how much the impact of role transition on their psychological well-being before they actual experience it. This may be due in part to the available option of working as a pre-RN TUNS at clinical settings during the time of intervention implementation. It provided NGNs with definite training opportunity and that they could skip other training opportunities, which might not have given them with immediate observed benefits. To implement a full

powered trial in future, advertising the programme with empirical evidence of how role transition impact psychological well-being in NGNs and the distinct difference between traditional hospital-based role transition programme versus ACT-based role transition programme may motivate more NGNs to join and participate.

The intervention was held after study participants finished their course work at university and before they receive their profession registration of qualified nurses. During the said period, i.e., from July to September, 2022, around one third of the study participants were working as pre-RN TUNS in hospitals. As a result, study participants' availability of time was relatively reduced. Fortunately, some passionate study participants attended ACT sessions immediately after they off from clinical duties. Their active participation was very much appreciated. In view of the gap between education and health sector on nourishing our future nurses' psychological well-being and health, collaborations between university and health sector by integrating ACT into the content of role transition programmes for NGNs and be implemented by trained personnel would provide a golden opportunity for success with lesser implication on resources.

In this study, an insignificant within-group difference in all measurable outcomes in ACT group versus a significant reduction in psychological well-being and compassion satisfaction, and increased burnout found within control group at 3- month after intervention was found. This might indicate that study participants of ACT group are shielded from psychological problems when they exposed to the real working life of qualified nurses. Thus, promoting psychological well-being by a universal prevention approach may be considered as appropriate for NGNs.

Last, as deteriorated psychological well-being and compassion satisfaction, and increased burnout and secondary traumatic stress were found in NGNs during transition period, it worthy hospital and nursing administrators to look after this population, i.e., NGNs, during stressful role transition and provide support to nursing, and perhaps to include other

graduates of healthcare professions, by organizing tailored and effective programmes for enhancing their psychological flexibility. The investigator suggests to integrate ACT as a transdiagnostic interaction into the programme curriculum of university programmes and/or the role transition program of clinical settings may help in inoculating NGNs of healthcare professionals from burnout through cultivating psychological flexibility.

5.6 Implications for Research

Results of the current pilot study provided preliminary evidence and support on implementing online group-based ACT intervention for promoting psychological well-being in NGNs. To implement full-powered RCT large sample studies, thorough planning on study recruitment would be recommended, especially when there is great external influence, e.g., COVID-19 pandemic. Nevertheless, intervention studies with longer follow-up assessment may further help in understanding intervention sustainability. Seeing an increased use of digital technology in new generation, future studies may consider adopting other innovative intervention delivery modes, for example, web-based, app-based, or even self-help book, which may allow young people with flexibility to make progress according to their own pace.

Further studies on identifying whether individual difference may respond differently to an ACT programme. Such as association between level of psychological flexibility and its ceiling effect. This may provide evidence for identify at risk people more easily and to tailor and refine the contents and length of contacts hours of ACT intervention programme.

A low program completion rate was noted in this study, reasons other than scheduling difficulties might be worth to address for prompting better programme completion. Because user satisfaction toward the programme and degree of intervention engagement were not collected in this study, to have a better understanding on this area by collecting feedback study participants might be beneficial for refining intervention protocol. More, the investigator would recommend assessing the trainers' adherence to the protocol should be

assessed in subsequent studies. This provides researchers with information on the actual performance of ACT facilitator. Last, with the favourable effects of ACT on psychological well-being, the study protocol can proceed to the main study but requires thorough monitoring throughout the study procedures is recommended. Future study directions may include the continuation of time-and cost-efficient interventions, examination of the effect of ACT processes on psychological well-being, and exploration of the use of brief ACT intervention.

5.7 Implications for Education

Given the small number of study participants, a significant time-by-group interactions in subjective well-being and burnout across the study period, as well as the significant between-group difference found in secondary traumatic stress at 3-month after intervention, findings of this study may provide tentative support for the feasibility and efficacy of an online group-based ACT intervention for enhancing NGNs' psychological well-being during role transition period. Knowing that to implement ACT at the time when NGNs graduate during role transition period would be helpful. At the same time, findings of this study may present an implication to university faculties and nursing professionals to educate nurse learners with psychological flexibility through ACT, and thus, enhancing their psychological well-being throughout their university life and prepare them for greater challenges.

Chapter 6 Conclusion

Literature has reported role transition impacts on new graduate nurses' well-being and mental health resulted in elevated stress, burnout, and intention to quit. However, current hospital-based role transition programmes focus on clinical skills and knowledge, and hospital policies, in which, attentions on promoting new graduate nurses' psychological well-being and health, either from healthcare sector or education sector, were limited. This study was specially designed to fill this gap.

Finding of this study presents an example of a feasible group-based online ACT intervention with the existing components for promoting psychological well-being in new graduate nurses at university. GEE analyses on ITT sample found significant time-by-group interactions for the WHO-5 and ProQOL-BO, i.e., subjective well-being and burnout. Also, this study found that an ACT-based intervention program delivered in university led to a small effect size difference on psychological flexibility at post-intervention, and a medium effect difference on secondary traumatic stress at 3-month after intervention between ACT group and control group. Within-group difference indicated study participants who did not receive ACT had deteriorated subjective well-being, decreased compassion satisfaction, and increased burnout at 3-month after intervention, i.e., after they graduate from university and started working as qualified nurses, which suggest they might work ineffectively in their new job. Among study participants who received ACT intervention, although no significant improvement on psychological well-being or other outcomes and process variables were found, to a certain extent, study findings may reflect they were shielded from psychological problems, even when they exposed to the real stressful working life of qualified nurses.

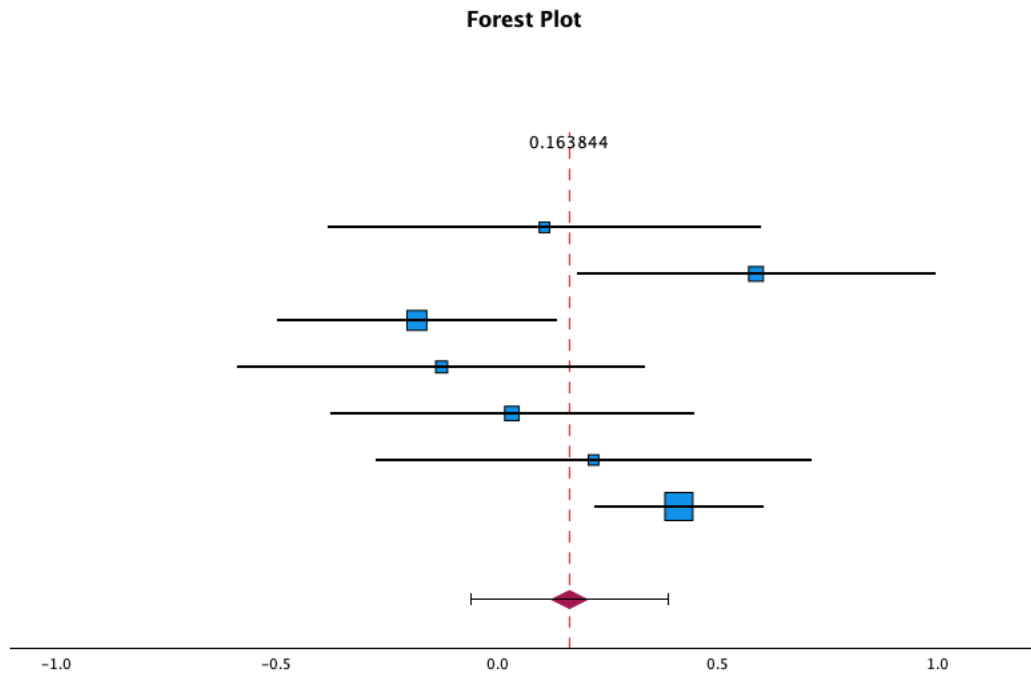
The findings also highlight the significance of implementing intervention by a universal approach. It is suggested this transdiagnostic intervention should be disseminated in university and, perhaps, in clinical settings, aimed at inoculating NGN from burnout through

cultivating psychological flexibility. Integrate ACT-based intervention into role transition program in clinical setting or with university orientation programme, again, provide an excellent point of time to promote psychological well-being and health to NGNs before the imagined stressful work life arrives.

Given that the present study is a pilot study, it is suggested an ACT-based programme should be examined further with full-powered RCT. The results of this pilot extend previous studies and suggest, besides the positive impact on psychological well-being, ACT intervention also help in reducing burnout and secondary traumatic stress among NGNs. However, the recruitment rate of the study and programme completion rate of ACT group of this study was low. Strategies for improving study recruitment and programme completion and retention are needed. More, technology-based intervention may have the possibility to reach a wider population.

Overall, the result of this pilot study indicates that the group-based online ACT intervention is feasible to implement in universities to promote psychological well-being of new graduate nurses and has potential to be implemented as a universal prevention programme. Future full powered RCTs would provide greater compelling evident.

Appendix A Forest Plot of the Meta-analysis



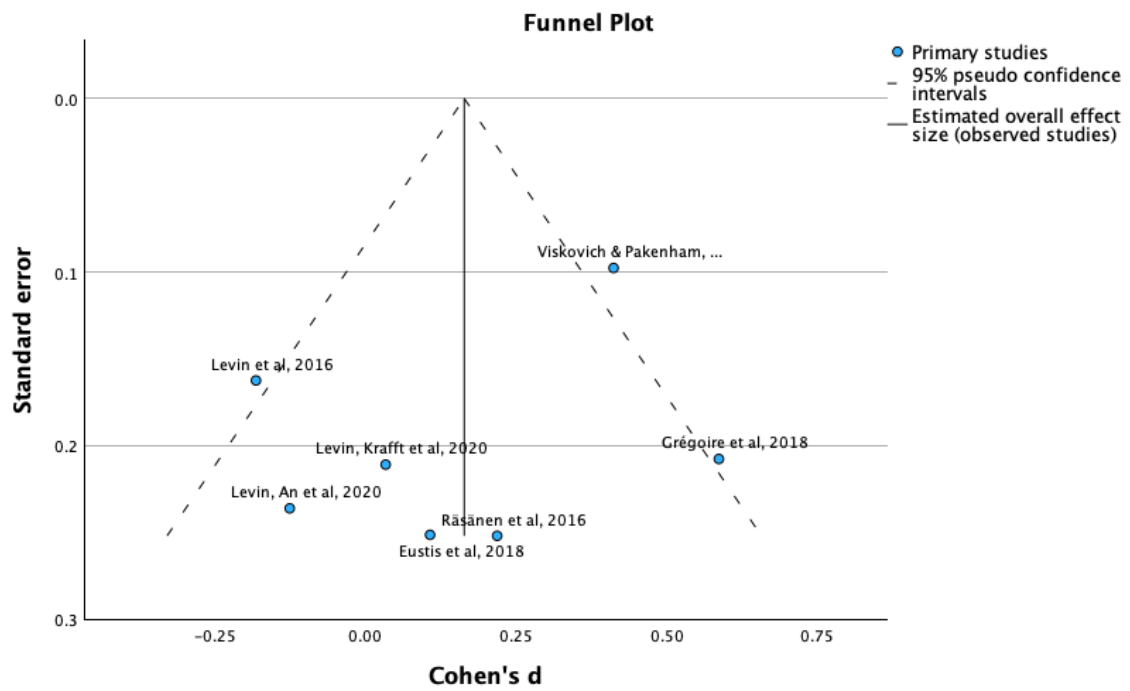
- Effect size of each study
- ◆ Estimated overall effect size
- Estimated overall confidence interval
- Confidence interval of effect size
- Overall effect size value

Study	Cohen's d	Std. Error	Lower	Upper	p-value	Weight	Weight (%)
Eustis et al, 2018	0.11	0.25	-0.39	0.60	0.67	8.68	11.35
Grégoire et al, 2018	0.59	0.21	0.18	0.99	0.00	10.51	13.74
Levin et al, 2016	-0.18	0.16	-0.50	0.14	0.26	12.75	16.67
Levin, An et al, 2020	-0.13	0.24	-0.59	0.34	0.59	9.28	12.13
Levin, Krafft et al, 2020	0.03	0.21	-0.38	0.45	0.87	10.36	13.55
Räsänen et al, 2016	0.22	0.25	-0.28	0.71	0.39	8.66	11.32
Viskovich & Pakenham, 2020	0.41	0.10	0.22	0.60	0.00	16.23	21.23
Overall	0.16	0.11	-0.06	0.39	0.15		

Model: Random-effects model

Heterogeneity: Tau-squared = 0.05, I-squared = 2.55, H-squared = 0.61

Appendix B Funnel Plot of the Meta-analysis



Appendix C Ethical Review Approval Letter – The Hong Kong Polytechnic University



To Mak Yim Wah (School of Nursing)
From Pang Marco Yiu Chung, Chair, PolyU Institutional Review Board
Email marco.pang@ Date 10-Jan-2022

Application for Ethical Review for Teaching/Research Involving Human Subjects

I write to inform you that approval has been given to your application for human subjects ethics review of the following project for a period from 01-Aug-2021 to 01-Aug-2023:

Project Title: Acceptance and commitment therapy for promoting psychological wellbeing among new graduate nurses: a pilot randomised controlled trial
Department: School of Nursing
Principal Investigator: Mak Yim Wah
Project Start Date: 01-Aug-2021
Project type: Human subjects (clinical)
Review type: Expedited Review
Reference Number: HSEARS20210428001

You will be held responsible for the ethical approval granted for the project and the ethical conduct of the personnel involved in the project. In case the Co-PI, if any, has also obtained ethical approval for the project, the Co-PI will also assume the responsibility in respect of the ethical approval (in relation to the areas of expertise of respective Co-PI in accordance with the stipulations given by the approving authority).

