

UNIVERSITY OF KWAZULU-NATAL

**THE USE OF MINDFULNESS BREATH MEDITATION WITH
UNIVERSITY OF KWAZULU-NATAL STUDENTS AS A TOOL IN
REDUCING ATTENTION DEFICIT AND HYPERACTIVITY
DISORDER (ADHD) SYMPTOMS AND ENHANCING POSITIVE
EMOTIONS.**

**BY
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**A dissertation submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy**

**Discipline of Psychology
School of Applied Human Sciences
College of Humanities**

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DECLARATION

I, Faaiza B Shaikh, declare that:

- (i) The research reported in this dissertation, except where otherwise indicated, is my original work.
- (ii) This dissertation has not been submitted for any degree or examination at any other university.
- (iii) This dissertation does not contain other persons' data, pictures, graphs, or other information, unless specifically acknowledged as being sourced from said persons.
- (iv) This dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written resources have been quoted, then:
 - a. Their words have been rewritten but the general information attributed to them has been referenced,
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Signed: *f.shaikh*

Date: 28 June 2018

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- My colleagues for the impromptu moments of clarification and for their support.
- My Supervisor.
- The Disability Unit, UKZN.

DEDICATION

I dedicate this study to:

- My Dad, who has passed on. Thanks for believing in me and supporting me along the way.
- To all who may benefit from my research findings

ABSTRACT

This study explored the management of Attention Deficit and Hyperactivity Disorder (ADHD) symptoms experienced by ADHD students at University of KwaZulu-Natal and examined the use of Mindfulness Breath Meditation as a management coping mechanism/strategy for addressing ADHD symptoms. The study employed a qualitative research design in order to gain insights into students experiences of ADHD, with specific reference to: (a) the ways in which participants experienced their ADHD symptoms, (b) the ways in which participants coped with symptoms of ADHD (c) issues of access and accommodation regarding ADHD, and (d) participants experiences of a mindfulness breath meditation intervention. A case study approach was adopted with five students living with ADHD who were receiving support with the Disability Unit on campus. Data were collected through: interviews with students and with service providers from the Disability Unit, documentation analysis of personal files of participants and of documented policies relating to access and accommodation for students with ADHD. In addition, a mindfulness breath meditation intervention strategy was implemented over a three month period. Study findings suggest that ADHD does impact on the functioning of ADHD student, and that ADHD students develop coping mechanisms and access services on campus. However, ADHD students experience many challenges, with a more integrated approach to management and accommodation being needed to address these challenges. Insights were also gained regarding the way in which participants experienced the Mindfulness Breath Meditation intervention, with recommendations being made regarding how future interventions may more effectively be implemented as an intervention.

TABLE OF CONTENTS

	DECLARATION	ii
	ACKNOWLEDGEMENTS	iii
	DEDICATION	iv
	ABSTRACT	v
	TABLE OF CONTENTS	vi
	LIST OF TABLES	xiv
	ABBREVIATIONS	xv
Chapter 1	CONTEXTUAL AND THEORETICAL FRAMEWORK	1
1.1	Introduction to the study	1
1.2	Research questions	4
1.3	Key areas of Investigation	4
1.4	Relevance of the study	5
1.5	Theoretical Framework	6
	1.5.1 Bio-psychosocial model	6
	1.5.2 Breath-based mental health	7
	1.5.3 Principles of mindfulness-based meditation	7
1.6	Methodology	7
1.7	Study limitations	9
1.8	Structure of the dissertation	10
Chapter 2	UNDERSTANDING ATTENTION DEFICIT AND HYPERACTIVITY DISORDER (ADHD)	13
2.1	Introduction	13
2.2	Overview of Attention Deficit Hyperactivity Disorder (ADHD)	13
	2.2.1 Classification	13
	2.2.2 Diagnosis of ADHD	16
	2.2.3 Manifestations of ADHD	18
	2.2.4 Aetiological factors	19
	2.2.4.1 The nature perspective	19

	2.2.4.2 The nurture perspective	20
	2.2.4.3 The nurtured-nature perspective	21
	2.2.4.4 Criticism of ADHD as a diagnosis	21
2.3	University students with ADHD	22
	2.3.1 Prevalence	22
	2.3.2 Academic functioning	23
	2.3.3 Social functioning	27
	2.3.4 Psychological Functioning	28
	2.3.5 Neuropsychological Functioning	32
2.4	Conclusion	34
Chapter 3	ADHD WITHIN THE DISABILITY FRAMEWORK	36
3.1	Introduction	36
3.2	Prevalence of Disability	36
	3.2.1 Barriers to addressing and understanding disability	37
3.3	Disability as a human rights issue - legal framework	39
	3.3.1 United Nation Convention on the Rights of People with Disabilities (2007)	39
	3.3.2 The Constitution of the Republic of South Africa (Act 108 of 1996)	40
	3.3.3 The White Paper on Disability on an integrated National Disability Strategy	40
	3.3.4 Employment Equity Act of 1998	41
	3.3.5 Skills Development Act 1998	42
	3.3.6 Other policies	42
	3.3.7 Legislation relating to Education systems – Disability and inclusive education	42
	3.3.7.1 South African Schools Act 1996	43
	3.3.7.2 White Paper 6 on Special Needs Education (2001)	44
	3.3.7.3 Criticism of current legislation	44
3.4	Accommodating disability in higher education: a case study of the University of KwaZulu-Natal (UKZN)	45

	3.4.1 The nature and scope of disability at UKZN	45
	3.4.2 UKZN Policy on Staff and Students with Disabilities, 2004	47
	3.4.2.1 Guidelines for creating an enabling environment	48
	3.4.2.2 Physical and academic support for various types of Disability	51
	3.4.2.2.1 Physical Access support	51
	3.4.2.2.2 Academic support	52
	3.4.2.2.3 Tests and examinations	53
	3.4.3 Challenges faced by the Disability Office	54
	3.4.3.1 Disability Policy challenges and recommendation	54
	3.4.3.2 Staffing challenges and recommendations	55
	3.4.3.3 Space challenge and recommendation	55
	3.4.3.4 Funding challenges and recommendations	56
	3.4.3.5 Attitudinal barriers challenges and Recommendations	56
	3.4.3.6 Information Technology (IT)	57
	3.4.3.7 Accessing challenges and recommendations	57
	3.4.3.8 Current model challenges and recommendations	58
3.5	Conclusion	58
Chapter 4	MANAGEMENT OF ADHD	60
4.1	Introduction	60
4.2	Biopsychosocial management	60
	4.2.1 Biophysical interventions	60
	4.2.1.1 Pharmacotherapy	61
	4.2.1.2 Neuro-feedback therapy	63
	4.2.1.3 Diet therapy	63
	4.2.2 Psychological and Social management	65
	4.2.2.1 Behaviour therapy	65
	4.2.2.2 Cognitive behavioural therapy (CBT)	66
	4.2.2.3 The Strength-Based Perspective	68
	4.2.2.4 Psychosocial education	68

	4.2.2.5 Coaching in ADHD	69
	4.2.3 The Efficacy of Biophysical and Psychosocial Interventions	69
4.3	Conclusion	71
Chapter 5	MEDITATION PRACTICES AND THE MANAGEMENT OF ADHD	72
5.1	Introduction	72
5.2	Meditation	72
	5.2.1 Meditation practices	72
	5.2.2 Types of meditation	74
	5.2.3 Techniques of contemplation and concentration	75
	5.2.3.1 Mindfulness	77
	5.2.3.2 Breath	77
	5.2.4 Meditation styles and techniques	79
	5.2.5 Length of meditation practice	82
5.3	Meditation as a management tool	83
	5.3.1 Meditation and the management of ADHD	83
	5.3.2 The use of meditation in university/college settings	86
5.4	Conclusion	88
Chapter 6	METHODOLOGY	90
6.1	Key research questions	90
6.2	Type of research	91
6.3	Research design	93
6.4	Sampling method	94
	6.4.1 Purposive Sampling	94
	6.4.2 Sample recruitment	95
6.5	Case Studies	96
6.6	Procedure	97
	6.6.1 Interviews	98
	6.6.2 Document perusal	99

	6.6.3 Training and implementation of mindfulness breath meditation	100
	6.6.3.1 Preliminary planning meeting	100
	6.6.3.2 Practice meeting	101
	6.6.3.3 Implementation meeting	101
6.7	Reflexivity	101
6.8	Data Analysis	103
	6.8.1 Interpretive Data Analysis	103
	6.8.2 Assessing the impact of mindfulness breath meditation	106
6.9	Credibility of research findings	106
6.10	Ethical Considerations	109
6.11	Conclusion	110
Chapter 7	RESEARCH FINDINGS 1: DESCRIPTIONS OF ADHD WITHIN THE UNIVERSITY CONTEXT	111
7.1	Demographics	111
	7.1.1 Information on ADHD students	111
	7.1.2 ADHD status	111
7.2	Manifestation of ADHD Symptoms	113
	7.2.1 Inattention/Distractibility	113
	7.2.2 Hyperactivity	114
	7.2.3 Impulsivity	114
	7.2.4 Dyslexia	115
	7.2.5 Anxiety	116
7.3	Symptom manifestation	116
	7.3.1 Lectures: challenges and coping mechanisms	116
	7.3.1.1 Challenges	116
	7.3.1.2 Coping Strategies	119
	7.3.2 Assignments: challenges and coping mechanisms	122
	7.3.2.1 Challenges	122
	7.3.2.1 Coping mechanisms	123
	7.3.3 Tests and exams: challenges and coping mechanisms	124

	7.3.3.1 Challenges	124
	7.3.3.2 Coping mechanisms	127
	7.3.4 Reading, comprehension, and writing: challenges and coping mechanisms	129
	7.3.4.1 Challenges	129
	7.3.4.2 Coping mechanisms	130
	7.3.5 Social relationships	132
	7.3.5.1 Challenges with friends	132
	7.3.5.2 Challenges with lecturers	133
	7.3.7 Self-confidence	134
	7.3.7.1 Challenges	134
	7.3.7.2 Coping mechanisms	134
	7.3.8 Adapting to campus life	135
	7.3.8.1 Challenges	135
	7.3.8.2 Coping mechanism	135
7.4	Accessing services for disabled students	136
7.5	Summary of key findings	138
7.6	Conclusions	141
Chapter 8	RESEARCH FINDINGS 2: SERVICE PROVISION BY DISABILITY UNIT TO ADHD STUDENTS.	143
8.1	Service provision: Role of Disability Unit	143
8.2	General services provided to students with disabilities include	144
8.3	Specific services provided to ADHD students.	147
8.4	Challenges experienced by Disability Unit	148
8.5	Future recommendation	155
8.6	Conclusions	160
Chapter 9	RESEARCH FINDINGS 3: EFFECTS OF MINDFULNESS MEDITATION ON STUDENTS WITH ADHD	163
9.1	Implementation of Mindfulness Breath Meditation	163
	9.1.1 Reasons for failing to effectively implement meditations	164

	9.1.2 Recommendations for future implementations	168
9.2	Effect of meditation	169
	9.2.1 Participants' responses in interviews	169
	9.2.2 Summaries of students' interviews regarding the effects of Mindfulness Breath	169
9.3	Adult ADHD symptom evaluation	172
9.4	Comparison of first and second semester exam results	175
9.5	Summary of key findings	176
Chapter 10	DISCUSSION OF RESEARCH FINDINGS	177
10.1	Presentation of Symptoms	177
	10.1.1 Bio-physical presentation of symptoms	177
	10.1.2 Emotional and social presentation of symptoms	180
	10.1.2.1 Stigma, disclosure, stress	180
	10.1.2.2 Confidence, self-esteem and social relationships	181
10.2	Management and Accommodation	182
	10.2.1. Teaching and Learning Accommodations	182
	10.2.2 Support Service Provision by the Disability Unit	185
	10.2.3 Personal Management style of participants	188
10.3	Mindfulness Breath Meditation	188
	10.3.1 Direct effects of intervention	188
	10.3.2 Qualitative analysis of participants' experiences of the MBM intervention	189
10.4	Summary of key findings	190
10.5	Implications	191
10.6	Strengths and limitations	191
Chapter 11	RESEARCHER AS AN INSTRUMENT IN THE RESEARCH PROCESS: Personal Reflection on Completing this Dissertation	193
11.1	Professional Development	193
11.2	Personal development.	194

11.3	Other challenges experienced with the research process and techniques employed to manage them	195
	REFERENCE	197
	APPENDICE	214

LIST OF TABLES

Table 6.1	General information about ADHD students participating in this research	96
Table 6.2	Strategies to ensure the credibility of qualitative research	107
Table 7.1	Participants' ADHD status	112
Table 7.2	ADHD challenges and coping mechanisms and services within the University context	138
Table 8.1	Experiences of the Disability Unit: Services provided, challenges experienced and future recommendations	161
Table 9.1	Implementation of Mindfulness Breath Meditation twice a day over three-month period 15 August to 15 November 2011 (total 184 days)	164
Table 9.2	Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist	172
Table 9.3	Analysis of first and second semester pass rate of participants	175
Table 10.1	Different perspectives on ADHD symptoms	179

ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity
APA	American Psychiatric Association
APM	Average percent mark
ASD	Autism spectrum disorder
BAS	Behavioral Activation System
BIS	Behavioral Inhibition System
CBT	Cognitive Behavioral Therapy
CD	Compact disc
DSM –IV-TR	Diagnostic and Statistical Manual of Mental Disorders (4 th Edition, Text Revision)
DSM-V	Diagnostic and Statistical Manual of Mental Disorders (5 th Edition)
DSU	Disability Support Unit
GPA	Grade point average
HKD	Hyperkinetic Disorder
ICD -10	International Classification of Diseases (10 th Edition)
IT	Information technology
LAN	Local area network
MBCT	Mindfulness-based cognitive therapy

NGO	Non -Governmental Organisation
O & M	Orientation and mobility
RSA	Republic of South Africa
SCC	Student Counselling Centre
SBP	Strength Based Perspective
SMS	Student Management Systems/ or Short message service
TM	Transcendental Meditation
TOVA	Tests of Variables of Attention
UKZN	University of KwaZulu-Natal
WAIS-R	Wechsler Adult Intelligence Scales (Revised)
WHO	World Health Organization

CHAPTER 1

CONTEXTUAL AND THEORETICAL FRAMEWORK

1.1 Introduction to the study

Attention Deficit Hyperactivity Disorder (ADHD) as noted in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V, 2013) or *Hyperactivity Disorder* as noted in the *International Classification of Diseases* (ICD 10, 1992) – is generally described as a disorder characterized by a persistent pattern of inattention and/or hyperactivity-impulsivity. In the past, ADHD as a diagnosis was reserved only for children (DSM-IV, 2000). However, in recent years it has increasingly been acknowledged that ADHD is a condition that often continues into adulthood (DSM-V, 2013). According to Faraone et al. (2003), ADHD affects 8% to 12% of children world-wide, with Kirley (2007) noting that longitudinal studies indicate that ADHD can persist into adulthood in up to 50% to 75% of cases, with an adult prevalence of 1% to 4.7%. These findings impact greatly on the functioning of people diagnosed with ADHD who face potentially ongoing risks of “...*adverse outcomes including educational and occupational underachievement, antisocial behaviour, and delinquency*” (Sharkey & Fitzgerald, 2007, p. 13). Further, within tertiary institutions, the major symptoms of ADHD may pose many challenges for university/college students (Nadeau, 2006; Quinn, 1994).