You are responsible for informing the PolyU Institutional Review Board in advance of any changes in the proposal or procedures which may affect the validity of this ethical approval.

Pang Marco Yiu Chung
Chair
PolyU Institutional Review Board

Hong Kong Metropolitan University

MEMO

To: Ms Yobie Lam Ching Yee, Senior Lecturer, N&HS
Cc: Professor William Tsang Wai Nam, Acting Dean, N&HS
From: Dr Billy Wong, Secretary, REC
Date: 13 June 2022

Ethical Review regarding Human Research

REC Reference No.: HE-SF2022/08
Principal Investigator: Ms Yobie Lam Ching Yee
Project Title: Acceptance and commitment therapy for promoting psychological wellbeing among new graduate nurses: A pilot randomized controlled trial

This informs you that, according to the University's guidelines and procedures for ethical review regarding human research, your ethical clearance application for the project listed above has been approved by the Research Ethics Committee (REC) with the condition specified below. Please follow the research ethics procedures stated in your application (including the disposal of confidential data) when carrying out the project and also note the following standard terms:

Standard Terms of Approval

1. **Ethics approval effective period:** the ethics approval period will be from 14 June 2022 to 1 August 2022.
2. **Future correspondence:** please quote the REC reference no. and the project title above in any future correspondence relating to ethical issues of your project.
3. **Ethical conduct for your research:** you should ensure that all investigators (if any) are aware of the terms of approval and take reasonable care to ensure that the study is conducted in accordance with the University's *Guidelines and Procedures for Ethical Review regarding Human Research*.
4. **Amendments to the approved project:** any amendments to the project (including applications of extension of ethics approval effective period and changes in research protocol) should be reported to REC by completing the *Amendment Application Form*. For cases when there are substantial variations or the amendment involves any major change to the methodology described in the research proposal for application, a new application for ethical review will be required.
5. **Monitoring:** your project may be subject to an audit or any form of monitoring by REC (which will include e.g. review of the signed consent forms for participants and the data storage arrangements) at any time to ensure that ethical requirements are met.

Dr Billy Wong
Secretary to Research Ethics Committee

Appendix E Information Sheet and Consent Form



THE HONG KONG
POLYTECHNIC UNIVERSITY

香港理工大學 護理學院
School of Nursing

香港 九龍 紅磡
Hung Hom Kowloon Hong Kong

INFORMATION SHEET

You are invited to participate in a study conducted by Ms. Lam Ching Yee of the School of Nursing in The Hong Kong Polytechnic University, the study is supervised by Dr. Mak Yim Wah and Dr. Leung Sau Fong. The project has been approved by the Human Subjects Ethics Sub-committee (HSESC) of The Hong Kong Polytechnic University (HSESC Reference Number: HSEARS20210428001) and the Research Ethics Committee (REC) of the Hong Kong Metropolitan University (Ref: xxx).

The aim of this study is to promote psychological wellbeing of newly graduated nurses during transition period.

The study will allocate the participants into 2 groups randomly. One group of participants will receive a one 2-hour career online seminar which will be delivered by an experience nurse. Participants of another group will receive one 2-hour career online seminar and to join 5 2-hours online workshop. All the sessions of online workshop will be conducted by the researcher, Miss Lam Ching Yee. She has more than 10 years of experience in teaching undergraduate nursing students. There is no foreseeable risk to take part in this study. You may feel slightly anxious at the thought of becoming a registered nurse, but this is a normal reaction.

You will be asked to complete assessment questionnaire for three times (before, post-intervention, and at 3-month follow-up). The total time to complete each of the assessment questionnaire should take you about 15-20 minutes. To appreciate your participation, we will provide a total of HKD \$200 coupons to participants who completed all assessment questionnaire to compensate your time.

If taking part in this research study makes you feel uncomfortable, you have every right to withdraw from the study before or during the session without penalty of any kind. You can also seek advice and assistance from the Integrated Health Clinic at PolyU where they can better support you. You can make telephone contact with the clinic via their hotline: (852) 2766 4638 (office hours) or at sn.ihc@polyu.edu.hk; alternatively you can find further information on the <https://sn.polyu.edu.hk/ihc/>. Or you can seek help from a healthcare provider of your choice.

Your participation in this project is entirely voluntary. If you agree to participate, you do not have to complete any question(s) you are uncomfortable answering. Your decision to participate or not participate will in no way impact upon your current or future relationship with Hong Kong Polytechnic University or your progression within the nursing programme or future employment. If you do agree to participate, you can withdraw from the project by simply

ACT-NGN_Info Sheet_v2.1 (20220517)_HKMU



not attending the online workshop or not submitting questionnaire.

The information you provide as part of the project is the research data. Any research data from which you can be identified is known as personal data. Personal data does not include data where the identity has been removed (anonymous data). We will minimize our use of personal data in the study as much as possible.

All information related to you will remain confidential and, will be identifiable by codes known only to the researchers. The information collected will be kept 24 months after project completion. The Hong Kong Polytechnic University takes reasonable precautions to prevent the loss, misappropriation, unauthorized access or destruction of the information you provide.

If you have any complaints about the conduct of this research study, please do not hesitate to contact Miss Cherrie Mok, Secretary of the Human Subjects Ethics Sub-Committee of The Hong Kong Polytechnic University in writing (c/o Research Office of the University) stating clearly the responsible person and department of this study.

If you have any queries, please do not hesitate to contact Ms Lam Ching Yee, PhD candidate (email: yobie.lam@polyu.edu.hk phone: (852) 9087 2222), or her supervisors Dr Mak Yim Wah (tel. no.: (852) 2766 6421 / email: yw.mak@polyu.edu.hk) and Dr Leung Sau Fong (tel. no.: (852) 2766 6395 or email: sau.fong.leung@polyu.edu.hk) of The Hong Kong Polytechnic University.

Thank you for your interest in participating in this study.

Investigators

Dr Mak Yim Wah
Dr Leung Sau Fong
Ms Lam Ching Yee

INFORMATION SHEET

You are invited to participate in a study conducted by Ms. Lam Ching Yee of the School of Nursing in The Hong Kong Polytechnic University, the study is supervised by Dr. Mak Yim Wah and Dr. Leung Sau Fong. The project has been approved by the Human Subjects Ethics Sub-committee (HSESC) of The Hong Kong Polytechnic University (HSESC Reference Number: HSEARS20210428001) and the Research Ethics Committee (REC) of the Hong Kong Metropolitan University (Ref: HE-SF2022/08).

The aim of this study is to promote psychological wellbeing of newly graduated nurses during transition period.

The study will allocate the participants into 2 groups randomly. One group of participants will receive a one 2-hour career online seminar which will be delivered by an experience nurse. Participants of another group will receive one 2-hour career online seminar and to join five 2-hour online workshop. All the sessions of online workshop will be conducted by the researcher, Miss Lam Ching Yee. She has more than 10 years of experience in teaching undergraduate nursing students. There is no foreseeable risk to take part in this study. You may feel slightly anxious at the thought of becoming a registered nurse, but this is a normal reaction.

You will be asked to complete assessment questionnaire for three times (before, post-intervention, and at 3-month follow-up). The total time to complete each of the assessment questionnaire should take you about 15-20 minutes. To appreciate your participation, we will provide a total of HKD \$200 coupons to participants who completed all assessment questionnaire to compensate your time.

If taking part in this research study makes you feel uncomfortable, you have every right to withdraw from the study before or during the session without penalty of any kind. You can also seek advice and assistance from the Integrated Health Clinic at PolyU for psychological counselling. You can make telephone contact with the clinic via their hotline: (852) 2768 4638 (office hours) or at sn.ihc@polyu.edu.hk; alternatively you can find further information on the <https://sn.polyu.edu.hk/ihc/>. Or you can seek help from a healthcare provider of your choice.

Your participation in this project is entirely voluntary. If you agree to participate, you do not

have to complete any question(s) you are uncomfortable answering. Your decision to participate or not participate will in no way impact upon your current or future relationship with Hong Kong Polytechnic University or your progression within the nursing programme or future employment. If you do agree to participate, you can withdraw from the project by simply not attending the online workshop or not submitting questionnaire.

The information you provide as part of the project is the research data. Any research data from which you can be identified is known as personal data. Personal data does not include data where the identity has been removed (anonymous data). We will minimize our use of personal data in the study as much as possible. All information related to you will remain confidential and, will be identifiable by codes known only to the researchers. The information collected will be kept 24 months after project completion. The Hong Kong Polytechnic University takes reasonable precautions to prevent the loss, misappropriation, unauthorized access or destruction of the information you provide.

If you have any questions/complaints about the conduct of this research study, please do not hesitate to contact Miss Cherrie Mok, Secretary of the Human Subjects Ethics Subcommittee of The Hong Kong Polytechnic University in writing (c/o Research Office of the University) stating clearly the responsible person and department of this study; or the Research Ethics Committee of HKMU at 27686251.

If you have any queries, please do not hesitate to contact Ms Lam Ching Yee, PhD candidate (email: yoble.lam@ ; phone: (852) 9087), or her supervisors Dr Mak Yim Wah (tel. no.: (852) 2766 6421 / email: yw.mak@) and Dr Leung Sau Fong (tel. no.: (852) 2766 6395 or email: sau.fong.leung@) of The Hong Kong Polytechnic University.

Thank you for your interest in participating in this study.

Investigators

Dr Mak Yim Wah

Dr Leung Sau Fong

Ms Lam Ching Yee

Consenting Page

Yes, I have read the above "study information".

Yes, I agree to join this study.

Powered by Qualtrics

Protected by reCAPTCHA: Privacy & Terms

Appendix G A summary of ACT metaphors and experiential exercises used in this study

Processes of ACT	Metaphors / Experiential Exercise	Worksheets / Home Practice
Acceptance	<ul style="list-style-type: none"> • ACT in a nutshell • The unwelcomed party guest 	<ul style="list-style-type: none"> • [Worksheet] Daily Willingness Diary • [Worksheet] Vitality and Suffering Diary
Cognitive defusion	<ul style="list-style-type: none"> • Your struggles • Sushi train 	<ul style="list-style-type: none"> • [Worksheet] Fear and Dare-1 and 2
Contact with present moment	<ul style="list-style-type: none"> • Don't think of the pink elephant • Mindfulness exercise 	<ul style="list-style-type: none"> • [Home practice] Daily Mindfulness Exercise (Breathing) • [Worksheet] The Mindful Breathing Exercise
Self-as-context	<ul style="list-style-type: none"> • Clouds in the sky • Your life as a movie • Internal struggle (Chessboard) • I noticed I am having the thought... 	<ul style="list-style-type: none"> • [Home practice] Clouds in the Sky • [Worksheet] I notice I am having the thought...
Values	<ul style="list-style-type: none"> • Why you are here? • Why you wanna be a nurse? • Why? Why? Why? 	<ul style="list-style-type: none"> • [Worksheet] A Quick Look at Your Values • [Worksheet] The Problems and Value Worksheet
Committed action	<ul style="list-style-type: none"> • When there is a difficult co-worker / patient... • Passenger on a bus 	<ul style="list-style-type: none"> • [Worksheets] The Willingness and Action Plan

Appendix H Homework – ACT Worksheets

Week 2 – A Quick Look at Your Values

A Quick Look at Your Values

Values are your heart's deepest desires for how you want to behave as a human being. Values are not about what you want to get or achieve; they are about how you want to behave or act on an ongoing basis; how you want to treat yourself, others, the world around you. There are literally hundreds of different values, but below you'll find a list of the most common ones. Probably, not all of them will be relevant to you. Keep in mind there are no such things as 'right values' or 'wrong values'. It's a bit like our taste in pizzas. If you prefer ham and pineapple but I prefer salami and olives, that doesn't mean that my taste in pizzas is right and yours is wrong. It just means we have different tastes. And similarly, we may have different values. So pick a domain of life that you want to improve, and read through the list below and write a letter next to each value: **V = Very important, Q = Quite important, and N = Not so important** - for the specific domain of life you have picked to work on.