The DSM-V (2013) defines Attention Deficit Hyperactivity Disorder (ADHD) as a neuro-developmental disorder characterized by a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development. For children, the diagnosis requires that six or more of the ADHD diagnostic criteria must be evident continuously for six months in at least two settings (e.g., home, school, and/or at work). Clear evidence of impairment of

developmentally appropriate social, academic, and/or occupational functioning must be present. For older adolescents (age 17 and older) and adults, at least five of the ADHD diagnostic criteria need to be met.

According to Mather (2012), two primary ideologies/beliefs exist surrounding the causes, diagnosis, and treatment of ADHD. Some authors emphasise the aetiological significance of bio-genetic factors and maintain that ADHD can be inherited; with extensive empirical support for a bio-genetic hypothesis having emerged in studies conducted largely in North America and Australia. A second group of researchers (based largely in the United Kingdom) maintain that the causes of ADHD are largely psychological or psychosocial in nature.

Consistent with these diverse perspectives on aetiology, management and intervention techniques used to treat ADHD vary along a continuum ranging from pharmacotherapy to psycho-social therapy. At one end of this continuum, the use of stimulant medication (e.g., Ritalin or Concerta) is used to decrease symptoms of restlessness, impulsivity, and hyperactivity associated with ADHD (Santosh, 2007; Lavenstein, 1994; Pierce, 2008; Solanto et al, 2007). At the other end of this continuum, psychosocial therapies – including behavioural therapy and cognitive behavioural therapy – have been employed in order to provide skills required to regulate behaviour and/or thought patterns, and to alter the immediate consequences of undesirable behaviour associated with ADHD (Brock et al, 2009; Green and Chee, 1995; Kelly & Ramundo, 1996; Bellgrove & Taylor, 2007; Goldstein & Brooks, 2007; Young, 2007; Sinclair, 2007). Within university contexts, in addition to the above mentioned management strategies, students with ADHD are required to receive support and accommodation from structures within the university (United Nation Convention on the Rights of People with Disabilities, 2007; The Constitution, Act No. 108 of 1996; The

White Paper on an Integrated National Disability Strategy, 1997; South African School Act, 1996; Skills Development Act, 1998 and the White Paper on Special Needs Education, 2001).

More recently, within the mental health professions framework, there have been active attempts to extend interventions with mental disorders to more comprehensively embrace a true bio-psycho-social perspective; with this development having led to an increased focus on innovative interventions (such as meditation, mindful living, and moment living) designed to address issues relating to self-awareness, self-regulation, and self-management in the management of an individual's mental health and wellbeing (Grosswald et al., 2008; Zylowska et al., 2008).

Innovative strategies which have been applied with some degree of success in the treatment of ADHD include the use of : (a) mindful meditation with both adolescent and adult clients (Jain et al., 2007; Zylowska et al., 2008), (b) meditation techniques to reduce symptoms of ADHD through the reduction of stress and anxiety (Grosswald et al., 2008; Lazar et al., 2005), (c) mindfulness training for adolescents, and for the parents of adolescents, with externalizing disorders (Bögels et al.,2008), (d) Sahaja yoga meditation as a family treatment programme for children with ADHD (Harrison et al., (2004), and, (e) with specific reference to college students, the use of mindfulness-based stress reduction (Shapiro et al, 2007) and meditation techniques as strategies for relieving stress and enhancing academic performance in samples of tertiary education students (Hall, 1999).

Drawing on the above studies, the present research will explore the needs and challenges faced by University of KwaZulu-Natal (UKZN) students with ADHD who attempt to access support from the Disability Unit on Campus. The coping strategies employed by these students will be examined and an effort will be made to explore whether mindfulness breath meditation as an intervention tool assists students to manage their symptoms within a tertiary educational context.

1.2 Research questions

In exploring this topic, the researcher will examine: how university students experience their ADHD symptoms in the University context, what coping strategies and management tools these students employ to manage these symptoms, issues of access and accommodation from the university, and whether mindfulness breath meditation practices assist students in managing their ADHD symptoms and wellbeing on campus. Thus, the research questions guiding this research will be:

- How does ADHD impact on student's university life at a bio-psycho-social level?
- What coping strategies/mechanisms do students utilise/develop to cope with issues/concerns relating to ADHD (are these strategies/mechanisms effective, and what more is required)?
- What types of access and accommodation services does the university provide to these students?
- How does mindfulness breath meditation practice impact on students in managing their ADHD symptoms and their wellbeing on campus?

1.3 Key areas of Investigation

Thus, this study will explore two key area. First, that a more integrated approach is needed in addressing symptoms and management of ADHD at university, and second, that mindfulness breath meditation training as a self-regulatory management tool will assist students in regulating their experiences of ADHD symptoms on campus.

1.4 Relevance of the study

While the present research has direct relevance to the management of ADHD symptoms within a tertiary educational context, it also has broader relevance within the human rights and equal access to education debate, which is occurring at both local and international levels (World Health Organization Report on Disabilities, 2011; Stanley, 2005; Chan et al., 2011).

The research also has relevance to recent trends in the management of mental health symptoms; with such management strategies having tended increasingly to involve holistic interventions. In recent years, a number of innovative attempts have been made to combine eastern and western approaches to mental health management, leading to an increased focus on alternative interventions such as mindfulness and meditation. For example, studies on the effects of meditation on ADHD symptoms have found that meditation can lead to improvements in levels of anxiety, depression, and stress, as well as to improvements in: (a) ADHD symptoms and executive functioning, (b) attention, impulsivity, and awareness, and (c) self-esteem, relationship quality, and sleep patterns (Zylowska et al., 2008; Grosswald et al., 2008, Bogel et al., 2008, Harrison et al, 2004; Jha et al., 2007; Lazar et al., 2005). With specific reference to university/college settings, meditation has been found to be associated with:

- improvement in GPA scores (Hall, 1999);
- decreased levels of anxiety and depression (Shapiro et al., 1998);
- declines in perceived stress, negative affect, rumination, state and trait anxiety, and significant increases in positive affect (Shapiro et al., 2007);
- reductions in stress, anxiety, and depressive symptoms significantly decreased (Tloczynski & Tantriella, 1998);

- significant positive change in interpersonal relationships (Tloczynski & Tantriella, 1998);
- distress reduction and enhancement of positive mood (Jain et al., 2007); and
- reduced levels of examination anxiety (Stueck & Gloeckner, 2005).

1.5 Theoretical Framework

The theoretical frameworks guiding this research include the bio-psychosocial model, perspectives on breath-based mental health, as well as the principles of mindfulness breath meditation.

1.5.1 Bio-psychosocial model

In the present study, ADHD was conceptualised in terms of biological, psychological, and social factors involved in the emergence of symptoms and, more importantly, in the management of these symptoms. At a biological level, symptoms of ADHD include inattention, hyperactivity, and impulsivity, with the management of these symptoms invariably tending to emphasise medication (Santosh, 2007, Lavenstein, 1994, Peirce, 2008, Salanto, 2007). At a psychological level, symptoms of ADHD include a low frustration threshold, low self-esteem, and inflexibility – with the management of such symptoms tending to involve a variety of therapeutic interventions including behaviour modification and cognitive restructuring (Brooks et al, 2009, Green & Chee, 1995, Kelly and Rumundo, 1996, Sinclair, 2007). At an academic level, symptoms of ADHD may converge with symptoms of specific learning disabilities (in reading, writing, spelling, language, mathematics, or a combination of all of these) which is likely to impact on the individual's ability to participate in lectures and on the individual's ability to co-ordinate and to optimally perform in assignments, tests, and exams (Nadeau, 2006; Quinn, 1994).

1.5.2 Breath-based mental health

This study was guided by the breath-based mental health framework and the principles of mindfulness meditation. Mindfulness breath meditation, as an intervention strategy for ADHD symptoms, will be utilized in this research and will inform the intervention strategy. A breath based mental health framework is based on the premise that the free flow of breath through the body can ensure total wellbeing (on a physical, emotional, psychological, and spiritual level) as this free flow of breath ensures a connection between body and mind (Dodds, 2008., Martin, 2008., Greenway, 2008., Sherwood, 2008., Edgards, 2008.)

1.5.3 Principles of mindfulness-based meditation

Mindful-based meditative interventions attempt to develop in the individual a full awareness of the present moment and are directed at attempts to develop an attitude of acceptance and curiosity towards the self and self-experiences through the use of meditation exercises (Kristeller, 2007; Shapiro, Brown, & Biegel, 2007; Zylowska et al., 2008). In mindfulness meditation, one is simply aware of what is happening in the body, in the emotions and/or the thoughts, without attempts being made to judge or to label such experiences.

1.6 Methodology

The present research is essentially exploratory in nature, as the use of mindfulness breath meditation with ADHD university students is a largely under-researched topic. The research employed qualitative research methodologies which were designed to yield detailed explanations and in-depth information on the topic being researched (Henning, et al., 2005; Terre Blanche et al., 2007; De Vos, 1998). Consistent with the researcher's desire to obtain

detailed description and in-depth information, a case study approach was employed.

According to Stark & Tollance (2005, p. 33):

“case studies seek to engage with and report the complexity of social activity in order to represent the meanings that individual social actors bring to these settings and manufacture in them”.

Data for this research were collected in the context of a single system multi-phased design. One-on-one in-depth semi-structured conversational style interviews (with the help of an interview guide) were conducted at different phases in the implementation of the research.

According to Robson (1993, p. 230), semi-structured interviews are:

“interviews where the interviewer has worked out a set of questions in advance, but is free to modify their order based on her perception of what seems most appropriate in the context of the conversation, can change the way they are worded, give explanations, leave out particular questions which seem inappropriate with a particular interviewee or include additional ones....”.

The sampling method utilized was non-probability purposive sampling. According to Bailey (1987), in non-probability sampling the sample cannot be assumed to be representative of the population, and thus generalizations to the study population needs to be made with due caution. There are different types of sampling methods within non-probability sampling. In purposive sampling, the sample is deliberately selected from individuals who are likely to produce the most valuable data (De Vos, 1998). The present study sample was accessed from students who had visited the Disability Office on the Howard College Campus of the University of KwaZulu-Natal. Consistent with the fact that the research was qualitative in nature, in-depth interviews were conducted with a small number of participants ($N = 5$).

Data reduction involved the use of qualitative content analysis, in terms of which data were divided into small units of meaning that were systematically coded and then grouped together into categories characterised by similar codes (Henning, 2005).

1.7 Study limitations

Although the present study represents seminal work in a University context, the study was characterised by a number of limitations. First, since this study was confined to students working with the Disability Office at the University of KwaZulu-Natal, the sample size was small ($N = 5$). This precluded the possibility of systematically evaluating treatment effects. Moreover, the availability of only a small sample of potential participants ruled out the possibility of meaningfully applying any inclusion/exclusion criteria in sample selection.

Second, because of limited resources, the researcher herself had to implement all interventions and obtain feedback from participants. These multiple roles adopted by the researcher may have consciously (or unconsciously) impacted on study findings.

Third, the intervention instrument (mindfulness breath meditation) employed by the researcher is a relatively new and unconventional strategy for addressing issues relating to ADHD, with the use of such a strategy possibly being viewed with some degree of scepticism by researchers and practitioners who favour conventional (and generally better researched) intervention strategies.

To address these limitations, the researcher attempted to utilize various data collection strategies, including one-on-one in-depth semi-structured interviews with participants that were conducted at various points during the intervention process. Also, the researcher attempted at all times to maintain her objectivity and to uphold her professional identity and commitment to professional ethics. In addition, all data collection sessions were recorded and the data analysis process was closely monitored by the research supervisor. Further, while

mindfulness breath meditation may not be viewed as a conventional intervention technique with ADHD, it is a technique which is supported by both the breath-based mental health framework and the mindfulness based meditation framework; frameworks which are increasingly garnering support from researchers and psychologists working in the field (Dodds, 2008; Kristeller, 2007; Martin, 2008; Greenway, 2008; Sherwood, 2008; Edgars, 2008; Shapiro et al., 2007; Zylowska et al., 2008).

1.8 Structure of the dissertation

Chapter one: Introduction. This chapter provides an introduction to the thesis, and addresses the motivation for the study, the key research questions, the research methodology, and the structure of the thesis.

Chapter two: Understanding ADHD. This chapter explores issues and debates regarding ADHD. Definitional issues and aetiological factors are addressed. Furthermore, behaviours that are associated with ADHD symptoms are addressed and the impact of such behaviours on learning, especially in tertiary settings, is explored.

Chapter three: ADHD within the Disability framework. This chapter examines and highlights some of the general debates on disability, with a focus on ADHD in the South Africa context, and with specific reference to ADHD in tertiary setting. ADHD is considered as a human rights issue in the context of both national and international legal frameworks. Furthermore, this chapter examines the service provided and challenges faced by the University of KwaZulu-Natal (UKZN) in providing services to students with disabilities, with special reference to students with ADHD.

Chapter four: Bio-psychosocial management of ADHD. This chapter examines the bio-psychosocial management and treatment of ADHD. Various forms of intervention

(pharmacotherapy, cognitive behaviour therapy, behaviour therapy, social skills training, and biofeedback) are discussed.

Chapter five: Meditation and management. This chapter examines different types and styles of meditation, and discusses the meaning and characteristics of key concepts, including *meditation* and *mindfulness*. It also explores research studies that have been conducted on meditation and ADHD generally and more specifically within tertiary settings.

Chapter six: Methodology. This chapter outlines the study methodology in terms of sampling strategies, assessment procedures, and data reduction techniques. Ethical issues relevant to the study are discussed.

Chapter seven: Research findings 1: Description of ADHD within the University context. This chapter provides descriptive information regarding the study sample (including their ADHD status). Thereafter: (a) participants' perceptions of ADHD symptoms are explored, (b) academic and social challenges/coping mechanisms associated with an ADHD diagnosis are examined, and (c) access to services for students with ADHD is critically evaluated. The chapter concludes with a summary of key findings.

Chapter eight: Research findings 2: Service Provision by the Disability Unit to ADHD students. The chapter provides data on service provision by the Disability Unit on campus. This section provides data on the role of the Disability Unit in terms of: general service provision as well as service provision to students with ADHD, challenges experienced by the Disability Unit, and future recommendations.

Chapter nine: Research findings 3: Effects of Mindfulness Breath Meditation on Students with ADHD. This chapter summarises research findings on the implementation of mindfulness breath meditation practice and the effects it has had on students' ADHD symptoms. Thus, it first provides data on the implementation process by examining how efficient students were in executing their meditation practice as well as challenges faced by

students. Second, it examines the effects that meditation had on the general symptoms of ADHD within the university contexts.

Chapter 10: Discussion of research findings. This chapter discusses and summarises the study findings. It examines common themes prevalent in the research, links these findings to the existing body of knowledge and research, makes suggestions for future research, highlights implications for practice, and discusses the study limitations.

Chapter eleven: Conclusion. This chapter summarises the main conclusions of the study as well as the broader implications of the study findings.

Chapter twelve: Researcher's reflections. A detailed account of researcher's journey during the research process is provided.

CHAPTER 2

UNDERSTANDING ATTENTION DEFICIT AND HYPERACTIVITY DISORDER (ADHD)

2.1 Introduction

Attention Deficit and Hyperactivity Disorder (ADHD) is a complex and dynamic condition that has been discussed for many decades, with there having been debates regarding the aetiology, classification, nomenclature, and management of ADHD. This chapter will examine and discuss some of these dynamics and debates. As far as possible, it will highlight issues relating to both children and adults, so as to broaden the scope and to provide a context and framework of issues relevant to the present research. The chapter will address aetiological and diagnostic issues relating to ADHD. Signs and symptoms of ADHD (both challenging and positive) are discussed in relation to their relevance to tertiary studies, and issues relating to ADHD comorbidities are explored.

2.2. Overview of Attention Deficit Hyperactivity Disorder (ADHD)

2.2.1. Classification

The classification of ADHD can be derived from two sources: the DSM-V (2013) and the International Classification of Mental and Behavioral Disorders (ICD 10, 1992). In the ICD 10 (1992), ADHD is referred to as Hyperkinetic Disorder (HKD).

The DSM-V classification is the classification system which is most more often relied on as it “...*better fits with clinical practice and current research*” (Asherson & Kooij, 2007. p 230); and further, all groups attending the European Network for Adult ADHD in

September 2003 indicated that they relied on the DSM classification. Mather (2012, p. 15) states that although *“many developing countries in the world follow the DSM... it is important to understand that mental disorders [in the DSM] are defined from the perspective of American science and ontology.”*

According to Toone (2002), the DSM and ICD 10 have much in common but differ in three respects. First, the two classificatory systems differ in terms of the symptoms they emphasise, the importance they place on symptom pervasiveness, and views regarding the treatment of co-morbid disorders. The DSM-V criteria identify a broader group of children with ADHD than are identified using HKD criteria (Asherson & Kooij, 2007). Second, the DSM V classifies symptomatology into two independent dimensions, whereas HKD requires the presence of symptoms from each of three symptom categories. Thus, the ICD 10 criteria for Hyperkinetic Disorder represent a more restricted application of DSM diagnostic criteria (Asherson & Kooij, 2007). And third, HKD requires separate reports on children’s behavioural impairment in two settings from at least two informants, whereas the DSM criterion of impairment in at least two situations can be based on the report of a single informant.

A further issue relevant to the classification of ADHD relates to whether a diagnosis of ADHD should be restricted to children or not. Initially ADHD was a condition reserved for children only, and, up until recently, classification systems for ADHD focused exclusively on the diagnosis of ADHD in children. However, this view has been challenged over the past few decades as more adults with ADHD type symptoms have been identified. It has increasingly been acknowledged that more than half of children diagnosed with ADHD carry some symptoms, or even the full ADHD-diagnosis, into adulthood (Faraone et al., 2006) and that the prevalence of ADHD in adults lies between 1% and 4% (Kessler et al., 2006; Polanczyk et al., 2007; Kooij et al., 2005). Barkley (2009) in his article “History of Adult

ADHD Pushed Back to 1798” argues that ADHD (including Adult ADHD) has a rich history of clinical and scientific research that spans over 200 years.

Concerns have been raised that Adult ADHD might be under-diagnosed. According to Bester (2006), this under-diagnosis may be attributable to the fact that symptoms of hyperactivity become less evident with age as adults develop coping strategies that make their ADHD less obvious. Furthermore, in adolescents and adults, the hyperactive component of ADHD tends to present differently (i.e., in the form of “talkativeness” and physical discomfort – especially in the joints – when individuals are required to sit still for long periods of time).

Concerns regarding the under-diagnosis of Adult ADHD have also been noted by Asherson and Kooij (2007) who maintain that in the past the DSM criteria for children have been used to diagnose both children and adults. Thus a diagnosis of ADHD in children and adults has, to the large part, relied on the same set of 18 core symptoms and behaviours, and the same threshold for the number of symptoms, required to make the diagnosis; a practice which fails to accommodate for differences in the nature and extent of ADHD symptoms reported by adults and children.

Further, the DSM criteria for ADHD were designed to be evaluated using parent and teacher reports, as opposed to the more common use of self-reports in adults. As a consequence the diagnostic criteria for ADHD in the DSM have not always been easy to apply to adults. Moreover, the use of diagnostic criteria developed for children to assess Adult ADHD ignores the fact that adults with ADHD tend to present with different constellations of symptoms. For example, in adults, attention problems tend to be particularly disabling while the aimless hyperactivity of childhood may appear more purposeful in adults (e.g. engagement in sporting activities, work that allows for restless behaviour) or may

present as feelings of inner restlessness. Adults are also more able to adapt and compensate for problems with attention, hyperactivity, and impulsivity (Asherson & Kooij, 2007).

2.2.2 Diagnosis of ADHD

For purposes of the present research, and in the absence of any comprehensive diagnostic criteria for Adult ADHD, the present research will define ADHD using the criteria provided by the DSM (2004, 2013); with classification provided by both DSM IV-TR and DSM V being relied on, as most available clinical and empirical literature tends to rely on the ADHD criteria provided by DSM-IV and DSM-IV-TR.

According to the DSM-V (2013), ADHD is defined as a neurodevelopmental disorder characterized by a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development.

- *Inattention* manifests behaviorally in ADHD as failing to pay close attention to details, difficulty in sustaining attention and staying on-task, a lack of persistence, difficulties sustaining focus and/or disorganized behaviour – with these behavioural deficits not being due to defiance or to a lack of comprehension;
- *Hyperactivity* refers to excessive inappropriate motor activity, or to excessive fidgeting, tapping, or talkativeness. In adults, hyperactivity may manifest as extreme restlessness or in excessive behavioural activities that are experienced by caretakers or others as tiresome;
- *Impulsivity* refers to hasty actions that occur in the moment without forethought and which may have a potential for harm to the individual (e.g., darting into the street without looking). Impulsivity may reflect a desire for immediate reward or an inability to delay gratification. Impulsive behaviors may manifest as social

intrusiveness (e.g., interrupting others excessively) and/or as making important decisions without considering the long term consequences (e.g., taking a job without adequate information).

A diagnosis of ADHD requires that symptoms of inattention and/or hyperactivity-impulsivity are: (a) present before the age of 12, and (b) evident continuously for at least 6-months in more than one setting, such as home, school, or work. Furthermore, a diagnosis of ADHD requires clear evidence that observed/reported symptoms are associated with impairments in developmentally appropriate social, academic, or occupational functioning. For children, a diagnosis of ADHD requires the presence of at least six symptoms of inattention and six symptoms of hyperactivity-impulsivity, while for older adolescents and adults (age 17 and older), only five symptoms of inattention and hyperactivity-impulsivity are required (DSM-V, 2013).

Associated features that support a diagnosis of ADHD may include the co-occurrence of mild delays in language, motor, or social development, low frustration tolerance, irritability, mood lability, cognitive problems, and an increased risk of suicidal attempts.

Differential diagnoses for ADHD may include oppositional defiant disorder, intermittent explosive disorder, neurodevelopment disorders such as increased motoric activity, specific learning disorders, intellectual development disorder, autism spectrum disorder, reactive attachment disorder, anxiety disorder, depressive disorder, bipolar disorder, disruptive mood dysregulation disorder, substance use disorders, personality disorders, psychotic disorders, medication-induced symptoms of ADHD and neurocognitive disorder (DSM-V, 2013). Furthermore, a number of other disorders have been found to co-occur with ADHD, including: oppositional defiant disorder, conduct disorder, disruptive mood dysregulation disorder, specific learning disorder, anxiety disorder, intermittent explosive disorder, substance abuse, antisocial disorder, personality disorder, obsessive-compulsive

disorder, tic disorder, and autism spectrum disorder (DSM-V, 2013). According to Kewley (1999): “an important factor in understanding ADHD is that it is often found together with a number of other conditions, the symptoms of which overlap rather than there just being one condition or another...In fact if a child has ADHD he or she is more likely to have other co-existing or complicating conditions” (p. 23), with approximately 60%-70% of ADHD children qualifying for a diagnosis of at least one other comorbid disorder.

2.2.3 Manifestations of ADHD

According to the DSM-V (2013), ADHD can manifest in one of three forms:

- *Combined presentation:* in which the diagnostic criteria for both inattention and hyperactivity-impulsivity are met for a minimum of six months. This presentation is the largest of the three presentation, with approximately 85% of ADHD diagnoses falling within this category (Bester, 2006).
- *Predominantly inattentive presentation:* in which the diagnostic criteria for inattention are met, but the criteria for hyperactivity-impulsivity have not been met, for the past 6-months. According to Bester (2006), people diagnosed using this criteria are often described as ‘day dreamers’ – their bodies are inactive while their thoughts are racing elsewhere. These individuals often have learning problems which lead to poor self-images if not identified and treated. Bester (2006) suggests that a great number of children with this presentation may not be diagnosed with ADHD as they appear to be simply lazy.
- *Predominantly hyperactive/impulsive presentation* is when the diagnostic criteria for hyperactivity-impulsivity have been met for the past 6 months, but the diagnostic criteria for inattention have not been evident for the past 6 months

2.2.4 Aetiological factors

According to Mather (2012), three primary ideologies/beliefs exist surrounding the causes, diagnosis, and treatment of ADHD. Some authors emphasise the aetiological significance of bio-genetic factors and maintain that ADHD can be inherited, with extensive empirical support for a bio-genetic hypothesis having emerged in studies conducted largely in North America and Australia. A second group of researchers (based largely in the United Kingdom) maintain that the causes of ADHD are largely psychological or psychosocial in nature; while a third group of researchers occupy the middle ground: i.e., they accept the premise that ADHD is biological but are cautious with the use of medication as a treatment option.

2.2.4.1 The nature perspective

Although the exact cause of ADHD remains unknown, diagnoses of ADHD tend to cluster in some families (Schilling, 2014), which suggests that ADHD may have a genetic component. According to Mather (2012), a number of researchers believe that the symptoms of ADHD can be understood as a being a consequence of an underactive frontal lobe (as a result of either neurotransmitter dysfunction or missing synapses) which results in an inability to suppress unacceptable behavior, immediate desires, and impulses. Furthermore, several genes (associated with serotonin and glutamate transporters and dopamine metabolism) have been implicated in ADHD outcomes (Schilling, 2014).

Empirical support for the biological hypothesis has emerged in a number of studies.

For example:

- Molecular genetics studies of ADHD (Faraone et al., 2005) have found that those who share a first degree relationship to an individual with ADHD are more likely to develop ADHD than are first-degree relatives of unaffected individuals.

- A meta-analysis of twin studies conducted by Nikolas & Burt (2010) identified greater concordance rates for ADHD among identical twins.
- Willcutt et al. (2012) found evidence of shared familial and inherited risks for the combined and inattentive ADHD types.

A related perspective on ADHD accepts the premise that ADHD is a consequence of bio-genetic factors, but only cautiously supports the use of medication (such as Ritalin) as a first-line intervention. In the United Kingdom, many professionals who espouse this second perspective believe that Ritalin is moderately useful as a therapy for severe cases but that the widespread use of medication in the United States is unwarranted. Practitioners operating from this perspective tend to favour behavioural therapy and educational programmes (involving both caregivers and children) as first line interventions for most cases of ADHD.

2.2.4.2 The nurture perspective

The nurture perspective does not support the biological premise of ADHD and is critical of the idea of ADHD as a syndrome, with ADHD being viewed largely as an outcome of either familial/parental dysfunction or of other psycho-developmental pressures that could potentially cause the child to exhibit symptoms of ADHD (Kean, 2012). Empirical support for the nurture hypothesis has emerged in a number of studies. For example:

- Maternal smoking during pregnancy has been found to be associated with an increased risk for ADHD (Langely et al., 2005);
- Feingold (1975) suggested that children demonstrated hyperactive behaviour as a result of an allergic or toxic reaction to food substances, especially food additives;
- Poor parenting as a causative factor in hyperactivity was put forward by Bettelheim (1973) who suggested that excessively negative reactions from an intolerant mother to a

child who demonstrates a negative or hyperactive temperament could lead to the clinical presentation of hyperactivity;

- According to Willis and Lovaas (1977), noncompliant and hyperactive behaviour develops as a result of poor conditioning to stimulus control by parental commands and instructions;
- Studies by Tizard and Hodges (1978), demonstrating an association between institutional upbringing and hyperactive behaviour suggested that a lack of continuity in parenting may impair the development of the normal modulation of activity and attention.

2.2.4.3 The nurtured-nature perspective

The nurtured-nature perspective purports that genes and the environment do not work independently of each other. Nigg et al. (2010) have conducted a systematic search for relevant articles that measure gene and environment interactions in relation to ADHD. They found relatively consistent evidence to support such an interaction and concluded that an interactional perspective may be fruitful in understanding the aetiology of ADHD.

According to Mather (2012) the nurtured-nature perspective *“accepts the premise that there is a biological trigger in the brain and cautiously supports the use of medications such as Ritalin.”* (p16). It is believed that Ritalin is moderately useful in severe cases, with less severe cases being viewed as being more responsive to behavioural therapy and/or educational programmes (Norris, 2000).

2.2.4.4 Criticism of ADHD as a diagnosis

According to Kean (2012), the definition of ADHD makes certain assumptions about the child’s life in home and at school. The diagnosis of ADHD assumes that the problems the

child is encountering exist in the child's nature or biological makeup and are not a result of an inadequate educational programme or of other factors. Followers of this 'third ideology' express concern over the use of psycho-stimulants to medicate small children. This group of medical professionals sees the over-diagnoses of ADHD as a means of labelling and controlling children who exhibit difficult behaviours. Some followers of this third view believe that children are being given drugs unnecessarily to control their behaviours.

2.3 University students with ADHD

ADHD within tertiary educational setting, is a newly researched area and researchers have just begun to explore the nature of ADHD within this settings. Several studies have indicated the prevalence of ADHD within university settings and have shown deficits associated with ADHD in university/college students. These deficits have been identified in relation to academic, social, psychological, and neuropsychological functioning (DuPaul et al., 2009; Weyandt et al., 2008).

2.3.1 Prevalence

There is an absence of solid data regarding the prevalence of ADHD in college students, partly because students with ADHD are not required to disclose their disabilities to colleges and universities. Further, there is a high incidence of undiagnosed students in the *at risk* category for ADHD (Pope, 2010). However, a 'best estimate' of prevalence rates may be obtained from studies which have explored the percentage of college students who report clinically significant levels of ADHD. These numbers do not, however, reflect the actual percentage of college students with ADHD, and more studies encapsulating a greater number of university/college students with ADHD are needed to more accurately identify the number of students with ADHD.