No.	Values	Your Rating
1	Acceptance: to be open to and accepting of myself, others, life etc.	
2	Adventure: to be adventurous; to actively seek, create, or explore novel or stimulating experiences.	
3	Assertiveness: to respectfully stand up for my rights and request what I want.	
4	Authenticity: to be authentic, genuine, real; to be true to myself.	
5	Beauty: to appreciate, create, nurture or cultivate beauty in myself, others, the environment, etc.	
6	Caring: to be caring towards myself, others, the environment, etc.	
7	Challenge: to keep challenging myself to grow, learn, improve.	
8	Compassion: to act with kindness towards those who are suffering.	
9	Connection: to engage fully in whatever I am doing, and be fully present with others.	
10	Contribution: to contribute, help, assist, or make a positive difference to myself or others.	
11	Conformity: to be respectful and obedient of rules and obligations.	
12	Cooperation: to be cooperative and collaborative with others.	
13	Courage: to be courageous or brave; to persist in the face of fear, threat, or difficulty.	
14	Creativity: to be creative or innovative.	
15	Curiosity: to be curious, open-minded and interested; to explore and discover.	
16	Encouragement: to encourage and reward behaviour that I value in myself or others.	
17	Equality: to treat others as equal to myself, and vice-versa.	
18	Excitement: to seek, create and engage in activities that are exciting, stimulating or thrilling.	
19	Fairness: to be fair to myself or others.	
20	Fitness: to maintain or improve my fitness; to look after my physical and mental health and wellbeing.	
21	Flexibility: to adjust and adapt readily to changing circumstances.	
22	Freedom: to live freely; to choose how I live and behave, or help others do likewise.	
23	Friendliness: to be friendly, companionable, or agreeable towards others.	
24	Forgiveness: to be forgiving towards myself or others.	
25	Fun: to be fun-loving; to seek, create, and engage in fun-filled activities.	
26	Generosity: to be generous, sharing and giving, to myself or others.	
27	Gratitude: to be grateful for and appreciative of the positive aspects of myself, others and life.	
28	Honesty: to be honest, truthful, and sincere with myself and others.	
29	Humour: to see and appreciate the humorous side of life.	
30	Humility: to be humble or modest; to let my achievements speak for themselves.	
31	Industry: to be industrious, hard-working, dedicated.	
32	Independence: to be self-supportive, and choose my own way of doing things.	

Week 4 – Overcoming F.E.A.R.-1

Overcoming F.E.A.R.-1

Assume you have clarified your values, and set yourself a goal – but you haven't followed through on it. What stopped you? The F.E.A.R. acronym covers most of the common barriers:

F = Fusion (stuff your mind tells you that gets in the way when you get caught up in it)

E = Excessive goals (your goal is too big, or you lack the skills, or you lack the resources)

A = Avoidance of discomfort (unwillingness to make room for the discomfort this challenge brings)

R = Remoteness from values (losing touch with – or forgetting – what is important or meaningful about this)

So now, in as few words as possible, write down everything that has stopped you following through:

1)

2)

3)

4)

5)

6)

7)

8)

Now go back, and label each answer with one or two of the letters F.E.A. or R. – whichever best describe this barrier. In other words,

was it F = Fusion with a story (e.g. I'll fail; it's too hard; I'll do it later, I'm too weak; I can't do it);

was it E = Excessive goal (you lack the time, money, health, facilities, skills, or support necessary; or it was just too big and you got overwhelmed);

was it A = Avoidance of discomfort (you were unwilling to make room for the anxiety, frustration, fear of failure, or other uncomfortable thoughts and feelings); or

was it R = Remoteness from your values (you forgot or lost touch with the values underlying this goal)?

The antidote to F.E.A.R. is D.A.R.E.

D = Defusion

A = Acceptance of discomfort

R = Realistic goals

E = Embracing values

Go through your barriers, one by one, and work out how you can deal with them, using D.A.R.E. Below, you'll find some suggestion to help you.

Acknowledgement: Russ (2008). www.thehappinesstrap.com

Week 4 – Overcoming F.E.A.R.-2

Overcoming F.E.A.R. – 2

Defusion strategies: name the story, thank your mind, acknowledge “Here’s reason-giving’ or “Here’s judging’, name the demon/monster/passenger, recognize this Radio Doom & Gloom broadcasting, or simply let the thoughts come and go like passing cars.

Acceptance strategies: name the feeling, observe it like a curious scientist, rate it on a scale of 1 to 10, commit to allowing it, breath into it, make room for it, give it a shape and colour.

Realistic goal-setting: if you lack skills, set goals around learning them; if your goal is too big, break it down into small chunks; if you lack resources, brainstorm how you can get them; if the goal is truly impossible, e.g. due to health or financial issues, or external barriers over which you have no direct influence, then set a different one.

Embracing values: connect with what matters to you about this goal. Is it truly meaningful? Is it aligned with your values? Is it truly important? Is it moving your life forward in the direction you wish to go?

Using these ideas (and others of your own, or of your therapist/coach), write down how you can respond to the barriers you listed above.

1)

2)

3)

4)

5)

6)

7)

8)

Finally, ask yourself this question: am I willing to make room for the difficult thoughts and feelings that show up, without getting caught up in them or struggling with them, and take effective action, in order to do what matters, deep in my heart?

If so, go ahead and give it a go.

If not, consider these questions:

Does this really and truly matter to you?

If it does, then what is the cost to you of avoiding it or putting it off?

Would you rather have the vitality-draining pain of staying stuck, or the life-enhancing pain of moving forward?

Acknowledgement: Russ (2008). www.thehappinesstrap.com

Appendix I Questionnaire Used in the Present Study

Psychological Well-being Scale-18 (PWNS-18)

Circle one response below each statement to indicate how much you agree or disagree.

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree
1	2	3	4	5	6	7

	Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree
1. I like most parts of my personality.	1	2	3	4	5	6	7
2. When I look at the story of my life, I am pleased with how things have turned out so far.	1	2	3	4	5	6	7
3. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6	7
4. The demands of everyday life often get me down.	1	2	3	4	5	6	7
5. In many ways I feel disappointed about my achievements in life.	1	2	3	4	5	6	7
6. Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6	7
7. I live life one day at a time and don't really think about the future.	1	2	3	4	5	6	7
8. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6	7
9. I am good at managing the responsibilities of daily life.	1	2	3	4	5	6	7
10. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6	7
11. For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6	7

	Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree
12. I think, it is important to have new experiences that challenge how I think about myself and the world.	1	2	3	4	5	6	7
13. People would describe me as a giving person, willing to share my time with others.”	1	2	3	4	5	6	7
14. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6	7
15. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6	7
16. . I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6	7
17. I have confidence in my own opinions, even if they are different from the way most other people think.	1	2	3	4	5	6	7
18. I judge myself by what I think is important, not by values of what other think is important.	1	2	3	4	5	6	7

World Health Organization-5 Well-being Index (WHO-5)

Please indicate for each of the 5 statements which is closest to how you have been feeling over the past 2 weeks.

All of the time	Most of the time	More than half the time	Less than half the time	Some of the time	At no time
5	4	3	2	1	0

Over the past 2 weeks	All of the time	Most of the time	More than half the time	Less than half the time	Some of the time	At no time
1. I have felt cheerful and in good spirits	5	4	3	2	1	0
2. I have felt calm and relaxed	5	4	3	2	1	0
3. I have felt active and vigorous	5	4	3	2	1	0
4. I woke up feeling fresh and rested	5	4	3	2	1	0
5. My daily life has been filled with things that interest me	5	4	3	2	1	0

Perceived Stress Scale (10 items) (PSS-10)

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

Very often	Fairly often	Sometimes	Almost never	Never
4	3	2	1	0

	Very often	Fairly often	Sometimes	Almost never	Never
1. In the past month, how often have you been upset because of something that happen unexpectedly?	4	3	2	1	0
2. In the past month, how often you felt that you were unable to control the important things in your life?	4	3	2	1	0
3. In the last month, how often you felt nervous and “stressed”?	4	3	2	1	0
4. In the last month, how often you felt confident about your ability to handle your personal problems?	4	3	2	1	0
5. In the last month, how often you felt that things were going your way?	4	3	2	1	0
6. In the last month, how often you found that you could not cope with all the things that you had to do?	4	3	2	1	0
7. In the last month, how often you felt how often have you been able to control imitations in your life?	4	3	2	1	0
8. In the last month, how often you felt that you were on top of things?	4	3	2	1	0
9. In the last month, how often you been angered because of things that were outside of your control?	4	3	2	1	0
10. In the last month, how often you felt difficulties were piling up so high that you could not overcome them?	4	3	2	1	0

Professional Quality of Life Scale (ProQOL) Version 5

When you [help] people you have direct contact with their lives. As you may have found, your compassion for those you [help] can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a [helper]. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the last 30 days.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

	Never	Rarely	Sometimes	Often	Very Often
1. I am happy.	1	2	3	4	5
2. I am preoccupied with more than one person I [help].	1	2	3	4	5
3. I get satisfaction from being able to [help] people.	1	2	3	4	5
4. I feel connected to others.	1	2	3	4	5
5. I jump or am startled by unexpected sounds.	1	2	3	4	5
6. I feel invigorated after working with those I [help].	1	2	3	4	5
7. I find it difficult to separate my personal life from my life as a [helper].	1	2	3	4	5
8. I am not as productive at work because I am losing sleep over traumatic experiences of person I [help].	1	2	3	4	5
9. I think that I might have been affected by the traumatic stress of those I [help].	1	2	3	4	5
10. I feel trapped by my job as a [helper].	1	2	3	4	5
11. Because of my [helping], I have felt "on edge" about various things.	1	2	3	4	5
12. I like my work as a [helper].	1	2	3	4	5
13. I feel depressed because of the traumatic experiences of the people I [help].	1	2	3	4	5

	Never	Rarely	Sometimes	Often	Very Often
14. I feel as though I am experiencing the trauma of someone I have [helped].	1	2	3	4	5
15. I have beliefs that sustain me.	1	2	3	4	5
16. I am pleased with how I am able to keep up with [helping] techniques and protocols.	1	2	3	4	5
17. I am the person I always wanted to be.	1	2	3	4	5
18. My work makes me feel satisfied.	1	2	3	4	5
19. I feel worn out because of my work as a [helper].	1	2	3	4	5
20. I have happy thoughts and feelings about those I [help] and how I could help them.	1	2	3	4	5
21. I feel overwhelmed because my case [work] load seems endless.	1	2	3	4	5
22. I believe I can make a difference through my work.	1	2	3	4	5
23. I avoid certain activities or situations because they remind me of frightening experiences of the people I [help].	1	2	3	4	5
24. I am proud of what I can do to [help].	1	2	3	4	5
25. As a result of my [helping], I have intrusive, frightening thoughts.	1	2	3	4	5
26. I feel "bogged down" by the system.	1	2	3	4	5
27. I have thoughts that I am a "success" as a [helper].	1	2	3	4	5
28. I can't recall important parts of my work with trauma victims.	1	2	3	4	5
29. I am a very caring person.	1	2	3	4	5
30. I am happy that I chose to do this work.	1	2	3	4	5

Acceptance and Action Questionnaire (AAQ-II)

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
1	2	3	4	5	6	7

	Never true	Very seldom true	Seldom true	Sometimes true	Frequently true	Almost always true	Always true
1. My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2. I'm afraid of my feelings.	1	2	3	4	5	6	7
3. I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4. My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5. Emotions cause problems in my life.	1	2	3	4	5	6	7
6. It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7. Worries get in the way of my success.	1	2	3	4	5	6	7

Mindful Attention Awareness Scale (MAAS)

Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think you experience should be. Please treat each item separately from every other item.