DuPaul et al. (2008, 2009), in conducting a comprehensive review of empirical studies which have examined the functioning and/or treatment of college students with ADHD over the past 15 years, report that six studies suggest that approximately 2% to 8% of college students self-report clinically significant symptoms associated with ADHD.

Cross-cultural comparisons of ADHD symptom prevalence rates among college students have also been made. DuPaul et al. (2001) found that Italian students reported significantly more inattention and hyperactivity-impulsivity symptoms than students from the United States, while students from New Zealand have been found to report more inattention symptoms than are reported by students from the United States. Further, a study conducted by Norvilitis et al. (2008) found that 4.4% of the American student participants and 7.8% of Chinese students reported significant ADHD symptoms in their current functioning.

With regards to gender differences, DuPaul et al. (2001) report that female students from the United States report significantly higher ADHD symptoms (3.9%) than do female students from Italy (0%) or New Zealand (1.7%).

2.3.2. Academic functioning

In a comprehensive review of literature on empirical studies examining the functioning and/or treatment of college students with ADHD over the past 15 years, DuPaul et al. (2009) highlighted the following findings from studies that have been conducted on the academic functioning of ADHD college students:

- students with ADHD (vs non ADHD peers) are at risk for poor academic achievement, failure, and are less likely to attend and complete college education. (Barkley, 1998; Frazier, DuPaul et al. Youngstrom, Glutting, & Watkins, 2007; Murphy, Barkley, & Bush, 2002; Wolf, 2001).

- college students with ADHD (vs peers with ADHD that do not attend college) differ in several ways, including higher cognitive abilities, past experience with school success at the grade-school level, and better coping skills (Glutting, Youngstrom, & Watkins, 2005).
- Heiligenstein, Guenther, Levy, Savino, and Fulwiler (1999) found that the students with ADHD (vs non ADHD students) presented with lower GPAs, more academic problems, and more academic probation.
- Heiligenstein et al. (1999) found that academic impairment in ADHD students may be related to external factors such as specific difficulties with certain academics, loss of family structure and support as a function of living away from home, and lack of individualized education, rather than being a manifestation of ADHD symptoms.
- Lewandowski, Lovett, Coddling, and Gordon (2008) found that students diagnosed with ADHD (vs non ADHD) reported more frequent symptoms of the disorder and experienced greater problems with academic functioning such as timed tests, lack of test completion on time, longer duration to complete assignments, and perception of working harder to achieve good grades.
- In addition to problems with hyperactivity, impulsivity, and/or inattention, Schirduan, Case, and Faryniarz (2002) found that more than 50% of their participants with ADHD exhibited “natural” and “spatial” types of intelligence. They (2002) suggest that the predominant types of intelligence found to be associated with ADHD have little relevance to the linguistic and logical-mathematical intelligence-based tasks around which most school curricula are focused.
- With regard to subtypes, Carlson, Booth, Shin, and Canu (2002) found subtype (ADHD-combined vs. ADHD-inattentive) differences in academic motivational styles. Learning that appears game like and competitive and allows for public

recognition appeared to work well for individuals with an ADHD-combined type diagnosis, while strategies that facilitated cooperative learning and feedback appeared to increase motivation in students with ADHD-inattentive type.

- Reaser et al. (2007) compared three groups of students: students with ADHD, students with a learning disability (LD), and students without disabilities and found that students with ADHD scored lower than students in the other two groups in the areas of time management, concentration, selection of main ideas, and test taking strategies.
- Norwalk and colleagues' (2008) study suggested that ADHD symptoms are negatively correlated with levels of study habits, study skills, and academic adjustment.
- Schwanz, Palm, and Brallier (2007), measured self-reported attention problems and hyperactivity amongst students in introductory sociology and psychology classes and found that both attention problems and hyperactivity accounted for significant proportion of the variance in GPA scores; however, inattention was the stronger predictor. Similarly, Spinella and Miley (2003) found an inverse relationships between self-reported impulsivity and academic performance.
- Sparks, Javorsky, and Philips (2004) found that GPA scores for students with ADHD were similar to those for students without ADHD, with 83% of the students with ADHD receiving a grade of C or better in required foreign language courses. In contrast to the above, Blase et al. (2009) found that GPA scores of students with ADHD were lower than those of other students and that freshmen with ADHD (students 1 year later) had lower GPA scores than did students without ADHD.
- Blase et al. (2009) found that students with ADHD were less confident about their ability to academically succeed and to perform well enough to attain their goals.

In addition to the studies highlighted above by DuPaul et al (2009), more recent research in this field have revealed:

- Advokat et al. (2010) examined the relationship between ADHD medications, study habits, and academic achievement of ADHD diagnosed undergraduates, and found that stimulant medication assists students. The study also found that: (a) while the study habits of ADHD students do not differ from that of controls, students with ADHD had significantly lower school, college GPA (grade point average), and ACT scores, and (b) that students with ADHD withdrew from significantly more classes than did control students.
- Pope (2010) found that students at university who experience higher levels of inattention, are more likely to achieve a lower final average percentage mark (APM) and are significantly less likely to complete their degree within three years than are controls.
- Kane et al. (2011) reported that college students with ADHD experience concerns regarding their concentration and memory, time management, and procrastination tendencies.
- Weyandt et al. (2013) found that college students with ADHD report significantly lower grades on course assignments than do non-ADHD controls; and that students with ADHD report less well-developed organizational skills (as measured by the Study and Organizational Skills Rating Scale) than do non ADHD students.

Thus, from the above studies, it can be concluded that preliminary studies suggest that students with ADHD are at risk for poor academic achievement (including course assignments), failure, are less likely to attend and complete college education, are more likely to be placed on academic probation, present poor academic adjustment skills, and are less

likely to complete their degree within three years. Some of the underlying factors, that contribute to the challenges faced by college students with ADHD, may be related to impaired time management (timed tests, lack of test completion on time, and longer duration to complete assignments and degrees), less well developed organizational skills, poor concentration problems when selecting main ideas, poor test taking strategies, poor study habits, and inadequate study skills. However, not all studies indicate that college students with ADHD are at increased risk for academic problems; with one study having found that college students with ADHD perform better in required foreign language courses.

2.3.3 Social functioning

DuPaul et al. (2009) highlight the following studies that have examined the social functioning of university ADHD students.

- Meaux, Green, and Broussard (2009), in a study designed to identify factors that help ADHD students cope with college transition and adjustment, found that peer relationships as a particularly helpful coping factor.
- A study by Upadhyaya et al. (2005) found that college students with ADHD, who actively display symptoms of ADHD, were more likely to engage in alcohol abuse than students without currently active symptoms. Moreover, students who displayed less control of their symptoms were more likely to engage in tobacco, marijuana, and other drug use (i.e., drugs other than alcohol).
- Shaw-Zirt, Popali-Lehane, Chaplin, and Bergman (2005) found that college students with ADHD exhibited lower levels of adjustment, social skills, and self-esteem compared to levels exhibited by matched control students.

- Similarly, college students with a childhood history of ADHD have been found to score significantly lower than their peers on measures of self-esteem (Dooling-Litfin & Rosén, 1997).
- Grenwald-Mayes (2002) found that, when compared to students without ADHD, family relationships and dynamics played a greater role in affecting quality of life outcomes for college students with ADHD.
- Canu and Carlson (2003) found that students with ADHD (inattentive subtype) achieved dating milestones later than those with the combined subtype. The inattentive group was also lower on the number of steady dating relationships and reported being more uncomfortable and less assertive within the context of dating.
- Rabiner, Anastopoulos, Costello, Hoyle, and Swartzwelder (2008) found that students with self-reported ADHD did not experience less satisfaction with social relationships during their first semester in college than did students without ADHD.

From the above studies, it can be concluded that: (a) good parental and peer relationships are associated with more adaptive coping among students with ADHD, but (b) college students with ADHD (vs non ADHD students) generally tend to exhibit lower levels of adjustment, social skills, and self-esteem.

2.3.4. Psychological Functioning

DuPaul et al. (2009) highlighted the following studies that have examined the psychological functioning of university ADHD students.

- Heiligenstein et al. (1999) investigated levels of psychological impairment among college ADHD students (vs controlled group) and found that the ADHD group had no statistically significant differences on self-ratings of psychological impairment.
- Heiligenstein and Keeling (1995) found significant levels of psychological impairment in college ADHD students who sought treatment at a university medical centre, with common presenting problems for ADHD students being ADHD symptoms (55%), followed by mood symptoms (21%), academic underachievement (14%), and nonspecific learning disabilities (10%). Forty-five percent of participants reported no psychiatric comorbidities. Of the remaining 55%, associated difficulties included depressive disorders (26%), drug or alcohol abuse or dependence (26%), legal difficulties (12%), anxiety disorders (5%), learning disabilities (2%), and eating disorders (2%).
- Rabiner and colleagues (2008) investigated the effect of medication on ADHD symptoms, college adjustment, and psychiatric symptoms (self-reported) and found that students with ADHD reported more academic difficulties and depressive symptoms than were reported by non-ADHD controls.
- Schwanz et al. (2007) found, that academic and depressive difficulties reported by students with ADHD could be accounted for by inattentive symptoms, but not by overactive/impulsive symptoms.
- Richards, Rosén, and Ramirez (1999) investigated differences in psychological functioning in three groups of college students – those with confirmed ADHD, those with self-reported ADHD only, and a control group with no ADHD. Both ADHD groups scored significantly higher than the control group on every scale of the SCL-90, with the exception of the Paranoid Ideation scale.

- Kern, Rasmussen, Byrd, and Wittschen (1999) investigated the lifestyle personality characteristics across groups of students (those diagnosed with ADHD, students with ADHD symptoms that did not meet the criteria for clinical diagnosis, and a non-ADHD control group) and found that both of the ADHD groups were more “confrontative” and “aggressive” than the control group. The ADHD groups also tended to be more independent and less rule-focused than controls and were likely to be less influenced in a positive or negative manner by corrective feedback.
- Ramirez et al. (1997) were interested in examining differences in anger expression in a college student sample of individuals exhibiting ADHD symptoms (without current diagnosis) and a non-ADHD control group. The results showed that students with high ADHD symptoms exhibited high scores on the Psychoticism scale of the SCL-90 as well as more difficulties with anger. These students also reported more trait and state anger as well as less controlled and socially acceptable ways of expressing their anger.
- Theriault and Holmberg (2001) investigated the extent to which ADHD symptomatology was related to relationship aggression and found that individuals with ADHD symptoms were as likely to negotiate and no more likely to psychologically aggress toward a romantic partner, and were also more likely to exhibit physical and sexual aggression.
- Woodward, Fergusson, and Horwood (2000) measured the degree to which attentional difficulties at age 13 were associated with driving behaviour at age 21 in a longitudinal sample and found that elevated attentional difficulties were related to a statistically significant increases in involvement in motor vehicle accidents, drinking and driving, being arrested for drinking and driving, driving without a license and/or

registration, engaging in street racing, police contact for a driving offense, and total traffic violations.

- Barkley, Murphy, DuPaul, and Bush (2002) found that (when compared to a non-ADHD control group), college students with ADHD received more overall driving citations, speeding violations, license suspensions and revocations, and were involved in more motor vehicle accidents as the driver.
- Richards, Deffenbacher, and Rosén (2002) examined the driving behaviour of students with high self-reported symptoms of ADHD in a sample of introductory psychology students and found that these students experienced more driving anger, drove more aggressively, took more risks while driving, and were involved in more motor vehicle accidents.
- Kass, Wallace, and Vodanovich (2003) explored whether boredom proneness and sleep disorders were predictors of ADHD symptoms and found that sleep disturbances and boredom proneness were statistically significant predictors of ADHD symptoms (as reported on the Adult Behaviour Checklist).
- Hines and Shaw (1993) found that students who self-reported high levels of ADHD symptoms also reported higher sensation-seeking behaviour and drug use.

In addition to the above studies, a more recent study (Weyandt et al., 2013) found that students with ADHD (vs non ADHD) demonstrated significantly higher levels of psychological distress, including obsessive compulsive behaviours, depression, anxiety and hostility as well as deficits in global psychological functioning.

Thus, the above studies suggest that college students with ADHD experience high levels of psychological impairment, including mood symptoms, depressive disorders, drug or

alcohol abuse, anxiety disorder, and eating disorders. Further, ADHD students have been found to display more confrontative and aggressive behaviours in romantic relationships. With regard to driving behaviours, ADHD college students have been found to be prone to motor vehicle accidents, drinking and driving, and/or being arrested for drinking and driving.

On the positive side, one study found that there were no statistically significant differences in psychological impairment between ADHD and non-ADHD students, and that ADHD students tended to be more independent and less rule focused.

2.3.5. Neuropsychological Functioning

DuPaul et al. (2009) highlights the following studies that have examined the neuropsychological functioning of university ADHD students.

- Weyandt, Rice, Linterman, Mitzlaff, and Emert (1998) compared a group of students diagnosed with ADHD to (a) a group of students with a developmental reading disorder, as well as (b) a control group. Findings revealed that the group with developmental reading disorder made significantly more errors on the Wisconsin Card Sorting Test than the control group; however, no differences were found between the three groups on any of the other neuropsychological measures.
- Weyandt and colleagues (2002) investigated the relationship between intelligence and scores on the Tests of Variables of Attention (TOVA; Greenberg, 1990); with the performance of college students diagnosed with ADHD being compared to a group of non-ADHD college students. While ADHD students made more errors of omission than the nondisabled control group, no differences between groups were found with respect to: scores on the WAIS-R freedom from distractibility factor, errors of commission on the TOVA, mean response times, or score variability.

- Linterman and Weyandt (2001) investigated the ability of college students (with and without ADHD) to maintain divided attention. The study found no significant differences between groups.
- Weyandt et al. (1995) compared the functioning of high and low ADHD symptom groups on measures of psychological performance including the Wisconsin Card Sorting Test (Grant & Berg, 1948), Visual Search Attention Test (Trennery, Crosson, DeBoe, & Leber, 1998), and Stroop Neuropsychological Screening Test (Trennery, Crosson, DeBoe, & Leber, 1987). No significant differences on these measures were found between the groups.

In addition to the above findings:

- Semrud-Clikeman and Harder (2011) examined written expression and the executive function skills (working memory, verbal fluency, and planning and organization) involved in written expression in college-aged students with ADHD (and a non-ADHD control group) and found no statistically significant differences between groups on measures of executive function and written expression.
- Weyandt et al. (2013) found that students with ADHD report greater overall executive dysfunction (compared to a non-ADHD control group) on all 12 BRIEF scales; with large group differences being observed in scores on the General Executive Composite, the Metacognition Index, and the Behavioral Regulation Index. Students with ADHD also reported significantly more executive dysfunction than non-ADHD peers; with such dysfunction relating to distinct aspects of executive functioning, including: Inhibition Emotional Control, Self-Monitoring, Working Memory, Planning/Organizing, Task Management, and Organization of Materials. On the CPT II, which measures sustained attention and impulse control, fewer

between-group differences emerged than were expected. Specifically, students with ADHD demonstrated greater variability in the Standard Error of Reaction Time but did not differ on the other six CPT II scales. No significant group differences were obtained for any score on the CVLT-II.