Almost always 1	Very frequently 2	Somewhat frequently 3	Somewhat infrequently 4	Very infrequently 5	Almost never 6
-----------------------	-------------------------	-----------------------------	-------------------------------	---------------------------	-------------------

	All of the time	Most of the time	More than half the time	Less than half the time	Some of the time	At no time
1. I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
2. I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
3. I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6
6. I forget a person's name almost as soon as I've been told for the first time.	1	2	3	4	5	6
7. It seems I am "running on automatic", without much awareness of what I'm doing.	1	2	3	4	5	6
8. I rush through activities without being really attentive to them.	1	2	3	4	5	6

	All of the time	Most of the time	More than half the time	Less than half the time	Some of the time	At no time
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
10. I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
11. I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6
12. I drive places on "automatic pilot" and then wonder why I went there.	1	2	3	4	5	6
13. I find myself preoccupied with the future or the past.	1	2	3	4	5	6
14. I find myself doing things without paying attention.	1	2	3	4	5	6
15. I snack without being aware that I'm eating.	1	2	3	4	5	6

Demographics Characteristics

Please circle the most appropriate answer. If provide specific answer if appropriate.

1. Gender:
 - a. Male
 - b. Female
2. Your age: _____ years old
3. The nursing program you are studying:
 - a. Accelerated master nursing program (General)
 - b. Bachelor nursing program (General)
 - c. Bachelor nursing program (Mental)
4. What is your training institution?
 - a. HKMU
 - b. HK PolyU
 - c. Others, pls specify _____
5. Your place of birth:
 - a. Hong Kong
 - b. Mainland China (please specify: number of years in HK _____)
 - c. Others (please specify: number of years in HK: _____)
6. Current marital status:
 - a. Single
 - b. Married (years of married: _____ years)
 - c. Cohabiting
 - d. Separated (divorce not decided / legal process in progress / divorce and legal process has not apply yet)
 - e. Divorced
7. Number of children: _____
8. In the past one year, have you encountered financial hardship?
 - a. No
 - b. Yes
9. In the past year, have you received Comprehensive Social Security Assistance (CSSA) Scheme?
 - a. No

- b. Yes
10. In the past year, have your family received Comprehensive Social Security Assistance (CSSA) Scheme?
- a. No
 - b. Yes
11. In the past year, have you encountered any of the following: (can select more than one item)
- a. None
 - b. Major loss (please specify: _____)
 - c. Chronic illness (please specify: _____)
 - d. Relationship problems with partner
 - e. Mental illness without pharmacological treatment
 - f. Mental illness with pharmacological treatment
12. Apart from clinical practicum as arranged by the University, have you had any previous clinical experience (except TUNS)?
- a. No
 - b. Yes (If “yes” → What was your clinical experience?)
 - i. Setting (e.g., hospital, OAH, clinic, etc.): _____
 - ii. Nursing specialty/ Role: _____
 - iii. Duration of experience (month in total): _____ months
 - iv. In average, you work _____ days/week
13. Have you ever employed under the Temporary Undergraduate Nursing Students (TUNS) during you study in university?
- a. No
 - b. Yes (If “yes” → What was your experience as a TUNS?)
 - i. Name of hospital: _____
 - ii. Ward specialty: _____
 - iii. Duration of experience (in total): _____ months
 - iv. In average, you work: _____ days/ week
14. How you rate your academic performance:
- a. Unsatisfactory
 - b. Fair
 - c. Satisfactory
 - d. Good

- e. Excellent
15. How you rate your clinical performance:
- a. Unsatisfactory
 - b. Fair
 - c. Satisfactory
 - d. Good
 - e. Excellent
16. Do you have any religious belief?
- a. No
 - b. Yes (If “yes” → Catholicism / Christianity / Buddhism / Muslim / others: _____)
17. Have you ever learnt mindfulness exercise?
- a. No
 - b. Yes (If yes → please select the most appropriate one.)
 - i. I learnt mindfulness exercise in the past 1 month.
 - ii. I learnt mindfulness exercise in the past 6 month.
 - iii. I learnt mindfulness exercise in the past 12 month.
 - iv. I learnt mindfulness exercise more than 12 months.
18. Do you practice mindfulness exercise regularly?
- a. No
 - b. Yes (please specify _____ times/week)

(The following question will be collected at follow-up assessment)

19. At this moment, are you attending a Pre-RN program at clinical setting, e.g., hospital?
- a. No
 - b. Yes
20. About your employment status, at the moment, you are working in
- a. Hospital
 - b. Clinics
 - c. Short-stay centre
 - d. Rehabilitation service
 - e. Old-age home
 - f. Community service (please specify _____)
 - g. Others (please specify _____)

h. Still looking for a nursing job

21. Currently, you are employed by

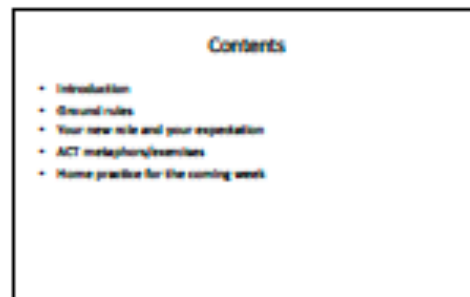
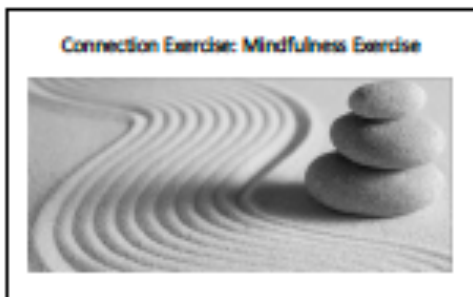
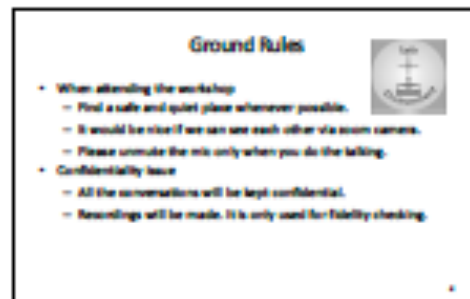
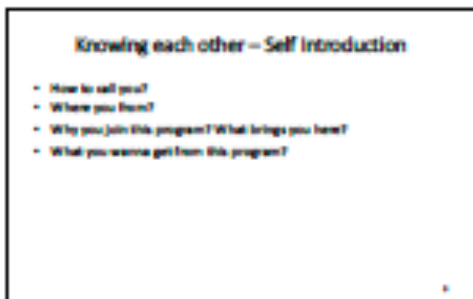
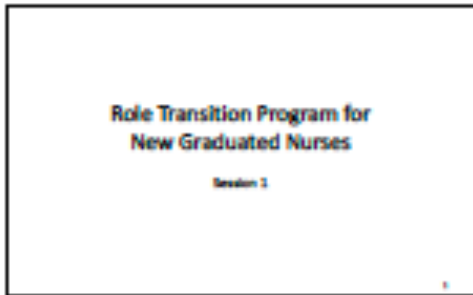
- i. Hospital authority (please specify: name of hospital _____)
- ii. Private hospital (please specify: name of hospital _____)
- iii. Department of Health
- iv. Non-governmental Organization
- v. Others (please specify _____)

22. Nature of nursing specialty you are currently working in:

- a. Medical
- b. Surgical
- c. Orthopaedic
- d. Paediatric
- e. Operating room
- f. Intensive care unit
- g. Accident and emergency department
- h. Others: please specify _____

23. How long have you been working in your new job: _____ months

Appendix J ACT Intervention Materials - PowerPoint Slides



What you join this programme?

What are your fears regarding the transition from student nurse to RN?

Nurses experience ...

- Did you know that although we have cultural myth that being a nurse helps people, research suggests that most nurses experience
 - more stress, anxiety, worries, ...
 - more frequent insomnia...
 - more stress, burnout, depression...
 - more like physical pain, musculoskeletal disorders... ..
 - ...than people of other professions do
- How about you?



Acceptance and Commitment Therapy 接納與承諾療法

- 第三度行為與認知治療
- 2010年代後起 - 由Steven C. Hayes - Kirk D. Strosahl 與 Kelly G. Wilson 所發展出來的



www.acceptanceandcommitmenttherapy.com/

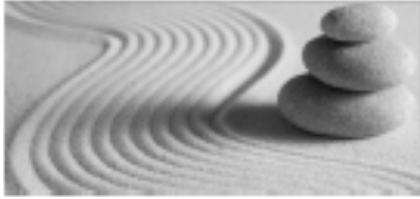
Describe it...



ACT in a Nutshell



Connection Exercise: Mindfulness Exercise



Homework Review

When you experience that thought or feeling,
what do you typically do?

Sushi Train
お寿司列車



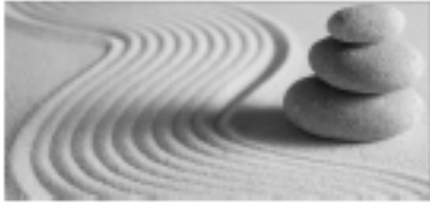
Exercise: Observing your thoughts...



Home Exercise

To practice mindfulness & defusion at least once daily

Connection Exercise: Mindfulness Exercise



Homework Review



Choice Point



Video – The Unwelcome Party Guest (4:20)



Exercise 2.1 – Passenger on a bus



Why you wanna be a nurse?



Exercise: Recall past experience of an difficult or unwelcome patient/colleague



Homework: Observing sky and clouds...



**Home Exercise:
The Problems and Values Worksheet**

The Problems and Values Worksheet

Directions: Complete this worksheet by identifying and describing a problem you have experienced in your professional life. Then, identify the values that were violated and describe how you would like to see the problem resolved.

Problem	Values	Resolution	Reflection

Thank you

**Role Transition Program for
New Graduated Nurses**

Session 4



Home Exercise

Worksheet TEAS - 1

The main purpose of this worksheet is to help you understand the importance of the TEAS test and to help you prepare for it. The test is a multiple-choice test that is used to determine if you are qualified to enter a nursing program. The test is a multiple-choice test that is used to determine if you are qualified to enter a nursing program.

1. How do you feel about the test? (circle one)

2. How do you feel about the test? (circle one)

3. How do you feel about the test? (circle one)

4. How do you feel about the test? (circle one)

5. How do you feel about the test? (circle one)

6. How do you feel about the test? (circle one)

7. How do you feel about the test? (circle one)

8. How do you feel about the test? (circle one)

Home Exercise

Worksheet TEAS - 1

The main purpose of this worksheet is to help you understand the importance of the TEAS test and to help you prepare for it. The test is a multiple-choice test that is used to determine if you are qualified to enter a nursing program. The test is a multiple-choice test that is used to determine if you are qualified to enter a nursing program.

1. How do you feel about the test? (circle one)

2. How do you feel about the test? (circle one)

3. How do you feel about the test? (circle one)

4. How do you feel about the test? (circle one)

5. How do you feel about the test? (circle one)

6. How do you feel about the test? (circle one)

7. How do you feel about the test? (circle one)

8. How do you feel about the test? (circle one)

Home Exercise: I have a thought...

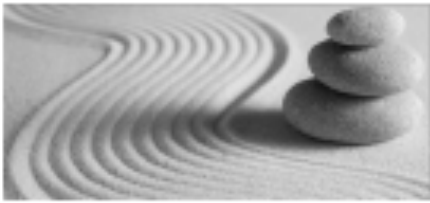
- I am...
• 我是...
• 我是...
- I have a thought that I am...
• 我有一个想法，我认为我是...
• 我有一个想法，我认为我是...
- I believe the thought that I am...
• 我相信我有一个想法，我认为我是...
• 我相信我有一个想法，我认为我是...
- I am...
• 我是...
• 我是...

Thank you

Role Transition Program for New Graduated Nurses

Session 3

Mindfulness Exercise



Homework Review


Meeting your mind exercise

- Sometimes when we struggle with our thoughts, we have less energy and bandwidth to pay attention to being effective even in these moments.
- About NDB, what is in your mind?
 - Good NDBs are ...
 - Bad NDBs are ...
 - I am a ...



im bad im bad im bad and im sorry that im bad	我好衰 我好衰 我好衰 係 - 對唔住 我係好衰
---	--------------------------------------

Observing Self vs Word Clouds...



Give your mind a name
幫你的腦袋改個名

Okay thank you May
好的 - 謝謝May



Observe your thoughts



Exercise: Recall past experience of an unwelcome patient/colleague



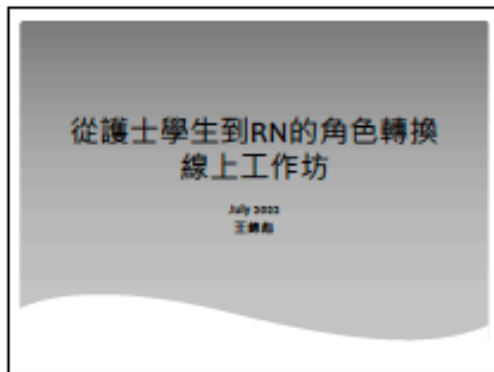
Home Exercise: The Willingness and Action Plan

1. Write down your name.
2. Write down the name of the patient/colleague.
3. Write down the date of the incident.
4. Write down the location of the incident.
5. Write down the name of the supervisor.
6. Write down the name of the witness.
7. Write down the name of the person who reported the incident.

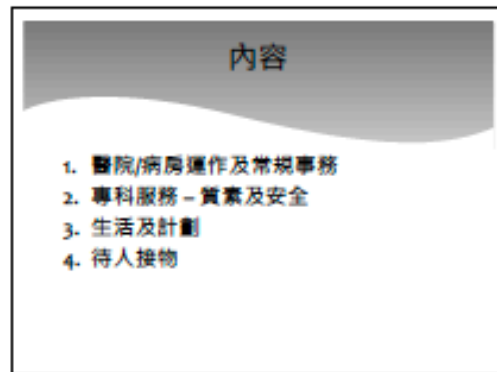
Blessing on Each Other

Thank you

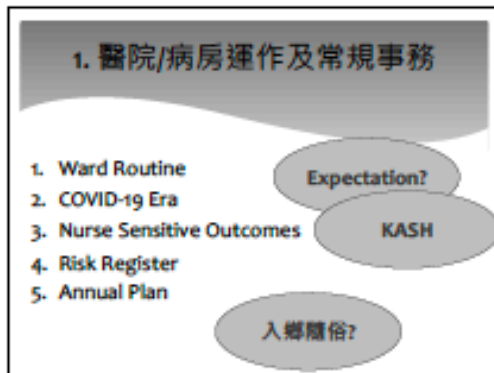
Appendix K Career Information Seminar - PowerPoint Slides



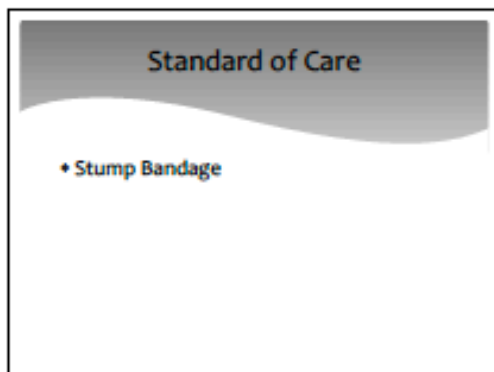
1



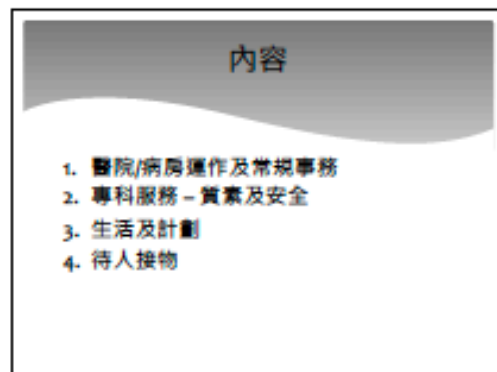
2



3



5



6

2. 專科服務 – 質素及安全

1. Hong Kong Academy of Nursing
2. Incident Management
3. Risk Control Strategy
4. Risk Matrix

7

Hong Kong Academy of Nursing

16 panels have been formed for the following specialties (as in May 2020):

1. Cardiac Nursing;	9. Management in Nursing;
2. Community, Primary and Public Health Nursing;	10. Medical Nursing;
3. Critical Care Nursing;	11. Mental Health Nursing;
4. Education and Research in Nursing;	12. Oncology Nursing;
5. Emergency Care Nursing;	13. Orthopaedic Nursing;
6. Gerontology Nursing;	14. Paediatric Nursing;
7. Gynaecology Nursing;	15. Perioperative and Anaesthesia Nursing; and
8. Infection Control in Nursing;	16. Surgical Nursing.

8

Actions Following an Incident

The flowchart outlines the following steps:

- Immediate management**
 - Ensure safety
 - Support victim, treat and prevent further injury (Patient – Staff – Organization)
- Notification (EARLY)**
 - Department senior staff, attending doctor
 - PRG, Media Relations, Q&S Team, HAKO LS (RM), QSI, HK...
- Reporting**
 - AIGS (**) (Framework for SE / SUE)
 - Coroner / Police
- Investigation**
 - Root Cause Analysis
- Follow-up and Learning**
 - Developing Recommended Actions
 - Feedback and discussion on the lesson learnt

Source: Clinical Incident Management Manual, Hospital Authority (2019, 2020)

9

Sentinel Events (SE) & Serious Untoward Events (SUE)

Sentinel Events (SE) 嚴重醫療警訊事件

1. Surgery / interventional procedure involving the wrong patient or body part
2. Retained instruments or other material after surgery / interventional procedure
3. ABO incompatibility blood transfusion
4. Medication error resulting in major permanent loss of function or death
5. Intravascular gas embolism resulting in death or neurological damage
6. Death of an in-patient from suicide (including home leave)
7. Maternal death or serious morbidity associated with labour or delivery
8. Infant discharged to wrong family or infant abduction
9. Other adverse events resulting in permanent loss of function or death (excluding complications)

Serious Untoward Events (SUE) 嚴重醫療事件

1. Medication error which could have led to death or permanent harm
2. Patient misidentification which could have led to death or permanent harm

Source: Update on the Sentinel and Serious Incident Event Policy, Hospital Authority (2019, 2020)

10

The image shows two documents: an 'HA Risk Alert' (醫管局風險通報) and a 'PRESS RELEASE'. The risk alert includes a 'Creating Message' section with a photo of a staff member and a detailed text block.

11

Root Cause Analysis (RCA)

- Overview
- Info gathering & Interview
- Cause & Effect Diagram (Fishbone / Ishikawa Diagram)
- Develop Recommended Actions
- Report

12

Overview

- Technique for all SE/SUE to
 - reconstruct the sequence of event
 - identify the contributing factors
 - identify changes in systems & processes to improve performance & reduce risk
- RCA Panel
 - Non-threatening atmosphere, with emphasis on learning from the incident.
 - Confidentiality

13

Cause & Effect Diagram

Three steps to create a Cause and Effect diagram:

1. Identify the problem statement: what is the key problem you want to prevent?
2. Brainstorm the primary causes: the actions and conditions that led to the key problem.
3. Complete the causal chain: ask 'why' several times to identify root causes and contributing factors.

Source: Critical Incident Management Manual, Health Authority (July 2002)

14

4M1E

- * Man
- * Machine
- * Material
- * Method
- * Environment

15

Risk Control Strategy

16

XX Hospital Risk Matrix 20XX

		CONSEQUENCE				
		Severe	Major	Medium	Minor	Trivial
LIKELIHOOD	Very High			1		
	High			2	3	
Medium	High		4	5	6	
	Medium		7	8	9	10
Low	High					
	Low					

TOP 10 RISK (20XX) (by risk score)

Rank	Risk description
1	Patient Falls
2	Medication incidents
3	Patient Assault
4	COB - Fall & Struck
5	Major Capital Works
6	Personal Data Privacy

Matrix Legend:

- Patient Safety
- Clinical Governance
- Compliance
- Performance
- Environment
- Financial
- Reputation
- Workforce
- Workplace Incidents

Legend: ○ = Target Score at end of period of 20XX

17

HA Risk Consequence Table-1 (2015)

RISK CATEGORY	Description	CONSEQUENCE			
		Severe	Major	Medium	Minor
PATIENT SAFETY	1. Patient Falls	Severe: Death, permanent disability	Major: Serious injury, temporary disability	Medium: Minor injury, temporary disability	Minor: No injury
	2. Medication incidents	Severe: Death, permanent disability	Major: Serious injury, temporary disability	Medium: Minor injury, temporary disability	Minor: No injury
PATIENT EXPERIENCE	3. Patient Assault	Severe: Death, permanent disability	Major: Serious injury, temporary disability	Medium: Minor injury, temporary disability	Minor: No injury
	4. COB - Fall & Struck	Severe: Death, permanent disability	Major: Serious injury, temporary disability	Medium: Minor injury, temporary disability	Minor: No injury
FINANCIAL	5. Major Capital Works	Severe: Major financial loss	Major: Moderate financial loss	Medium: Minor financial loss	Minor: No financial loss
	6. Personal Data Privacy	Severe: Major financial loss	Major: Moderate financial loss	Medium: Minor financial loss	Minor: No financial loss
REPUTATION	7. Workplace Incidents	Severe: Major reputational damage	Major: Moderate reputational damage	Medium: Minor reputational damage	Minor: No reputational damage
	8. Patient Safety	Severe: Major reputational damage	Major: Moderate reputational damage	Medium: Minor reputational damage	Minor: No reputational damage

18

HA Risk Consequence Table-2 (2015)

HA Risk Category	1		2		3	4
	Minor	Minor	Minor	Minor		
HA Risk Category 1
HA Risk Category 2
HA Risk Category 3
HA Risk Category 4
HA Risk Category 5
HA Risk Category 6
HA Risk Category 7
HA Risk Category 8
HA Risk Category 9
HA Risk Category 10

19

HA Risk Likelihood Table (2015)

Using percentages, most likely and/or worst case for likelihood of a risk occurring by priority for best fit on the 1 to 5 risk level likelihood table

SCORES & RISK - Likelihood Description (for whole number only)

Level	Additional Description	Score (1 per 1000) or description of frequency	Frequency per 1000 or description of duration	Probability (using 100% of project or 1000000 per year for budget only)
1	Adverse effects	• Expenditure over a brief period or reduced number of hours per year • Expenditure over a year or more	1 in 1000 to 10	Over 95%
2	Life	• May occur once in every few months or once in 10 years • May occur once in every 10 years	1 in 100	100% - 95%
3	Health	• May occur once in every 1 - 10 years • May occur once in every 10 years	1 in 1000	100% - 95%
4	Quality	• May occur once in every 1 - 10 years • May occur once in every 10 years	1 in 10000	10% - 10%
5	None	• May occur once in every 10 years or more • May occur only in exceptional circumstances	1 in 1000000 or more	Up to 1%

20

內容

1. 醫院/病房運作及常規事務
2. 專科服務 - 質素及安全
3. 生活及計劃
4. 待人接物

21

3. 生活及計劃

1. 330
2. Family/Friend
3. Career/Job
4. Hobby
5. Financial Independence

22

內容

1. 醫院/病房運作及常規事務
2. 專科服務 - 質素及安全
3. 生活及計劃
4. 待人接物

23

4. 待人接物

1. Why Nurse?
2. Know yourself
 - ♦ Value
 - ♦ Signature Strengths
3. Communication Step-by-Step
4. Complaint Handling

24

價值觀

- 放鬆點
- 沒有對錯
- 對自己誠實
- 不同人生階段有不同優先次序
- XX對你學講有乜重要?
- ...
- 「甲」重要定「乙」重要?
- 「乙」重要定「甲」重要?
- ...
- 因乜原因「甲」重要?
- ...