There are relatively few studies to date that have investigated the neuropsychological functioning of college students with ADHD. Some of the studies reported above found greater overall neuropsychological dysfunctions among ADHD college students, while other studies found no significant differences between ADHD and non-ADHD students in working memory, verbal fluency, or planning and organization abilities.

While the above studies have contributed significantly to the study of ADHD within college populations, there are some concerns (Weyandt et al., 2008; Green et al, 2012). Available studies have, for example, tended to rely on relatively small and unrepresentative samples of college students. As such, available findings may not adequately capture the experiences/competencies of ADHD college students in general. Further, relatively few studies have been conducted in this field, and of the studies conducted findings have been somewhat inconsistent. Furthermore, most available studies have limited analyses to the examination of group differences between students with and without ADHD and have not supplemented this approach by considering the percentage of individual students with ADHD who show impairment relative to their normative peers in various domains of functioning (such as academic, social, and emotional functioning).

2.4 Conclusion

The classification of ADHD can be derived from two sources: The American Psychiatric Association (APA) Diagnostic and Statistical Manual (DSM) or the World Health

Organisation (WHO) International Classification of Mental and Behavioral Disorders (ICD 10). The DSM V classifies ADHD into 3 types: ADHD predominantly inattentive, ADHD predominantly hyperactive-impulsive, and ADHD combination of attention deficit and hyperactive-impulsive. Three primary ideologies exist surrounding the causes, diagnosis and treatment of ADHD. One group attributes the causes of ADHD to biological factors and believes that ADHD can be inherited. The second group accept the premise that ADHD is biological but are cautious regarding the use of medication to address the issue; while the third group attributes the cause of ADHD to psychological and social factors.

With respect to comorbidity, a number of other conditions have been found to co-exist with ADHD such as oppositional defiant disorder, conduct disorder, disruptive mood dysregulation disorder, specific learning disorders, anxiety disorders, intermittent explosive disorder, substance abuse, antisocial disorder, personality disorder, obsessive-compulsive disorder, tic disorders, and autism spectrum disorder.

A number of studies have explored the prevalence of ADHD or have assessed deficits associated with ADHD in university/college students. Such deficits have been identified in relation to academic, social, psychological, and neuropsychological functioning. Although important progress in our knowledge of ADHD in college populations has been made, further research would appear to be strongly indicated.

CHAPTER 3

ADHD WITHIN THE DISABILITY FRAMEWORK

3.1 Introduction

This chapter examines ADHD within the disability framework. It will explore the nature and scope of disability within a human rights, legal, and education framework. It will explore aspects of access and accommodation to disabilities within these contexts, globally and locally. First, disability is contextualized within a disability framework by providing general statistics on disability both globally and nationally. Second, barriers experienced by individuals with disability are discussed. And third, disability is examined as a human rights issue by exploring both global and national legal frameworks. The chapter concludes by providing an overview of the Disability Policy of the University of KwaZulu-Natal in order to: (a) provide an indication of how disability issues are being addressed at a South African tertiary institution, (b) highlight some of the challenges associated with addressing disability issues at a tertiary educational level, and (c) provide an overview of the proximal policy framework that directly informs the experiences of disabled students who participated in the present research.

Although the primary focus of this thesis (i.e., ADHD) is not directly addressed in this chapter, the chapter provides an overview of frameworks, legislation, and policies that have direct relevance to persons living with any form of disability, including ADHD.

3.2 Prevalence of Disability

According to the World Health Organization [WHO] World Report on Disability (WHO, 2011), more than a billion people – an estimated 15% of the world's population (based on 2010 global population estimates) – live with some form of disability, with there

being evidence to suggest that the global prevalence rate of disabilities is increasing (WHO, 2011). According to the *World Health Survey*, an estimated 15.6% of individuals over the age of 14 years are living with some form of disability (Constitution of the Republic of South Africa, Act 108, 1996; Chan & Zoellick, 2011)

Available data on the prevalence of disability in South Africa are generally regarded as being less than comprehensive. According to Stanley (2005), estimates of the number of persons living with disabilities in South Africa vary from 5.9% (CASE, 1997) to 12% (Department of Health, 1996), with available evidence suggesting that the prevalence of disabilities in South Africa may be decreasing over time. According to Stanley (2005), this apparent decrease might reflect: (a) sampling methods used in prevalence studies, (b) the fact that there is widespread confusion regarding the definition of disability, or (c) other factors which serve as barriers to addressing and understanding disability fully. These barriers will be discussed below.

3.2.1 Barriers to addressing and understanding disability

The World Health Organization World Report on Disability (2011) has noted the following barriers to understanding and addressing disability:

- *Available policies and standards* do not always take into account the needs of people with disabilities, or existing policies and standards are not enforced;
- *Negative attitudes, beliefs and prejudices regarding disability* constitute barriers to education, employment, health care, and social participation;
- *Lack of provision of services* such as health care, rehabilitation, support, and assistance;

- *Problems with service delivery*, poor coordination of services, inadequate staffing, and weak staff competencies can affect the quality, accessibility, and adequacy of services for persons with disabilities;
- *Inadequate funding and resources* allocated to implementing policies designed to address the needs of disabled people;
- *Lack of accessibility* by disabled individuals to transport systems and relevant information;
- *Lack of consultation* and involvement of people with disabilities in decision-making and matters directly affecting their lives; and
- *Lack of data and evidence* regarding disability impedes an understanding of, and actions regarding, programme implementation and provision for the disabled (Chan & Zoellick, 2011)

These barriers impact on the day-to-day participation of people with disabilities as they contribute to: poorer health outcomes, lower educational achievement, less economic participation, higher rates of poverty, increased dependency, and restricted participation (Chan & Zoellick, 2011). Many of these barriers experienced by disabled people can be overcome, with the *World Health Organization World Report on Disability* (2011) suggesting the following nine recommendations for action which need to be implemented by different sectors (i.e., health, education, social protection, labour, transport, housing) and by different actors (i.e., governments, civil society organizations including disabled persons organizations, professionals, the private sector, disabled individuals, and their families, the general public, the private sector, and the media). These recommendations are that:

- Disabled people need to have access to all mainstream systems and services;
- Investment in specific programmes and services is required for people with disabilities;

- A national disability strategy and plan of action needs to be developed and implemented;
- Individuals with disabilities need to be involved in decision making that affects them;
- Effective human resource capacity needs to be developed among disabled individuals through effective education, training, and recruitment;
- Adequate funding needs to be provided to meet the needs of disabled individuals;
- There is a need for public awareness and understanding regarding matters affecting disabled persons; and
- Research on disabilities needs to be extended and supported.

(Chan & Zoellick, 2011)

3.3 Disability as a human rights issue - legal framework

There are several instruments internationally and nationally that define and regulate practices and procedures regarding disability. Among these are the United Nation Convention on the Rights of People with Disabilities (2007), The Constitution of the Republic of South Africa (Act No. 108 of 1996), The White Paper on an Integrated National Disability Strategy (1997), the South African School Act (1996), the Skills Development Act (1998) and the White Paper on Special Needs Education (2001).

3.3.1 United Nation Convention on the Rights of People with Disabilities (2007)

The United Nations Convention on the Rights of People with Disabilities (2007) is a legally binding international document intended to protect people with disabilities from unfair discrimination. Article 4 (1) of the Convention obligates all signatory countries to follow the standard rules on the equalization of opportunities for people with disabilities. These rules are designed to promote the human rights of people with disabilities (United

Nation Convention on the Rights of People with Disabilities, 2007). South Africa was amongst the first nations to ratify the UN Convention on the Rights of People with Disabilities.

3.3.2 The Constitution of the Republic of South Africa (Act 108 of 1996)

All policies and laws within South Africa are guided by Chapter 2, Section 9(3), of the Constitution of the Republic of South Africa (Act No 108 of 1996), which addresses issues of equality. The Act emphasizes that all people including people with disabilities should enjoy equal rights and that discrimination against people with disabilities should not be tolerated ("Constitution of the Republic of South Africa, Act 108," 1996). According to Stanley (2005), South Africa has some of the most comprehensive legislations and policies protecting and promoting the rights of disabled people, including disabled individuals' right to be involved at all levels of government.

During the period 1994-2004, post-apartheid legislation, policies, interventions, and programmes were formulated with the aim of: achieving equity goals over the medium-to long-term, and addressing immediate goals to ensure that more people with disabilities could access government services. Legislation and policies, which were formulated with these goals in mind, include: the White Paper on Disability (1997) and on an Integrated National Disability Strategy (1997), the Employment Equity Act (1998), the Skills Development Act (1998), the South African School Act (1996), and the White Paper on Special Needs Education (2001).

3.3.3 The White Paper on Disability on an integrated National Disability Strategy

In 1997 the South African Government released *The White Paper on an Integrated National Disability Strategy* (1997), which advocated a paradigm shift in addressing issues of

people with disabilities – i.e. a shift from a medical and welfare model to a human rights and equitable development model. The main goal of this White Paper was to ensure that the needs of people with disabilities were integrated into all government development strategies, with the key objectives of the White Paper being: for government to facilitate the integration of disability issues into government developmental strategies, planning and programmes; the development of integrated management systems for the coordination and monitoring of disability planning and implementation; the development of capacity building strategies; and a programme of public education and awareness to change fundamental prejudices in South African Society. In addition, it was recommended that an Office on the Status of Disabled persons be established to co-ordinate the above activities, and in order to facilitate cooperation between various governmental and non-governmental agencies in serving the best interests of disabled persons. This Office was established in 3rd December 1997.

3.3.4 Employment Equity Act of 1998

The Employment Equity Act (RSA, 1998) determines, *inter alia*, employment equity quotas that apply to the private and public sector regarding the employment of disabled people ("Employment Equity Act," 1998).

According to Stanley (2005), it is estimated that as many as 99% of South Africans with disabilities are not meaningfully employed. Despite a positive policy environment, talented and qualified disabled people face unemployment and until they gain access to meaningful career opportunities, they cannot truly become full participating members of our society.

3.3.5 Skills Development Act 1998

The Skills Development Act (No. 97 of 1998) has been enacted in order to implement structures and processes to transform skills development in South Africa. One of the purposes of the Skills Development Act is to improve the employment prospects of persons previously disadvantaged by unfair discrimination, and to redress those disadvantages through training and education. In this regard, people with disabilities (among other disadvantaged groups) are targeted ("Skills Development Act No. 97", 1998).

3.3.6 Other policies

Another policy is the Labour Relations Act 1998 which provides for the regulation of unfair treatment in the workplace via provisions on unfair labour practices. In addition, the Social Assistance Act (1992) addresses issues relating to increases in basic disability grants and the extension of such grant provision to a wider sector of people with disabilities.

3.3.7 Legislation relating to Education systems – Disability and inclusive education

According to the World Health Organization World Report on Disability (2011), inclusion of children with disabilities into mainstream schooling promotes universal primary completion, is cost effective, and contributes to the elimination of discrimination. However, this requires changes to systems and to schools. The success of an inclusive system depends largely on the countries' commitment to adopting appropriate legislation, providing clear policy directions, and establishing infrastructure and the capacity for implementation, as well as the provision of finances to fund such developments. Moreover, educational systems need to adopt more learner centred approaches requiring changes in: curricula, teaching methods, teaching materials, and assessment/examination systems. At the level of the classroom or lecture theatre, there is a need for: the development of individual education plans, changes to

the physical layout of classrooms, additional support services (e.g. specialist educational teachers, classroom assistants, therapy services), and the appropriate training of mainstream teachers in order to assist them to support children with disabilities. (Chan & Zoellick, 2011).

3.3.7.1 South African Schools Act 1996

The South African Schools Act of 1996 provides for the inclusion of learners with special educational needs. Public schools are required by law to admit all learners and to meet learners' necessary educational requirements without discrimination. In 1999, the Department of Education published a White Paper entitled *Special Education: Building an Inclusive Education and Training System* which:

- Acknowledged that all children and young people can learn, and that all children and youth need support;
- Indicated the need for educational structures/systems and for learning methodologies which meet the needs of all learners;
- Indicated the need for the acknowledgement, and respect of, individual differences among learners, regardless of whether such differences related to: age, gender, ethnicity, language, class, disability, HIV/AIDS or other infectious diseases;
- Acknowledged that learning was not restricted to formal schooling but also took place in the home and community, and within formal and informal settings and structures;
- Motivated for changes in attitudes, behaviours, teaching methods, curricula, and learning environments in order to meet the need of all learners; and
- Argued for the involvement of all learners in the culture of educational institutions as well as in the process of identifying and addressing barriers to learning (South African School's Act, 1996).

3.3.7.2 White Paper 6 on Special Needs Education (2001)

The White Paper on *Special Needs Education* (2001) provides a context for disability within education by advocating transformed education services which are designed to ensure equity of access to all people wanting to study at institutions of learning. The policy states that educational institutions should strive to accommodate all learners regardless of their physical, intellectual, social, emotional, linguistic, or other status. Further the paper strongly supports a move beyond the medical model framework towards a social and developmental framework. Essentially, this White Paper advocates for:

- A systematic shift away from segregation (based on categories of disability) as an organising principle for educational institutions;
- The provision of education for learners with disabilities which corresponds to the intensity of support needed to overcome the debilitating impact of disabilities;
- The introduction of strategies and interventions designed to assist educators to cope with a diversity of learning and teaching needs, and to ensure that transitory learning difficulties are ameliorated. (The White Paper on Special Needs Education, 2001)

3.3.7.3 Criticism of current legislation

Stanley (2005) maintains that while current legislation on disabilities has helped to create a sense of awareness of the needs of people with disabilities, the implementation of various policies has had only a marginal impact on the lives of the majority of disabled people in South Africa. With specific regard to the South African Schools Act (1996), Stanley (2005) notes that there have been a number of issues that have mitigated against effective implementation (notably underfinancing and a lack of trained educators). As a result, many children with disabilities are still not fully integrated into the public school

system, with low educational levels exacerbating the incidence of unemployment among people with disabilities.

3.4 Accommodating disability in higher education: a case study of the University of KwaZulu-Natal (UKZN)

This section provides an overview of the Disability Policy of the University (2004) of KwaZulu-Natal in order to: (a) provide an indication of how disability issues are being addressed at a South African tertiary institution, (b) highlight some of the challenges associated with addressing disability issues at a tertiary educational level, and (c) provide an overview of the proximal policy framework that directly informs the experiences of disabled students who participated in the present research.