25

24 Signature Strengths

Wholesome					
Generous					
Honesty					
Justice					
Temperance					
Transcendence					

Source: VIA Institute on Character

26

Communication Step-by-Step

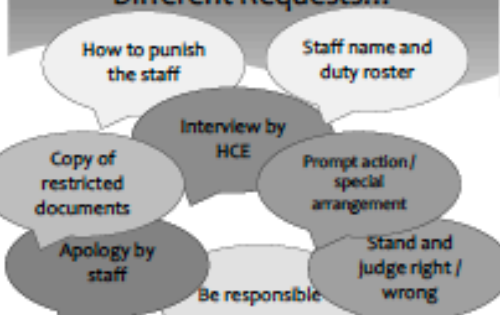


1. 先講心情·後講事情
(Empathy before fact finding)
2. 正面思維·避免批評
(Positive thinking, avoid critic)
3. 陳述方案·提出建議
(Focus on what can be done, offer solutions)

(HKS)

27


Different Requests...



- How to punish the staff
- Staff name and duty roster
- Interview by HCE
- Prompt action / special arrangement
- Copy of restricted documents
- Apology by staff
- Be responsible
- Stand and judge right / wrong

28

Different Scenarios...



- Threat
- Video taking
- Media / Councilor
- Foul Languages, Violence Behavior
- Refuse all explanation
- Repeat and repeat...
- Self-harm
- Confusion

29

Thank you

30

Appendix L ACT Core Competency Self-Rating Form

Acceptance and Commitment Therapy Core Competency Self-Rating Form

Below is an abbreviated list of ACT core competencies. Please rate how true each statement is for you when you use ACT, by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7	?
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true	don't know

Core Competencies of the Basic ACT Therapeutic Stance

1	The ACT therapist speaks to the client from an equal, vulnerable, compassionate, genuine, and sharing point of view and respects the client's inherent ability to move from unworkable to workable responses and respects the client's values.	<input type="checkbox"/>
2	The therapist is willing to self disclose about personal issues when it serves the interest of the client	<input type="checkbox"/>
3	The therapist is flexible in responding to the client (e.g. avoids use of "canned" ACT interventions; tailors interventions to fit the client's language and life experience; sequences/applies ACT interventions in response to client need).	<input type="checkbox"/>
4	The therapist does not argue with, lecture, coerce or attempt to convince the client or provide his or her personal opinion as a substitute for the client's genuine experience.	<input type="checkbox"/>
5	The therapist models acceptance of challenging content (e.g. what emerges during treatment) while also being willing to hold contradictory or difficult ideas, feelings, memories, and the like without needing to "resolve" them.	<input type="checkbox"/>
6	ACT-relevant processes are recognized in the moment, and when appropriate, are directly supported in the context of the therapeutic relationship.	<input type="checkbox"/>

Developing Acceptance and Willingness/Undermining Experiential Control

7	The therapist helps the client make direct contact with emotional control strategies and their paradoxical effect	<input type="checkbox"/>
8	The therapist actively uses concept of "workability" in clinical interactions	<input type="checkbox"/>
9	The therapist models and uses appropriate exercises and metaphors to help the client make experiential contact with the cost of being unwilling relative to valued life ends	<input type="checkbox"/>
10	The therapist models and uses appropriate exercises and metaphors to show willingness as an alternative to avoiding difficult internal experience.	<input type="checkbox"/>
11	Therapist uses exercises and metaphors to help client contact willingness as an action in the presence of difficult internal experience.	<input type="checkbox"/>

Undermining Cognitive Fusion

12	The therapist creates a separation between the client and the client's conceptualized experience (e.g. cognitive barriers, "having" experiences rather than "being" experiences; attachment)	<input type="checkbox"/>
13	Therapist uses various exercises, metaphors and behavioral tasks to undermine the effect of language (e.g., milk, milk, milk; what are the numbers?).	<input type="checkbox"/>
14	Therapist actively contrasts what the client's "mind" says will work versus what the client's experience says is working	<input type="checkbox"/>

15	Therapist helps client elucidate the client's "story" and helps client make contact with the arbitrary nature of causal relationships within the story (reason-giving).	<input type="checkbox"/>
16	Therapist detects "mindiness" (fusion) in session and teaches the client to detect it as well	<input type="checkbox"/>

Getting in Contact with the Present Moment

17	The therapist can defuse from client from his/her content and direct attention to simple awareness of the moment.	<input type="checkbox"/>
18	Therapist uses exercises to expand the client's sense of experience as an ongoing process (e.g. mindfulness exercises).	<input type="checkbox"/>
19	The therapists tracks the function of content at multiple levels and emphasizes the present moment when it is useful	<input type="checkbox"/>
20	The therapist detects client drifting into past and future orientation and teaches him/her how to come back to the "now."	<input type="checkbox"/>

Distinguishing the Conceptualized Self from Self-as-context

21	Therapist helps the client differentiate self-evaluations from the self that evaluates (thank your mind for that thought, calling a thought a thought, naming the event, pick an identity)	<input type="checkbox"/>
22	The therapist helps the client make a distinction between self as context and content by employing mindfulness exercises (e.g. leaves on a stream, soldiers on parade, observer exercise) metaphors (e.g. chessboard) and behavioral tasks (e.g. take your mind for a walk).	<input type="checkbox"/>
23	The therapist utilizes behavioral tasks to help the client notice the workings of the mind and the experience of emotion while also contacting a self who chooses and behaves with these experience, rather than for these experiences.	<input type="checkbox"/>

Defining Valued Directions

24	The therapist helps the client clarify valued life directions.	<input type="checkbox"/>
25	The therapist teaches the client to distinguish between values and goals.	<input type="checkbox"/>
26	The therapist distinguishes between outcomes achieved and involvement in the process of living.	<input type="checkbox"/>

Building Patterns of Committed Action

27	The therapist helps client identify valued life goals and build an action plan linked to them.	<input type="checkbox"/>
28	Therapist encourages the client to make and keep commitments in the presence of perceived barriers (e.g., fear of failure, traumatic memories, sadness, being right) and to expect additional barriers as a consequence of engaging in committed action.	<input type="checkbox"/>
29	The therapist helps the client appreciate the qualities of committed action (e.g., a sense of vitality, sense of growth) and to take small steps while maintaining contact with those qualities.	<input type="checkbox"/>
30	The therapist keeps the client focused on larger and larger patterns of action to help the client act on goals with consistency over time	<input type="checkbox"/>

Appendix M Credential of the ACT Facilitator

15 JULY, 2015

This is to certify that:

Ching Yee Lam,



participated in a continuing education activity

ACT II: Skill-Building in Acceptance and Commitment Therapy - Steven C. Hayes, Ph.D.

Berlin, Germany

DATE(S): 14-15 July, 2015

Contact Hours: 13

Emily Rodrigues

Executive Director

Association for Contextual Behavioral Science

contextualscience.org

Founded in 2005 (incorporated in 2006), the Association for Contextual Behavioral Science (ACBS) is dedicated to the advancement of functional contextual cognitive and behavioral science and practice so as to alleviate human suffering and advance human well being.

ACBS
P.O. Box 655
Jenison, MI 49429 USA



July 25, 2018

This is to certify that:
LAM CHING YEE

participated in a continuing education activity

Developmental interventions on the self and social behaviour of adolescents - Using DNA-v to develop flexibility, mindfulness and compassion - Louise Hayes, Ph.D.

Date: July 24-25, 2018

Location: Fairmont The Queen Elizabeth, Montréal, Canada

Emily N. Rodrigues, M.A.
Executive Director
Association for Contextual Behavioral Science

Founded in 2005 (incorporated in 2006), the Association for Contextual Behavioral Science (ACBS) is dedicated to the advancement of functional contextual cognitive and behavioral science and practice so as to alleviate human suffering and advance human well being.

Certificate of Completion

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Ching Yee Lam

FOR COMPLETING THE 8 WEEK / 16 HOUR ONLINE COURSE
ACT FOR BEGINNERS



I'm Learning ACT

24 October 2018

Dr Russ Harris

Certificate of Completion

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Ching Yee Lam

FOR COMPLETING THE 6 WEEK / 16 HOUR ONLINE COURSE
ACT FOR ADOLESCENTS



I'm Learning ACT

24 October 2018

Dr Russ Harris

References

- Arrowsmith, V., Lau-Walker, M., Norman, I., & Maben, J. (2016). Nurses' perceptions and experiences of work role transitions: a mixed methods systematic review of the literature. *Journal of Advanced Nursing*, 72(8), 1735-1750.
<https://doi.org/10.1111/jan.12912>
- Ballinger, G. A. (2004). Using generalized estimating equations for longitudinal data analysis. *Organizational Research Methods*, 7(2), 127-150.
<https://doi.org/10.1177/1094428104263672>
- Bell, M. L., & Fairclough, D. L. (2014). Practical and statistical issues in missing data for longitudinal patient-reported outcomes. *Statistical Methods in Medical Research*, 23(5), 440-459. <https://doi.org/10.1177/0962280213476378>
- Black, D. S., Sussman, S., Johnson, C. A., & Milam, J. (2012). Psychometric assessment of the mindful attention awareness scale (MAAS) among Chinese adolescents. *Assessment*, 19(1), 42-52. <https://doi.org/10.1177/1073191111415365>
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & 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.
<https://doi.org/10.1016/j.beth.2011.03.007>
- Boni, R. L. (2022). Measuring professional quality of life in nurses: a realist review. *Number 3/June 2022*, 26(3), 318-323. <https://doi.org/10.1188/22.CJON.318-323>
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822-848. <https://doi.org/10.1037/0022-3514.84.4.822>

- Burckhardt, R., Manicavasagar, V., Batterham, P. J., Hadzi-Pavlovic, D., & Shand, F. (2017). Acceptance and commitment therapy universal prevention program for adolescents: a feasibility study. *Child and Adolescent Psychiatry and Mental Health, 11*(1), 27-27. <https://doi.org/10.1186/s13034-017-0164-5>
- Butcher, N. J., Monsour, A., Mew, E. J., Chan, A.-W., Moher, D., Mayo-Wilson, E., Terwee, C. B., Chee-A-Tow, A., Baba, A., & Gavin, F. (2022). Guidelines for reporting outcomes in trial reports: the CONSORT-outcomes 2022 extension. *JAMA, 328*(22), 2252-2264.
- Cao, J., Ji, Y., & Zhu, Z. H. (2013). Reliability and validity of the Chinese version of the Acceptance and Action Questionnaire-(AAQ-II) in college students. *Chinese Mental Health Journal*.
- Catarelli, B., Nobles, P., Aull, M., & Yi, F. (2023). Evaluating Burnout and Resiliency in New Graduate Nurses: A Cross-sectional Study. *The Journal of Nursing Administration, 53*(5), 259-265. <https://doi.org/10.1097/NNA.0000000000001279>
- Chan, C. K., So, W. K., & Fong, D. Y. (2009). Hong Kong Baccalaureate Nursing Students' Stress and Their Coping Strategies in Clinical Practice. *Journal of Professional Nursing, 25*(5), 307-313. <https://doi.org/10.1016/j.profnurs.2009.01.018>
- Chen, J. Y., Chin, W. Y., Tiwari, A., Wong, J., Wong, I. C., Worsley, A., Feng, Y., Sham, M. H., Tsang, J. P. Y., & Lau, C. S. (2021). Validation of the perceived stress scale (PSS-10) in medical and health sciences students in Hong Kong. *The Asia Pacific Scholar, 6*(2), 31-37. <https://doi.org/10.29060/TAPS.2021-6-2/OA2328>
- Cheng, C.-Y., Liou, S.-R., Tsai, H.-M., & Chang, C.-H. (2015). Job stress and job satisfaction among new graduate nurses during the first year of employment in Taiwan: Job stress and satisfaction of new nurse. *International Journal of Nursing Practice, 21*(4), 410-418. <https://doi.org/10.1111/ijn.12281>

- Cleary, M., Horsfall, J., & Happell, B. (2009). Transition to psychiatric/mental health nursing programs: Expectations and practical considerations. *International Journal of Mental Health Nursing, 18*(4), 265-273. <https://doi.org/10.1111/j.1447-0349.2009.00606.x>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). L. Erlbaum Associates.
- Cohen, S., Kamarck, T., & Memeistein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385-396. <https://www.ncbi.nlm.nih.gov/pubmed/6668417>
- Dennis, C. L. (2003). Peer support within a health care context: a concept analysis. *International Journal of Nursing Studies, 40*(3), 321-332.
- Dworschak, M., & Campbell, M. (2015). About the benefits and limitations of pilot studies. *Minerva Anestesiologica, 81*(7), 711.
- Edwards, D., Hawker, C., Carrier, J., & Rees, C. (2015). A systematic review of the effectiveness of strategies and interventions to improve the transition from student to newly qualified nurse. *International Journal of Nursing Studies, 52*(7), 1254-1268. <https://doi.org/10.1016/j.ijnurstu.2015.03.007>
- El-Rahman, A., El-Sheimy, H., & Mohamed, S. (2018). Stressors among Nurse Interns' and Their Perception Regarding Coping Strategies. *Egyptian Journal of Health Care, 9*(4), 237-253.
- Eldridge, S. M., Chan, C. L., Campbell, M. J., Bond, C. M., Hopewell, S., Thabane, L., & Lancaster, G. A. (2016). CONSORT 2010 statement: extension to randomised pilot and feasibility trials. *BMJ, 355*.
- Eustis, E. H., Hayes-Skelton, S. A., Orsillo, S. M., & Roemer, L. (2018). Surviving and Thriving During Stress: A Randomized Clinical Trial Comparing a Brief Web-Based Therapist-Assisted Acceptance-Based Behavioral Intervention Versus Waitlist

Control for College Students. *Behavior Therapy*, 49(6), 889-903.

<https://doi.org/10.1016/j.beth.2018.05.009>

Flaxman, P. E., & Bond, F. W. (2010). Worksite Stress Management Training: Moderated Effects and Clinical Significance. *Journal of Occupational Health Psychology*, 15(4), 347-358. <https://doi.org/10.1037/a0020522>

Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J., & Sartorius, N. (2015). Toward a new definition of mental health. *World Psychiatry*, 14(2), 231-233. <https://doi.org/10.1002/wps.20231>

Gardiner, I., & Sheen, J. (2016). Graduate nurse experiences of support: A review. *Nurse Education Today*, 40, 7-12. <https://doi.org/10.1016/j.nedt.2016.01.016>

Gellerstedt, L., Moquist, A., Roos, A., Karin, B., & Craftman, Å. G. (2019). Newly graduated nurses' experiences of a trainee programme regarding the introduction process and leadership in a hospital setting—A qualitative interview study. *Journal of Clinical Nursing*, 28(9-10), 1685-1694. <https://doi.org/10.1111/jocn.14733>

Gloster, A. T., Walder, N., Levin, M. E., Twohig, M. P., & Karekla, M. (2020). The empirical status of acceptance and commitment therapy: A review of meta-analyses. *Journal of Contextual Behavioral Science*, 18, 181-192. <https://doi.org/10.1016/j.jcbs.2020.09.009>

Goode, C. J., & Williams, C. A. (2004). Post-Baccalaureate Nurse Residency Program. *The Journal of Nursing Administration*, 34(2), 71-77. <https://doi.org/10.1097/00005110-200402000-00004>

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. <https://doi.org/10.1016/j.beth.2017.10.003>

- Hackshaw, A. (2008). Small studies: strengths and limitations. *The European Respiratory Journal*, 32(5), 1141-1143. <https://doi.org/10.1183/09031936.00136408>
- Harris, R. (2009). The complete set of client handouts and worksheets from ACT books. *The Happiness Trap*. URL: https://thehappinesstrap.com/upimages/Complete_Worksheets_2014.pdf [accessed 2022-12-01].
- Harris, R. (2016). *The Complete Set of Client Handouts and Worksheets from ACT Books by Russ Harris*
https://www.actmindfully.com.au/upimages/2016_Complete_Worksheets_for_Russ_Harris_ACT_Books.pdf?_cf_chl_tk=2Z1PjxiBhtAiF97Zh.cNA22yIYCOvhc4QUNZYnfjhd4-1689284332-0-gaNycGzNCzs
- Harris, R. (2019). *ACT made simple: An easy-to-read primer on acceptance and commitment therapy*. New Harbinger Publications.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and Commitment Therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, 44(1), 1-25. <https://doi.org/10.1016/j.brat.2005.06.006>
- Hayes, S. C., & Strosahl, K. D. (2004). *A practical guide to acceptance and commitment therapy*. Springer Science & Business Media.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: the process and practice of mindful change* (Second edition ed.). Guilford Press.
- Hegney, D. G., Rees, C. S., Eley, R., Osseiran-Moisson, R., & Francis, K. (2015). The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. *Frontiers in Psychology*, 6, 1613. <https://doi.org/10.3389/fpsyg.2015.01613>

- Higgins, G., Spencer, R. L., & Kane, R. (2010). A systematic review of the experiences and perceptions of the newly qualified nurse in the United Kingdom. *Nurse Education Today*, 30(6), 499-508. <https://doi.org/10.1016/j.nedt.2009.10.017>
- Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ*, 327(7414), 557-560.
- Howell, A. J., & Passmore, H.-A. (2019). Acceptance and Commitment Training (ACT) as a Positive Psychological Intervention: A Systematic Review and Initial Meta-analysis Regarding ACT's Role in Well-Being Promotion Among University Students. *Journal of Happiness Studies*, 20(6), 1995-2010. <https://doi.org/10.1007/s10902-018-0027-7>
- Huppert, F. A. (2009). Psychological Well-being: Evidence Regarding its Causes and Consequences. *Applied Psychology: Health and Well-being*, 1(2), 137-164. <https://doi.org/10.1111/j.1758-0854.2009.01008.x>
- Irwin, C., Bliss, J., & Poole, K. (2018). Does Preceptorship improve confidence and competence in Newly Qualified Nurses: A systematic literature review. *Nurse Education Today*, 60, 35-46. <https://doi.org/10.1016/j.nedt.2017.09.011>
- Jarden, R. J., Jarden, A., Weiland, T. J., Taylor, G., Brockenshire, N., & Gerdtz, M. (2021). Registered Nurses' experiences of psychological well-being and ill-being in their first year of practice: A qualitative meta-synthesis. *Journal of Advanced Nursing*, 77(3), 1172-1187. <https://doi.org/10.1111/jan.14667>
- Jarden, R. J., Jarden, A., Weiland, T. J., Taylor, G., Bujalka, H., Brockenshire, N., & Gerdtz, M. F. (2021). New graduate nurse wellbeing, work wellbeing and mental health: A quantitative systematic review. *International Journal of Nursing Studies*, 121, 103997-103997. <https://doi.org/10.1016/j.ijnurstu.2021.103997>

- Jeffcoat, T., & Hayes, S. C. (2012). A randomized trial of ACT bibliotherapy on the mental health of K-12 teachers and staff. *Behaviour Research and Therapy*, *50*(9), 571-579. <https://doi.org/10.1016/j.brat.2012.05.008>
- Kállay, É., & Rus, C. (2014). Psychometric properties of the 44-item version of Ryff's Psychological Well-Being Scale. *European Journal of Psychological Assessment*. <https://doi.org/10.1027/1015-5759/a000163>
- Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, *30*(7), 865-878.
- Kelson, J. N., Lam, M. K., Keep, M., & Campbell, A. J. (2017). Development and Evaluation of an Online Acceptance and Commitment Therapy Program for Anxiety: Phase I Iterative Design. *Journal of Technology in Human Services*, *35*(2), 135-151. <https://doi.org/10.1080/15228835.2017.1309311>
- Kenny, A., Dickson-Swift, V., McKenna, L., Charette, M., Rush, K. L., Stacey, G., Darvill, A., Leigh, J., Burton, R., & Phillips, C. (2021). Interventions to support graduate nurse transition to practice and associated outcomes: A systematic review. *Nurse Education Today*, *100*, 104860-104860. <https://doi.org/10.1016/j.nedt.2021.104860>
- Krugman, M., Bretschneider, J., Horn, P. B., Krsek, C. A., Moutafis, R. A., & Smith, M. O. (2006). The national post-baccalaureate graduate nurse residency program: a model for excellence in transition to practice. *Journal for Nurses in Staff Development*, *22*(4), 196-205. <https://doi.org/10.1097/00124645-200607000-00008>
- Kulka, J. M., Chang De Gagne, J., Mullen, C. K., & Robeano, K. (2018). Mindfulness-Based Stress Reduction for Newly Graduated Registered Nurses. *Creative Nursing*, *24*(4), 243-250. <https://doi.org/10.1891/1078-4535.24.4.243>
- Kwok, O.-M., Underhill, A. T., Berry, J. W., Luo, W., Elliott, T. R., & Yoon, M. (2008). Analyzing longitudinal data with multilevel models: an example with individuals

- living with lower extremity intra-articular fractures. *Rehabilitation Psychology*, 53(3), 370. <https://doi.org/10.1037/a0012765>
- Labrague, L. J., McEnroe-Petitte, D. M., Gloe, D., Thomas, L., Papathanasiou, I. V., & Tsaras, K. (2017). A literature review on stress and coping strategies in nursing students. *Journal of Mental Health (Abingdon, England)*, 26(5), 471-480. <https://doi.org/10.1080/09638237.2016.1244721>
- Lam, T., Wong, J., Ip, M. S., Lam, K., & Pang, S. (2010). Psychological well-being of interns in Hong Kong: What causes them stress and what helps them. *Medical Teacher*, 32(3), e120-e126. <https://doi.org/10.3109/01421590903449894>
- Lee, T.-H., Sun, H.-F., & Chiang, H.-H. (2019). Development and Validation of the Short-Form Ryff's Psychological Well-Being Scale for Clinical Nurses in Taiwan. *Journal of Medical Sciences*, 39(4), 157-162. https://doi.org/10.4103/jmedsci.jmedsci_191_18
- Leung, D. Y., Lam, T. H., & Chan, S. S. (2010). Three versions of Perceived Stress Scale: validation in a sample of Chinese cardiac patients who smoke. *BMC Public Health*, 10(1), 513. <https://doi.org/10.1186/1471-2458-10-513>
- Levin, M. E., An, W., Davis, C. H., & Twohig, M. P. (2020). Evaluating Acceptance and Commitment Therapy and Mindfulness-Based Stress Reduction Self-Help Books for College Student Mental Health. *Mindfulness*, 11(5), 1275-1285. <https://doi.org/10.1007/s12671-020-01344-3>
- Levin, M. E., Hayes, S. C., Pistorello, J., & Seeley, J. R. (2016). Web-based self-help for preventing mental health problems in universities: Comparing acceptance and commitment training to mental health education. *Journal of Clinical Psychology*, 72(3), 207-225. <https://doi.org/10.1002/jclp.22254>
- Levin, M. E., Krafft, J., Hicks, E. T., Pierce, B., & Twohig, M. P. (2020). A randomized dismantling trial of the open and engaged components of acceptance and commitment

- therapy in an online intervention for distressed college students. *Behavior Research Therapy*, 126, 103557. <https://doi.org/10.1016/j.brat.2020.103557>
- Li, R. H. (2014). Reliability and validity of a shorter Chinese version for Ryff's psychological well-being scale. *Health Education Journal*, 73(4), 446-452. <https://doi.org/10.1177/0017896913485743>
- Liang, K.-Y., & Zeger, S. L. (1986). Longitudinal data analysis using generalized linear models. *Biometrika*, 73(1), 13-22. <https://doi.org/10.1093/biomet/73.1.13>
- Lim, J., Bogossian, F., & Ahern, K. (2010). Stress and coping in Australian nurses: a systematic review. *International Nursing Review*, 57(1), 22-31. <https://doi.org/10.1111/j.1466-7657.2009.00765.x>
- Liu, X., Zhao, Y., Li, J., Dai, J., Wang, X., & Wang, S. (2020). Factor structure of the 10-item perceived stress scale and measurement invariance across genders among Chinese adolescents. *Frontiers in Psychology*, 11, 537. <https://doi.org/10.3389/fpsyg.2020.00537>
- Lunsky, Y., Fung, K., Lake, J., Steel, L., & Bryce, K. (2018). Evaluation of Acceptance and Commitment Therapy (ACT) for Mothers of Children and Youth with Autism Spectrum Disorder. *Mindfulness*, 9(4), 1110-1116. <https://doi.org/10.1007/s12671-017-0846-3>
- McVicar, A. (2003). Workplace stress in nursing: a literature review. *Journal of Advanced Nursing*, 44(6), 633-642. <https://doi.org/10.1046/j.0309-2402.2003.02853.x>
- Melnyk, B. M., Hrabe, D. P., & Szalacha, L. A. (2013). Relationships among work stress, job satisfaction, mental health, and healthy lifestyle behaviors in new graduate nurses attending the nurse athlete program: a call to action for nursing leaders. *Nursing Administration Quarterly*, 37(4), 278-285. <https://doi.org/10.1097/NAQ.0b013e3182a2f963>