3.4.1 The nature and scope of disability at UKZN

The University of KwaZulu-Natal caters for a varying range of students with disabilities. Categories of disability experienced by students at UKZN include: the blind, the partially sighted, albinism, physical disability, learning disability, psychiatric disability, intellectual disability, hearing disability, epilepsy, and multiple disabilities. *Learning disability* is a broad term used to describe students that fall within the following categories: visual perceptual disorders, dyscalculia, dysgraphia, dyslexia, and ADHD. According to the UKZN report on Disability Services (2013), learning disabilities (including ADHD) constitute 15% of all disabilities experienced by students at UKZN.

Even though students with disabilities can be found in all colleges at the university, according to the UKZN Report on Disability Services (2012), recent trends and patterns are evident with regards to the career choices of students with disabilities; with a majority of students choosing degrees in the Humanities, which could possibly be attributed to subject

choices at secondary school level which do not include science and mathematics. It also needs to be noted that the Humanities Faculty accommodates students who do not meet specific entry requirements for study into an access programme, with this access programme providing students with the necessary support for entry into mainstream programmes.

Statistics reflect that the number of students working with the disability unit at UKZN is increasing. According to the "Audit of Disability Support Services" (2010), there were 256 student with disabilities on the different campuses at UKZN in 2010. In 2013 there were 491 students ("Report of Disability Services," 2013). This increase in enrolment of students with disabilities may be attributed to a number of factors, with the following factors being noted in the UKZN Report of Disability Services (2012):

- Active attempts by UKZN to accommodate diversity, combined with a greater awareness of such accommodation efforts among potential students;
- Better collaboration between the NGO disability sector and the UKZN Disability Support Unit;
- The availability of student funding to support disabled students (provided by the university and by private trust funds);
- The availability of information technology to readily format required information in accessible forms to meet the needs of disabled students;
- An increased awareness of special academic accommodations available at UKZN to enhance teaching and learning, and the lived experiences, of students with disabilities;
- Active headhunting by UKZN of disabled students from other provinces;
- UKZN's responsiveness to international, national, and Higher Education declarations which are designed to equalize opportunities for persons with disabilities;
- Collaboration between UKZN and high schools designed to alert potential students to the specialized support provided by the UKZN Disability Units.

3.4.2 UKZN Policy on Staff and Students with Disabilities, 2004

In July 2004, the University of KwaZulu-Natal approved its Policy on Staff and Students with Disabilities. The document addresses the University's commitment to making tertiary education and the working environment universally accessible and inclusive for all students and staff, including those with disabilities. The University planned to achieve these ends through a commitment to the removal of cultural, physical, social, and other barriers that prevent people with disabilities from entering university and/or benefiting from a university education ("UKZN Policy on Staff and Students with Disabilities," 2004). The legal frameworks guiding this UKZN policy document are the Employment Equity Act 55 (1998), the Constitution of the Republic of South Africa 108 (1996), the White Paper on Special Needs Education (2001), and other relevant legislation (as discussed above).

The university working definition of disability is *“a person with a disability is a person limited or impaired in one or more functional activities which prevents full and equal academic, social and economic participation”* and further, it *“accepts that disability is a social construct, with most of its effects inflicted on people by the environment.”* ("UKZN Policy on Staff and Students with Disabilities," 2004: 2).

The UKZN policy contains two sections. Section A deals with issues pertaining to students with disabilities and section B to staff with disabilities. Section A will be discussed here as it falls within the scope of this study.

Section A of the UKZN policy on disabilities (2004) outlines: issues of access and inclusion of disabled students into the university, guidelines for creating an enabling environment, and guidelines for service provision and service delivery. More specifically, the policy addresses issues relating to the rights of disabled persons as well as considerations relating to: access and equity, outreach and recruitment, admissions, financial assistance,

housing, enrolment, orientation, delegation of rights and responsibilities, timetables and venues, adaptation of teaching and assessment processes, sports and recreation, internal communication and infrastructure development, support structures, and complaints procedures. The UKZN policy is based on the principle that disabled students have a right to:

- Equal access to the academic environment which includes information, goods, facilities, and service provision;
- Be treated with dignity and respect;
- Reasonable and appropriate adjustments and accommodation to enable access; and
- Appropriate confidentiality in relation to the disclosure of any information in relation to a disability.

These principles are addressed in more detail below.

3.4.2.1. Guidelines for creating an enabling environment

In order to create an enabling environment and to ensure equal access and full participation of students with disabilities in the academic programme, the provision of physical and academic support is necessary – with issues relating to support being addressed in Sections 9-11 of the UKZN disability policy:

Delegation of rights and responsibilities. Section 9 of the UKZN disability policy states that students are encouraged to identify their support needs to the Student Disability Officer if they require assistance, with the University committing itself to ensure (within budgetary constraints) that such assistance is provided.

Time-tabling and venues. Section 10 states that the University recognises that it is important for students to be able to access their scheduled lectures, workshops/laboratory sessions, and tutorials in a timely manner. The University will take these issues into account in room allocation and timetabling where practical. Students with disabilities may be given

preferential tutorial allocations, where required.

Adapting teaching/assessment procedures. Section 11 states that the University will, where practicable, modify existing academic courses to accommodate the range of disabilities that individual students may have, providing such modification does not compromise the academic standard or the essential nature of the academic course. This will, where practicable, include fieldwork and practical/laboratory work, provided that no hazard is created for the students with special needs or for others associated with the activity. Examples include alternative projects or the granting of extensions.

Where students with a disability are enrolled in units or courses in a Faculty, the Dean or Head of School, once informed (by either the student, their advocate, or the Student Disability Officer) shall be responsible for ensuring that:

- appropriate and reasonable accommodation is made to teaching and assessment methods where the need exists;
- the student is provided with academic counselling; and
- the student's education and performance in assessment, so far as is practicable, are not impeded by their disability/medical condition.
- there is collaboration with the relevant Student Disability coordinator

The University commits itself to supporting the use of alternative strategies for assessing students with disabilities, when such students are prevented by their disability from participating in the same manner as other students under normal assessment conditions.

Alternative strategies for assessment may include (among others) oral examinations, the use of special equipment or furniture, separate examination rooms, rest breaks during tests, use of visual aids, enlarged examination paper, and allowing extra time for undertaking assessment. Heads of School, in consultation with the Dean, will decide on the appropriateness of the assessment strategies in relation to ensuring that there is no advantage in the process and that

strategies employed comply with the minimum needed to accommodate the student's disability.

Where special equipment or arrangements are needed for a student with a disability to participate in examinations or tests, the student should apply to the Student Disability Officer who will liaise with the Examinations Officer (or another appropriate member of staff with relevant portfolio responsibility) for appropriate arrangements to be made to accommodate the student's needs. Any special arrangement will be designed to minimise the student's handicap and should not otherwise advantage the student; with full details of any 'special' arrangements needing to be submitted to the Head of School for authorization. Students answering tests and examinations using alternative media should not be subjected to undue and avoidable delays in marking or in the release of marks.

The University supports the use of varied and flexible presentation methods and teaching strategies to assist students with disabilities to undertake their studies. This may include, inter alia, making book lists and study guides available prior to the semester starting, providing material in alternative formats, and/or providing copies of lecture notes.

Students with a disability are permitted to use aids or have assistance appropriate to their disability during lectures, tutorials, and assessment processes. Where special equipment or arrangements are needed for students with disabilities to participate in classes or assessment procedures, the University will provide such assistance, so far as resources may reasonably permit.

In keeping with its goal of holistic development of all students, the Head of Sports Administration shall ensure that sporting and recreational needs of students with disabilities are catered for.

3.4.2.2 Physical and academic support for various types of disability

UKZN provides physical, academic, and test/exam support for a range of disabilities. *Physical support* may include, inter alia: the provision of ramps, rails, accessible ablutions, dropped curbs, clearly defined foot paths, designated parking bays, accessible shelving as well as adequate spacing between desk and chairs to accommodate the wheelchair user. *Academic support* includes: the preparation of academic materials in either electronic format or in Braille; scanning and reformatting of course packs, texts, and journal articles to ensure that such materials are accessible in electronic formats; and the provision of scribes, readers or audio tapes (as and when required). *Test/examination support* may include, inter alia: extra time to complete tests or examinations, the use of ‘user-friendly’ examination venues, as well as the use of different modes of test/examination responding (e.g., oral or computer based).

3.4.2.2.1 Physical Access support

Blind students. The totally blind person requires orientation and mobility (O & M) training in order to navigate the built environment. This training is provided by an Independence Trainer who is specially trained to undertake the provision of this training for blind persons. The provision of O&M training can take approximately 3 months for a single blind person to reach independence (i.e., travel skills and personal skills which include: grooming, skills in daily living, and personal care).

Partial sightedness and Albinism. The following physical access support is required for partially sighted students and for students with Albinism:

- Marking of stairs (e.g., yellow lines and textured stairway edges);
- Signs that are large and in contrasting colours;
- Escalators that have markings or voice alerts; and

- Clear glass windows should have stickers on them.

Physical disability. The built environment poses the greatest barriers to the inclusion of persons with physical disabilities, with the following forms of physical access support being required:

- the provision of accessible ablutions, dropped curbs, clearly defined foot paths, designated parking bays, accessible shelving, and adequate spacing between desk and chairs to accommodate the wheelchair user;
- the provision of ramps and hand rails for access to venues; and
- the provision of wider desks to accommodate wheelchairs.

Hearing disabilities. Students with a hearing disability need to be provided with seating in the front row of lecture venues.

Epilepsy. Students with epilepsy need to be provided with seating that is not surrounded by objects or desks (in order to minimise the possibility of injury in the event of a seizure).

Learning or psychiatric disorders. No physical access support is required for students with learning disabilities or psychiatric disabilities.

3.4.2.2.2 Academic support

Blind students. Blind students require academic materials to be prepared in either electronic format or in Braille (a scanned document can be converted to Braille and made available to students). Some students with visual impairments may prefer to use scribes, readers, or audio tapes.

Partially sighted students and Albinism. Partially sighted students and students with Albinism may require the following forms of academic support:

- Screen magnification of learning material (with contrast capabilities);
- Hand held magnifiers; and/or

- Course packs in font sizes that can easily be read by students.

Physically disabled students. No extraordinary academic support is required for physically disabled students.

Learning disabled students. Written material might need to be reformatted depending on the specific needs of individual students and copies of lecture notes may need to be made available to students.

Psychiatrically, intellectually and/or hearing disabled students. The following forms of academic support may be indicated for students with psychiatric, intellectual, or hearing forms of disability:

- Consultations with academic departments, access to student counselling services and/or campus Health clinics;
- Academic support programmes may need to be individually designed with high level of consistency in information; and
- Additionally, for students with hearing disabilities, copies of lecture notes may need to be made available to students.

Epilepsy. Academic Departments are required to address individual challenges experienced by students who suffer from epilepsy.

3.4.2.2.3 Tests and examinations

Blind students. Blind students are entitled to 15 minutes per hour as additional time; with their written examinations being written in separate venues. Students who use a computer to write their examinations or tests receive their question papers in electronic format, while students who use Braille receive their examination or test paper in Braille.

Partially sighted students and students with Albinism. Partially sighted students and students with Albinism are entitled to an extra 15 minutes per hour to complete examinations

and tests, and need to be provided with test/examination venues which have adequate lighting, while course packs and examination/test question papers need to be suitably formatted. Hand held magnifiers need to be provided when necessary.

Physically disabled students. Physically disabled students are permitted additional time to write tests/examinations. Where indicated, oral tests/examinations need to replace written responses, and scribes may be used to provide written responses.

Students with learning disabilities. Students with learning disabilities are permitted additional time (15 minutes per hour) to write tests and examinations. Where indicated students are afforded the opportunity to respond to test/examination questions in an oral medium.

Other forms of disability. When indicated, students with forms of disability not mentioned above (e.g., epilepsy, as well as psychiatric, hearing, or intellectual disabilities) need to be granted additional time to write examinations and tests.

3.4.3 Challenges faced by the Disability Office

Providing the services noted above is both time consuming and resource intensive, with such provision providing a number of challenges for the Disability Unit at UKZN. These challenges, together with recommended actions designed to address such challenges, were documented by Disability Services at UKZN in 2010 (Audit of Disability Services, 2010) and are summarised below:

3.4.3.1 Disability Policy challenges and recommendation

One of the challenges noted by the Disability Unit relates to policy implementation and compliance, especially in relation to a lack of clarity regarding funding required to implement the UKZN disability policy. In this regard, it was recommended that there needs to be:

- Closer monitoring of the implementation of the UKZN Disability policy by the Human Resources and Equity Offices;
- A structured review process designed to identify new needs; and
- The development of institutional policies designed to ensure the availability of funds required to implement the UKZN disability policy.

3.4.3.2 Staffing challenges and recommendations

Disability services across different campuses at UKZN are provided by academic staff and by student assistants who are employed on a contract basis during the academic year. This reliance on temporary contract appointments impacts negatively on both the quality and continuity of service provision to students with disabilities, as student assistants tend to terminate their contracts prematurely, especially in the critical period leading up to examinations. In this context, it was recommended that:

- There needs to be an increase in the number of information access officers attached to Disability Units across all five campuses;
- Permanent Staff should be employed in addition to student assistants; and
- Full time posts of Disability Support Officer, Information Access Officer and Administrative Officer need to be considered.

3.4.3.3 Space challenge and recommendation

Working spaces at UKZN are, at times, not adequate to meet the needs of disabled students (e.g., congested LANs, an absence of dedicated taping rooms) As such, it was recommended that the university provide adequate and appropriate spaces to meet the specialized needs of disabled students.

3.4.3.4 Funding challenges and recommendations

Many disabled students do not qualify for National Student Financial Aid Scheme (NSFAS) bursaries; with such students being disadvantaged as they experience challenges in accessing essential (and often exorbitantly priced) assistive devices required to optimise learning.

Funding challenges also arise as a result of the fact that Disability Units on different campuses do not have separate budgets, leading to confusion regarding how funding should be devolved to the Units. Although *ad hoc* expenses in relation to supplies and services are covered by the Student Counselling and Careers Centres, there is an ongoing need for Disability Units to motivate for funding required to purchase: assistive devices for students, computers, software, and so on. Thus, it was recommended that:

- Disability Units require a central budget allocation for its personnel, supplies and services and capital equipment needs; and
- The cost of reformatting course material for visually impaired students must be incurred by individual faculties via student fees.

3.4.3.5 Attitudinal barriers challenges and recommendations

Prejudice and discrimination experienced by students with disabilities, from some academic and support staff, remains a barrier to student progress and development; with this situation being compounded by the fact that many academics do not fully understand the needs of disabled students and therefore do not adequately accommodate for the needs of such students. As such, it was recommended that:

- Academic staff would benefit from exposure to workshops and awareness programmes designed to address attitudinal and informational barriers to disability support issues;

- Academic departments should have a special budget to address some of the academic needs of students with disabilities (e.g. photocopying of transparencies or reformatting of course packs in large print, purchasing electronic materials via the Library, etc.);
- In order to integrate persons with disabilities into the academic mainstream, all faculties should include in their brochures/information bulletins, a brief outline of support services available to students with disabilities;
- Academic staff need to ensure that prescribed texts and course packs are made available in electronic format; and
- Compulsory education and awareness programmes relating to disability issues need to be included as part of the induction and orientation procedure for all new staff.