- Moher, D., Hopewell, S., Schulz, K. F., Montori, V., Gøtzsche, P. C., Devereaux, P. J., Elbourne, D., Egger, M., & Altman, D. G. (2012). CONSORT 2010 explanation and elaboration: updated guidelines for reporting parallel group randomised trials. *International Journal of Surgery*, *10*(1), 28-55.
<https://doi.org/10.1016/j.ijssu.2011.10.001>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine*, *6*(7), e1000097-e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- Moos, R. H. (2002). Life stressors, social resources, and coping skills in youth: applications to adolescents with chronic disorders. *Journal of Adolescent Health*, *30*(4), 22-29.
[https://doi.org/10.1016/S1054-139X\(02\)00337-3](https://doi.org/10.1016/S1054-139X(02)00337-3)
- Newport, D. J., & Nemeroff, C. B. (1998). Assessment and treatment of depression in the cancer patient. *Journal of Psychosomatic Research*, *45*(3), 215-237.
[https://doi.org/10.1016/S0022-3999\(98\)00011-7](https://doi.org/10.1016/S0022-3999(98)00011-7)
- Noone, S. J., & Hastings, R. P. (2010). Using Acceptance and Mindfulness-Based Workshops with Support Staff Caring for Adults with Intellectual Disabilities. *Mindfulness*, *1*(2), 67-73. <https://doi.org/10.1007/s12671-010-0007-4>
- Oliver, J. (2011 January). *The Unwelcome Party Guest - an Acceptance & Commitment Therapy (ACT) Metaphor*. Youtube. <https://www.youtube.com/watch?v=VYht-guymF4>
- Ost, L.-G. (2014). The efficacy of Acceptance and Commitment Therapy: An updated systematic review and meta-analysis. *Behaviour Research and Therapy*, *61*, 105-121.
<https://doi.org/10.1016/j.brat.2014.07.018>

- Pan, C., Yang, W., Jia, W., Weng, J., & Tian, H. (2009). Management of Chinese patients with type 2 diabetes, 1998–2006: the Diabcare-China surveys. *Current Medical Research and Opinion*, 25(1), 39-45. <https://doi.org/10.1185/03007990802586079>
- Pasila, K., Elo, S., & Kääriäinen, M. (2017). Newly graduated nurses' orientation experiences: A systematic review of qualitative studies. *International Journal of Nursing Studies*, 71, 17-27. <https://doi.org/10.1016/j.ijnurstu.2017.02.021>
- Price, S. (2002). The recruitment and retention of children's nurses. *Paediatric Nursing*, 14(6), 39-43. <https://doi.org/10.7748/paed.14.6.39.s25>
- Quinn, J. (2004). Understanding working-class 'drop-out' from higher education through a sociocultural lens: Cultural narratives and local contexts. *International Studies in Sociology of Education*, 14(1), 57-74. <https://doi.org/10.1080/09620210400200119>
- Räsänen, P., Lappalainen, P., Muotka, J., Tolvanen, A., & Lappalainen, R. (2016). An online guided ACT intervention for enhancing the psychological wellbeing of university students: A randomized controlled clinical trial. *Behaviour Research and Therapy*, 78, 30-42. <https://doi.org/10.1016/j.brat.2016.01.001>
- Reem, A.-D., Panagiota, K., & Maddox, P. (2014). The impact of residency programs on new nurse graduates' clinical decision-making and leadership skills: A systematic review. *Nurse Education Today*, 34(6), 1024-1028. <https://doi.org/10.1016/j.nedt.2013.10.006>
- Reinhard, P. (2017). *New Graduate Nurse Transition Programs: A Meta-Review* [ProQuest Dissertations Publishing].
- Ruiz, F. J. (2010). A review of Acceptance and Commitment Therapy (ACT) empirical evidence: Correlational, experimental psychopathology, component and outcome studies. *International Journal of Psychology and Psychological Therapy*, 10(1), 125-162.

- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Ryff, C. D., & Keyes, C. L. M. (1995a). The Structure of Psychological Well-Being Revisited. *Journal of Personality and Social Psychology*, 69(4), 719-727. <https://doi.org/10.1037/0022-3514.69.4.719>
- Ryff, C. D., & Keyes, C. L. M. (1995b). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719.
- Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child & Adolescent Health*, 2(3), 223-228. [https://doi.org/10.1016/S2352-4642\(18\)30022-1](https://doi.org/10.1016/S2352-4642(18)30022-1)
- Stamm, B. H. (2005). Professional quality of life scale. *Psychological Trauma: Theory, Research, Practice, and Policy*.
- Stamm, B. H. (2010). *The Concise ProQOL Manual* (2nd ed.). Pocatello, ID: ProQOL.org.
- Stenhoff, A., Steadman, L., Nevitt, S., Benson, L., & White, R. G. (2020). Acceptance and commitment therapy and subjective wellbeing: A systematic review and meta-analyses of randomised controlled trials in adults. *Journal of Contextual Behavioral Science*, 18, 256-272. <https://doi.org/10.1016/j.jcbs.2020.08.008>
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (Vol. 6). Pearson Boston, MA.
- Teoh, Y. T. E., Pua, L. H., & Chan, M. F. (2013). Lost in transition — A review of qualitative literature of newly qualified Registered Nurses' experiences in their transition to practice journey. *Nurse Education Today*, 33(2), 143-147. <https://doi.org/10.1016/j.nedt.2012.08.016>

- Tingleff, E. B., & Gildberg, F. A. (2014). New graduate nurses in transition: A review of transition programmes and transition experiences within mental health care: New Graduate Nurses in Transition. *International Journal of Mental Health Nursing*, 23(6), 534-544. <https://doi.org/10.1111/inm.12087>
- Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 Well-Being Index: a systematic review of the literature. *Psychotherapy and Psychosomatics*, 84(3), 167-176. <https://doi.org/10.1159/000376585>
- Tufanaru, C., Munn, Z., Aromataris, E., Campbell, J., & Hopp, L. (2020). *JBIM Manual for Evidence Synthesis*. <https://jbi-global-wiki.refined.site/space/MANUAL>
- TWGHs Ho Yuk Ching Educational Psychology Service Centre. (2020 October). 【接納與承諾療法: 心理教育短片】 4: 內心的掙扎 (國際象棋) [Video]. Youtube. <https://www.youtube.com/watch?v=13LDYw4AKOU>
- TWGHs Ho Yuk Ching Educational Psychology Service Centre. (2020 September). 【接納與承諾療法: 心理教育短片】 2: 迴轉壽司比喻 [Video]. Youtube. <https://www.youtube.com/watch?v=pyRj5n7jBb4>
- Tyler, P. A., & Ellison, R. N. (1994). Sources of stress and psychological well-being in high-dependency nursing. *Journal of Advanced Nursing*, 19(3), 469-476. <https://doi.org/10.1111/j.1365-2648.1994.tb01109.x>
- van Agteren, J., Iasiello, M., Lo, L., Bartholomaeus, J., Kopsaftis, Z., Carey, M., & Kyrios, M. (2021). A systematic review and meta-analysis of psychological interventions to improve mental wellbeing. *Nature Human Behaviour*, 5(5), 631-652. <https://doi.org/10.1038/s41562-021-01093-w>
- Van der Gucht, K., Griffith, J. W., Hellemans, R., Bockstaele, M., Pascal-Claes, F., & Raes, F. (2017). Acceptance and Commitment Therapy (ACT) for Adolescents: Outcomes

- of a Large-Sample, School-Based, Cluster-Randomized Controlled Trial. *Mindfulness*, 8(2), 408-416. <https://doi.org/10.1007/s12671-016-0612-y>
- van Rooyen, D. R. M., Jordan, P. J., ten Ham-Baloyi, W., & Caka, E. M. (2018). A comprehensive literature review of guidelines facilitating transition of newly graduated nurses to professional nurses. *Nurse Education in Practice*, 30, 35-41. <https://doi.org/10.1016/j.nepr.2018.02.010>
- Viner, R. (2003). Adolescent medicine. In *McIntosh et al (Eds) Forfar and Arneil's Textbook of Pediatrics (6th Ed.)*. Churchill Livingstone.
- Viskovich, S., & Pakenham, K. I. (2020). Randomized controlled trial of a web-based Acceptance and Commitment Therapy (ACT) program to promote mental health in university students. *Journal of Clinical Psychology*, 76(6), 929-951. <https://doi.org/10.1002/jclp.22848>
- Waite, R. (2004). Psychiatric Nurses: Transitioning from Student to Advance Beginner RN. *Journal of the American Psychiatric Nurses Association*, 10(4), 173-180. <https://doi.org/10.1177/1078390304267926>
- Waite, R. (2006). The psychiatric educational experiences of advance beginner RNs. *Nurse Education Today*, 26(2), 131-138. <https://doi.org/10.1016/j.nedt.2005.08.005>
- Weiss, L. A., Westerhof, G. J., & Bohlmeijer, E. T. (2016). Can We Increase Psychological Well-Being? The Effects of Interventions on Psychological Well-Being: A Meta-Analysis of Randomized Controlled Trials. *PLoS ONE*, 11(6), e0158092-e0158092. <https://doi.org/10.1371/journal.pone.0158092>
- Whitehead, A. L., Julious, S. A., Cooper, C. L., & Campbell, M. J. (2016). Estimating the sample size for a pilot randomised trial to minimise the overall trial sample size for the external pilot and main trial for a continuous outcome variable. *Statistical*

Methods in Medical Research, 25(3), 1057-1073.

<https://doi.org/10.1177/0962280215588241>

Whitehead, B., Owen, P., Holmes, D., Beddingham, E., Simmons, M., Henshaw, L., Barton, M., & Walker, C. (2013). Supporting newly qualified nurses in the UK: A systematic literature review. *Nurse Education Today*, 33(4), 370-377.

<https://doi.org/10.1016/j.nedt.2013.01.009>

World Health Organization. (2001). The World health report : 2001 : Mental health : new understanding, new hope. In. Geneva: World Health Organization.

World Health Organization. (2004). Promoting mental health : concepts, emerging evidence, practice : summary report / a report from the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne. In. Geneva: World Health Organization.

World Health Organization. (2013). *Mental Health Action Plan 2013-2020*. World Health Organization.

World Health Organization. (2018). *Mental health: strengthening our response*.

<https://www.who.int/en/news-room/fact-sheets/detail/mental-health-strengthening-our-response>

World Health Organization. (2021). *Comprehensive Mental Health Action Plan 2013-2030*. World Health Organization.

Wu, T.-Y., Fox, D. P., Stokes, C., & Adam, C. (2012). Work-related stress and intention to quit in newly graduated nurses. *Nurse Education Today*, 32(6), 669-674.

<https://doi.org/10.1016/j.nedt.2011.09.002>

Xie, B. (2006). Perceptions of computer learning among older Americans and older Chinese.

First Monday, 11 (10). <https://doi.org/10.5210/fm.v11i10.1408>

- Yamashita, K., Saito, M., & Takao, T. (2012). Stress and coping styles in Japanese nursing students: Stress and coping in nursing students. *International Journal of Nursing Practice, 18*(5), 489-496. <https://doi.org/10.1111/j.1440-172X.2012.02056.x>
- Zhang, C. Q., Chung, P. K., Si, G., & Liu, J. D. (2014). Psychometric properties of the Acceptance and Action Questionnaire–II for Chinese college students and elite Chinese athletes. *Measurement and Evaluation in Counseling and Development, 47*(4), 256-270. <https://doi.org/10.1177/0748175614538064>
- Zhao, F.-F., Lei, X.-L., He, W., Gu, Y.-H., & Li, D.-W. (2015). The study of perceived stress, coping strategy and self-efficacy of Chinese undergraduate nursing students in clinical practice. *International Journal of Nursing Practice, 21*(4), 401-409. <https://doi.org/10.1111/ijn.12273>