3.4.3.6 Information Technology (IT)

Some of the staff working in the IT Department at UKZN are not adequately trained to support and maintain the computer adaptive hardware and software used in the Disability Laboratories. As such, it was recommended that the IT Department have dedicated staff who are responsible for: (a) the maintenance of adaptive software and hardware and (b) the university wide purchase of adaptive software.

3.4.3.7 Accessing challenges and recommendations

Students and staff with disabilities continue to experience difficulties in accessing certain lecture venues and other important resources on campus. Thus, it was recommended that:

- An access audit needs to be conducted as a matter of urgency;

- Students with physical disabilities, especially wheelchair users, should not be forced to attend lectures in inaccessible venues;
- All physical barriers experienced by disabled students in university residences need to be effectively addressed; and
- Access barriers to important resources (such as the university health clinic) need to be effectively addressed.

3.4.3.8 Current model challenges and recommendations

The Disability Support Units (DSU) at UKZN are under the leadership of the Student Counselling Centres (SCC), while the Disability Support Office shares resources with the Student Counselling centre. Some of the challenges arising from this arrangement are that:

- DSUs do not always receive the prominence and attention that such units warrant;
- There are inconsistencies in budget allocation to DSUs on different campuses; and
- Some disabled students feel stigmatised as a result of being associated with student counselling services.

In this context, it was recommended that Disability Support Services at UKZN need to operate separately from Student Counselling Centres (i.e., having their own identity, budget, resources, and leadership) in order to ensure an equitable distribution of resources and the standardization of disability services across campuses.

3.5. Conclusion

This chapter examined the nature and scope of disability within a human rights context and explored aspects of access and accommodation to disabilities within the context of disability and legal frameworks. Issues relating to disability were examined both globally and locally.

Disability was contextualized within a disability framework by providing general statistics on disability both globally and nationally. Second, barriers experienced by individuals with disability were discussed. And third, disability was examined as a human rights issue by exploring both global and national legal frameworks. The chapter concluded by providing an overview of the Disability Policy of the University of KwaZulu-Natal in order to: (a) provide an indication of how disability issues are being addressed at a South African tertiary institution, (b) highlight some of the challenges associated with addressing disability issues at a tertiary educational level, and (c) provide an overview of the proximal policy framework that directly informs the experiences of disabled students who participated in the present research.

Although the primary focus of this thesis (i.e., ADHD) was not directly addressed in the chapter, the chapter provides an overview of frameworks, legislation, and policies that have direct relevance to persons living with any form of disability, including ADHD.

CHAPTER 4

MANAGEMENT OF ADHD

4.1 Introduction

According to Bester (2000):

“ADHD is not a disease. It cannot be cured but it can be managed effectively. All of us have certain personality traits and behaviour patterns which do not completely conform to the system within which we have to function. We grow, learn and find ways to manage that behaviour in such a way that it will harm us less and less without impairing our personalities or individual natures.” (p. 65)

As discussed in Chapter two, there are three broad perspectives on the causes of ADHD, with the management and treatment of ADHD being informed by each of these perspectives. Thus, if ADHD is seen to have biological roots, then treatment and management tends to be implemented at this level through medication. Alternatively, if psycho-social factors are seen as primary aetiological influences, then psycho-social treatment plans tend to be viewed as the primary mode of treatment and management. This chapter examines biological, psychological, and social management tools used in the treatment of ADHD

4.2 Biopsychosocial management

4.2.1. Biophysical interventions

Biophysical interventions in managing ADHD include pharmacotherapy, biofeedback therapy, and diet. These will be discussed below.

4.2.1.1. Pharmacotherapy

Symptoms of ADHD such as restlessness, impulsivity, and hyperactivity are frequently treated using pharmacological agents. These agents comprise both stimulant and non-stimulant medications. The most widely used medications are central nervous system stimulants (such as amphetamines, caffeine, and cocaine) which produce an inhibitory effect on the brain stem circuitry, via the descending neural pathways from the self-regulation regions of the brain. This effect enables a person to filter out irrelevant stimuli and to focus their attention on the working memory system where goal setting, self-reflection, problem solving, and other cognitive processes take place. The four most commonly used stimulants are: methylphenidate (Ritalin), dextroamphetamine (Dexedrine), pemoline (Cylert), and dextroamphetamine aspartate (Adderall). Non-stimulant medications used in the treatment of ADHD include several antidepressants as well as blood pressure medications, including atomoxetine, bupropion, tricyclic antidepressants, and clonidine. (Peirce, 2008; Santosh, 2007; Solanto et al., 2007; Spensor et al 2011, Kooij 2011; Sharma et al. 2014)

There are some concerns over the use of these medications. While stimulants have an extremely high margin of safety, their use has been found to be associated with a number of undesirable side-effects, including irritability, headaches, abdominal pain, and loss of appetite (Santosh, 2007). Non-stimulant medications have more side-effects than stimulants and may require up to three weeks before they affect ADHD symptoms, as opposed to the immediate effect of stimulant medication (Peirce; 2008). In a systematic review of literature on the pathophysiology, aetiology, and treatment of ADHD, Sharma et al. (2014) argue for the benefits of drug therapy but warn that medication must be dispensed with caution. Stimulants are considered as a first-line therapy and are often prescribed in a patient-specific manner, after taking into account the patient's age, preferences, comorbidities, drug side-effects, and drug interactions. However, Sharma et al. (2014) note that stimulant medication has multiple

side-effects, drug interactions, and a potential for substance abuse if not used correctly. According to the authors, medication must be initiated at low doses and gradually titrated upward, with patients needing to be monitored continuously for efficacy and for the emergence of side-effects.

Concern has risen in recent years over the possibility that ADHD medication use may be associated with substance abuse and misuse (White, et al, 2006). However, Kollins (2011), maintains that both research and clinical experience support the notion that such substance abuse is comparatively rare among individuals with ADHD, with the abuse of stimulant medication tending to be more common amongst individuals not diagnosed with ADHD (especially college students who tend to abuse stimulants in order to increase attention and concentration in a highly competitive academic environment).

According to Kooij (2011), a failure to use medication in the treatment of ADHD may constitute less than appropriate/optimal intervention. Kooij (2011) maintains that

“After more than a decade of experience treating several hundred patients, positive results using psychoeducation, coaching, and psychotherapy without medication have been scarce. Clinical experience indicates that most patients forget appointments with their therapist if they are not being treated with medication, thereby interrupting their treatment. Patients may also be easily distracted from the treatment goals once another therapy comes along that seems more appealing. A substantial group of those patients who do not want to use medication for ADHD do not show up anymore after three months. Others resist appropriate medication for years, during which they do not make any real progress.” (p. 219)

4.2.1.2. Neuro-feedback therapy

According to Sirvio et al. (2011), neuro-feedback, also referred to as EEG biofeedback, has been a non-pharmacological treatment for ADHD since 1979 and has a growing scientific evidence base. Neuro-feedback is an operant conditioning procedure whereby individuals learn to self-regulate bio-electrical activity in the brain. The overall goal is to improve mental flexibility and to produce a mental state appropriate to situational requirements. Sirvio et al. (2011) state that studies conducted thus far have shown that neuro-feedback addresses the core symptoms of ADHD. However, most of the research on neuro-feedback has been conducted on child and adolescent samples, and although available findings are encouraging, there is a need for further controlled, larger group, studies on adults with ADHD.

Gevensleben et al. (2014) maintain that neuro-feedback seems to be on its way to becoming a valuable and ethically accepted treatment modality. However, they (2013) maintain that medium effect sizes in adequate control trials indicate that it should not be seen as a stand-alone intervention but rather as a module within a multimodal tailored treatment programme.

4.2.1.3. Diet therapy

Various studies have been conducted on diet therapy as an alternate treatment to ADHD. According to Millichap (2012), *“the role of diet and dietary supplements in the cause and treatment of attention-deficit/hyperactivity disorder (ADHD) in children is controversial, but the topic continues to interest parents and physicians who prefer an alternative to stimulant medication or who seek a complementary therapy.”* (p. 330)

In addition, Millichap (2012) maintains that there is a need for diet therapy treatment for ADHD as an alternative/complementary intervention in cases where there is medication

failure or adverse reactions to medication and when there are symptoms or signs of mineral deficiency.

Diet therapy treatment ranges from food elimination, to food supplementation and substitutes, to additive free diets. Millichap et al. (2012), in attempting to provide a comprehensive overview of the role of dietary methods for the treatment of children with ADHD, identified the following dietary treatments: (a) sugar-restricted diets, (b) additive and salicylate-free diets (the Feingold diet), (c) oligoantigenic (hypoallergenic/elimination) diets, (d) ketogenic diets, (e) the use of megavitamins and (f) the use of polyunsaturated fatty acid supplements (PUFA/omega supplements diet). In addition, Spetie et al. (2011) list the following dietary interventions that have been used in the treatment of ADHD: nutritional supplementation, amino acid supplementation, the use of L-Carnitine, essential fatty acid supplementation, choline supplementation, glyconutritional supplements, supplementation with vitamins and minerals, zinc, magnesium, iron, de-lead therapy, dietary eliminations, homeopathic treatments, and herbal treatment.

In a systematic review and meta-analyses of randomized controlled trials of non-pharmacological interventions for ADHD – i.e., dietary and psychological treatments – Sonnuga-Barke et al. (2013) found that free fatty acid supplementations and artificial food colour exclusions appear to have beneficial effects on ADHD symptoms, although the effect of the former are small and those of the latter may be limited to ADHD patients with food sensitivities. However, Edmund and colleagues (2013) maintain that evidence for the efficacy of non-pharmacological interventions from blinded assessment is required before the efficacy of dietary and psychological interventions can be established with any confidence – with the challenge for the future being: (a) to improve the efficacy of non-pharmacological interventions for ADHD on the basis of a growing understanding of ADHD pathophysiology, and (b) to better integrate these interventions with pharmacological approaches.

4.2.2. Psychological and Social management

Management of ADHD at the psychosocial level includes psychological interventions such as Behavioural Therapy and Cognitive Behavioural Therapy. These psychological interventions provide individuals with ADHD with skills that can be used to regulate behaviour and thought patterns, so as to alter the immediate consequences of undesirable behaviour. Other psychosocial interventions for ADHD include the Strength Based Perspective, psycho-education, and coaching. These will be discussed below.

4.2.2.1. Behaviour therapy

Behaviour therapy is a pragmatic approach to the treatment of ADHD that targets problematic symptoms and behaviours. Individuals are encouraged to acquire the tools to control their behaviour by identifying feelings and events that trigger behaviours. When such feelings/events are identified the individual is taught ways of avoiding them or substituting them with alternative responses. A reward system is also implemented to change behaviour (Brock et al., 2009; Kelly & Ramundo, 1996).

Sinclair (2007) provides a more detailed explanation of the process involved in behaviour therapy. According to Sinclair (2007), ADHD represents a significant impairment in the ability to inhibit or to delay behavioural responses, with this impairment resulting from an imbalance between two opposing neuropsychological systems: a behavioural inhibition system (BIS) and a behavioural activation system (BAS). The BIS is activated in the context of punishment, non-reward, or novelty and results in the withholding of the response, while the BAS is triggered by signals of reward resulting in behavioural activation. Individuals with ADHD are thought to have an under active BIS and thus are less likely to inhibit responses when such responses are associated with punishment or non-reward.

4.2.2.2. Cognitive behavioural therapy (CBT)

McDermott (2011) states that, *“The cornerstone of most forms of CBT is the interplay among behaviours, emotions, and cognitions. Although ADHD is defined by dysfunctional behaviours, it also has a strong emotional and cognitive/belief component.”* (p. 265)

Sinclair (2007) points out that the basic premise of cognitive behaviour therapy is that the child with ADHD lacks the skills necessary to regulate their behaviour, with this deficiency accounting for difficulties in regulating attentive, impulsive, and interpersonal behaviours. In this context, Cognitive Behaviour Therapy is designed to equip individuals with conscious and effortful control strategies designed to improve response inhibition. The expectation is that the enhancement and internalisation of self-regulating cognitive skills should provide the person with the means for more appropriate behavioural regulation. Individuals are encouraged to control their behaviours and actions through self-instructional training, in terms of which individuals are encouraged to ‘talk themselves’ out of situations. For example if they are impulsive, they learn to say “stop, look, listen”, before taking action.

McDermott (2011), in evaluating six major psychosocial intervention studies (from 1999 to 2006) for adults with ADHD, concluded that CBT interventions for adults with ADHD tend to have two components: establishing structure in the adult’s life, and teaching the patient the skills necessary to deal with the impediments of establishing and maintaining structure.

A vast number of studies of CBT have been conducted on adults with ADHD with favourable outcomes. Four of the studies that fall within the scope of this study will be briefly highlighted below to demonstrate the effectiveness of CBT.

A case study conducted by Sprich et al. (2015), on three adolescents, who participated in an open pilot trial, demonstrated that CBT for adolescents (who were on ADHD

medication and where the parents were directly involved in treatment) yielded clinically significant improvements in ADHD symptoms.

Further, a study by Eddy et al. (2015) demonstrated that the implementation of individually based CBT with college students led to improvements in functional impairments and, to a lesser extent, to improvements in comorbid anxiety and depression.

In another study, Anastopoulos et al. (2015) implemented an ACCESS (Accessing Campus Connections and Empowering Student Success) programme, which provided group cognitive behaviour therapy and which was accompanied by individual mentoring. This programme was found to lead to improvements in personal adjustment and emotional wellbeing, reduce the severity of dysfunction associated with ADHD symptoms, and increase engagement with campus adjunctive services, including an increased use of disability services. And finally, LaCount et al. (2015) employed a group-plus-individual CBT treatment design for college students, using an intent-to-treat analytic approach, which was found to be associated with improvement in symptoms relating to inattentiveness. However, study findings showed no statistically significant reduction in hyperactivity/impulsivity symptoms and no significant changes in self-esteem or daily living skills.

Some of the general limitations of these studies include small sample sizes, a need for random sample assignment and controlled conditions, the need for independent assessors and blinding regarding treatment status, the need for multiple baseline and data collection strategies, and the need for further research to determine the efficacy and effectiveness of treatment outcomes (Sprich et al., 2015; Eddy et al., 2015; Anastopoulos et al., 2015; LaCount et al., 2015).

4.2.2.3. The Strength-Based Perspective

The Strength-Based Perspective (SBP), which is informed by positive psychology and a resilience perspective, emphasizes the need to pay attention to the strength, resources, and successes of individuals rather than only focussing on the negative and/or challenging aspects. Proponents of an SBP perspective would argue that in addition to remediating deficits, effective intervention must place equal weight on nurturing strengths of the individual that help to promote resilience and effective coping; the underlying assumption being that attempts to capitalise on an individual's strengths and abilities can ameliorate and compensate for areas of weakness (Climie et al., 2015; Climie et al., 2013; Masten, 2014).

According to Climie et al. (2015), a strength-based perspective provides children with ADHD with more balanced support, by capitalizing on areas of strength, enhancing wellbeing, and fostering resilience. Further, a strength-based perspective can complement current psychological and educational practices by helping researchers and practitioners to recognise what individuals with ADHD do well, and by identifying what helps them to be successful and happy.

4.2.2.4. Psychosocial education

Van Lammeren et al. (2011) maintain that "*psychoeducation for adults is an important psychosocial intervention and should be incorporated into all treatment plans.*" (p. 245). Such educational interventions – which include the provision of information about the disorder, its causes, symptoms, and treatment – is regarded by Van Lammeren and colleagues (2011) as an important first step in the treatment of ADHD, with such psychoeducational efforts needing to be directed at partners, family members, close friends and colleagues who play a central and active role in treatment. As such, psychoeducational efforts should be regarded as an essential element of good clinical practice.

In evaluating the immediate and long term effects of psychoeducation programmes for ADHD, Ferrin et al. (2014) found that, at 1-year follow-up, such programmes lead to: (a) significantly reduced indices of ADHD symptomatology, (b) improvements in cognitive/inattention levels, and (c) improvements in the pro-social domain. The authors conclude that, in the treatment of ADHD “*psychoeducation needs to be regarded not as a substitute but as a complementary treatment to medication.*” (p. 646).

4.2.2.5. Coaching in ADHD

ADHD coaching is a partnership between therapist and patient, with the aim of the exercise being to design an effective plan of action to improve performance in everyday life. According to Ryffel (2011), two steps are needed to achieve this aim. The first is for the individual to understand why and how ADHD results in impairments in effective functioning, with the second step involving efforts by the individual to accept their condition and to make a commitment to change. Following these two steps, achievable and realistic goals and expectations are identified and a plan of action is formulated and implemented with the aid of the coach.

While coaching by itself cannot be defined as therapy, coaching combined with CBT and medication can be very effective (Ryffel, 2011). According to Ryffel (2011) coaching is about the questions *what*, *when*, and *how*; while CBT addresses the question of *why*.

4.2.3. The Efficacy of Biophysical and Psychosocial Interventions

The comparative efficacy of biophysical, psychosocial, and combined interventions will be highlighted in this section.

In a meta-analytic study on the efficacy of methylphenidate, psychosocial treatments and their combination in school-aged children with ADHD, Oord et al. (2007) concluded that

both methylphenidate and psychosocial treatments are effective in reducing ADHD symptoms. However, psychosocial treatments were found to yield smaller effects than either methylphenidate alone, or methylphenidate combined with psychosocial treatment

Further, in examining the comparative efficacy of unimodal (i.e., medication management or psychotherapeutic intervention) versus multimodal (combined medication and psychosocial interventions) in children with ADHD, Hinshaw et al. (2014) found that after 14 months of active intervention the core symptoms of ADHD show significantly greater improvements in the medication only and in the multimodal conditions than in the psychotherapy only condition. They found that despite clear evidence of the efficacy of medication only, or combined interventions, treatment effects dissipated rapidly when the medication is terminated or when behavioural treatments are terminated. According to Hinshaw and colleagues (2014):

“...both behavioural and medication treatments are best viewed as palliative rather than curative. The paradox is that, despite their proven short-term benefits, no clinically significant and enduring intervention (or intervention combination) exists for this condition, as of yet. Perhaps this fact should come as no great surprise, given the complex etiological pathways linked to the emergence and maintenance of this condition. [Further], it will take advances in basic science – related to the formation of synaptic pathways underlying attention, response inhibition, intrinsic motivation, and self-regulation – and (1) extending efficacious treatments and (2) developing new treatments to meet the considerable challenge aheadIntervention for ADHD must be viewed as a lifelong enterprise, with a major need to implement developmental extensions of evidence-based treatments into adolescence and adulthood, as well as the development of new treatments appropriate for each age. The clinical picture of ADHD’s trajectory is devastating in far too many cases, with outcomes of academic and vocational failure, low levels of

organizational skills and executive functions, substance abuse, self-injury, and interpersonal tumult, demanding a concerted effort to rethink our fundamental attitudes and approaches toward this condition.” (p. 48).

4.3 Conclusion

Management strategies used to treat ADHD range from biophysical interventions (pharmacotherapy, Neuro-feedback therapy, and diet therapy) to psychological and social management (behaviour therapy, cognitive behaviour therapy, the strength-based perspective, psychosocial education, and coaching). Biophysical interventions play a role in regulating the central nervous systems, increasing brainwave activity in certain regions of the brain, and regulating symptoms of ADHD, while psychological and social management interventions provide individuals with training and skills required to regulate behaviour and thought patterns. Studies have shown that these interventions are effective and play a vital role in the treatment of ADHD. Moreover, studies have shown that psychosocial interventions alone yield smaller effect sizes than either medication alone or combined treatments (i.e., medication and psychosocial interventions). Some of the limitations of available studies on ADHD interventions are: (a) a reliance on relatively small sample sizes, (b) a need for research based on random assignment to treatment conditions and strong experimental control, and (c) the need for studies involving blinded treatment conditions.

CHAPTER 5

MEDITATION PRACTICES AND THE MANAGEMENT OF ADHD

5.1. Introduction

The previous chapter examined the management of ADHD symptoms from a biopsychosocial perspective. This chapter will explore new/innovative approaches to the management of ADHD, including meditation, mindfulness, and breath.

The chapter starts by examining the meaning and characteristics of meditation, mindfulness and breath, before going on to explore the use of meditation as a management tool, with specific reference to ADHD.

5.2. Meditation

5.2.1 Meditation practices

Goldstein (1999) defines meditation practices as:

“...an investigation of who we are. It is the investigation of our bodies, our breath, of the sensations of subtle energies, of movement. It is the investigation of our minds: thoughts, emotions, the nature of awareness, of consciousness itself. It is the investigation of silence. In meditation practice we explore all these aspects of ourselves.” (p. 118)

Consistent with this view, Nairn (2001) defines meditation as a *“method of gaining access to our inner wisdom and compassion – and resolving our inner problems in the process.”* (p. 14) Nairn (2001) elaborates that meditation is simply training ourselves to be present in the moment, with exactly what is there. Meditation does not support a success/failure paradigm, especially since meditation reveals a paradoxical situation. With

meditation we experience the good and the bad of our existence without judgement. Nothing is suppressed. The attitude of acceptance is important.

There also seems to be a strong focus within recent studies on viewing meditation as an aspect of attention awareness (gaining control over our attention process) and as a thought reduction training technique (increasing focus). Rubia (2009) maintains that a common characteristic of most meditation techniques is an emphasis on the training of concentrated attention skills toward a reduction or elimination of thoughts. In other words, meditation techniques are essentially directed at attention training, leading to an enhanced ability for thoughts to be consciously manipulated. This view is supported by Shapiro, et al., (2011) who maintain that meditation encompasses a number of practices. However, while meditation techniques may differ, all forms of meditation share a common goal of training an individual's attention and awareness to that of consciousness, which enables the individual to become more finely attuned to events and experiences in the present.

At a general level, meditation plays a substantial role in many spiritual, religious and psychological traditions and has a distinct eastern flair about it (West, 1990). Within eastern traditions (mainly in spiritual and religious practices) meditation is viewed as a means to obtain experiential knowledge of mind and self and soul, a perspective which contrasts markedly with Western concerns regarding empirically verifiable knowledge.

In Eastern (and other) philosophies meditation is used as a means of exploring higher levels of consciousness to a point where there is oneness with God, i.e., divinity in everything and in everyone, with these philosophies including: the Hindu Bhakti tradition, the Jewish cabbala, Christian Hesychasm and other Christian mystic traditions, and the Sufi tradition of Islam. For instance, in the Sufi tradition, meditation is a central practice in the attempt to reach a state called *fana* or 'passing away in God'. According to Sufi doctrine:

“Our lives are a thin illusion of habitual reactions, imprisonment by desires, and endless suffering. Through regular practice of meditation and remembrance of God we can achieve an increased absorption in God. The goal of Sufi meditation or 'zikr' is to overcome the mind's waywardness and random play, and to achieve one-pointedness on God, so that God pervades the mind's activity.” West, 1990, p. 42)

By way of contrast, in the western tradition, research on meditation tends to be informed by perspectives which reflect an adherence to a medical model, with participants in research on meditation tending to be viewed as *patients* with an *illness*, and with meditation being viewed as a potential/possible *cure* for various ailments, including hypertension, headaches, drug abuse, and even as an aid to memory and scholastic performance. (West, 1990)

5.2.2 Types of meditation

It is generally acknowledged that different types of meditation can be divided into two categories (Baijal & Gupta, 2008; Cahn & Polich, 2009; Grosswald et al., 2008; Ivanovski & Malhi, 2007; Kristeller, 2007):

- *techniques of contemplation*: which include mindfulness meditation practices – in which the goal is to be aware of any and all thoughts and sensations, while trying not to judge or become actively involved in the thoughts (also referred to as insight meditation or *Vipassana* practice).
- *techniques of concentration*: in which individuals are directed to focus on something specific (such as one's breath, an event, an image, a sound, or specific movements) in order to focus the individual's attention on a single point.

Baijal and Gupta (2008) state that these two types of meditation can be linked to two different systems of attention: either (a) narrowing attention through focusing on internal

events such as breathing or on a sound (*mantra*), or (b) expanding attention through focusing in a non-judgemental manner on moment to moment experience and/or through an increased metacognitive awareness of thoughts and feelings.

Virtually all meditative approaches combine elements of both concentration and mindfulness practices (Kristeller, 2007; Shapiro et al., 2011). For example, a person may focus on breath or a sound (*mantra*) while at the same time being willing to allow their attention to focus on other stimuli (if they become predominant), before returning to the object of attention. Ivanovski and Malhi (2007) note that some researchers have suggested that most meditation techniques lie somewhere along a continuum of mindfulness-concentration practice.

It is important to note that both of these practices use *breath* as a point of focus, as an anchor and/or as a sensation.

5.2.3 Techniques of contemplation and concentration

5.2.3.1 Mindfulness

The goal of mindfulness meditation, according to Kristeller (2007), is to cultivate a stable and nonreactive awareness of one's internal (e.g., cognitive-affective-sensory) and external (social-environment) experiences. This development of stable attention and non-judgemental awareness eventually leads to the suspension of habitual patterns of reactivity, facilitating the emergence of self-regulatory functioning.

Gunaratana (1999), describe the following as characteristics of mindfulness:

- *Mindfulness is mirror-thought.* It reflects only what is presently happening and in exactly the way it is happening.

- *Mindfulness is non-judgmental observation* (i.e., the ability of the mind to observe without criticism). With this ability, one sees things without condemnation or judgment. One is surprised by nothing. One simply takes a balanced interest in things exactly as they are in their natural state.
- *Mindfulness involves impartial watchfulness*. It does not take sides. It does not become concerned by what is perceived – it just perceives. Mindfulness does not become infatuated with positive mental states, nor does it try to avoid negative mental states (there is no clinging to the pleasant or fleeing from the unpleasant). Mindfulness treats all experiences, thoughts, and feelings equally, with nothing being repressed or suppressed.
- *Mindfulness is non-conceptual awareness*. It is ‘bare attention’ that does not involve thoughts, concepts, ideas, memories, or opinions. Although mindfulness registers experiences, it does not compare, label, or categorize them. It just observes everything as if it were occurring for the first time. It does not involve analysis (based on reflection and memory) but focuses rather on the direct and immediate experiencing of whatever is happening.
- *Mindfulness is present-time awareness*. It takes place in the here and now; involving an observance of what is happening right now, in the present moment.
- *Mindfulness is awareness of change*. It involves observing the passing flow of experience and becoming aware of things as they change.
- *Mindfulness is watching things moment by moment, continuously*. It is observing all phenomena – physical, mental, or emotional – as they become a focus of attention. Mindfulness involves the observance of the basic nature of each passing phenomenon, and becoming aware of how such observations affect the self and others.

- *In mindfulness, one is an unbiased observer* whose sole job is to keep track of the constantly passing show of the universe within. In mindfulness, one watches the universe within. The meditator who is developing mindfulness is not concerned with the external universe. In meditation one's field of study is one's own experience, one's thoughts, one's feelings, and one's perceptions. In meditation, one is one's own laboratory. The universe within has an enormous fund of information containing reflections of the external world and much more.
- *Mindfulness is participatory observation.* The meditator is both participant and observer at one and the same time. If one becomes aware of one's emotions or physical sensations, one is feeling them at that very same moment. Mindfulness is not an intellectual awareness, it is just awareness.
- *Mindfulness is objective*, but it is not cold or unfeeling. It is the wakeful experience of life, an alert participation in the ongoing process of living (pp. 134-137).

5.2.3.2 Breath

The following characteristics of *breath* have been described by Dodds (2008); Edwards (2008); Martin (2008) and Sherwood (2008):

- *Breath is a life force.* Breath gives us life. We cannot live without it. When we are born we take in our first breath and when we die we take in our last. Breath is always present, consciously or unconsciously. Furthermore, breath is something we cannot control for a long period of time. (Martin, 2008; Sherwood, 2008)
- *Breath is intelligent.* Breath is responsible for the functioning of our core being. It affects, and is affected by, every feeling, movement, sensation, and thought we have, and is responsible for balancing and harmonising all internal and external organs in the human body such as the digestive system, circulation, neurochemical and

endocrine systems, as well as central, peripheral and autonomic division of the nervous system. While breath energy is usually unconscious, highly developed acts of skill such as talking and singing require some form of breath control, which may be conscious or unconscious (Edwards, 2008). Holding one's breath can suppress painful feelings, while restricting the depth of breathing can reduce the intensity of feelings. Energetically speaking, every tense muscle reflects previous breath restrictions (which often cover layers of traumatic events). Releasing such restrictions, tensions, and traumas requires breathing fully into the afflicted areas. (Edwards, 2008; Sherwood, 2008)

- *Breath energises and relaxes.* Breath is responsible for the energy levels of each human being. It can be used to increase and/or decrease energy levels, consciously and/or unconsciously. Every in-breath energises and stimulates the sympathetic division of the autonomous nervous system, while every out-breath is relaxing and stimulates the parasympathetic division of the autonomous nervous system. Furthermore, if more energy is needed, inhalation needs to be longer than the exhalation, while if rest is required exhalation must be longer than the inhalation. This is generally an unconscious process, which may become conscious through attempts to consciously control breathing (Edwards, 2008)
- *Breath is a body-mind bridge.* Breath connects the body to the mind. We are conditioned and shaped by biological, social, and environmental learning; with conditioned learning from previous experiences influencing our interpretation of the present. By focusing on breath, we can clear the mind of conceptual learning. (Dodds, 2008)
- *Breath is paradoxical.* The very nature of breath allows for simultaneous stillness and movement. While stillness is associated with concentrating attention on a single point

(the breath), the rhythmic movement of the breath evokes awareness of movement, flow, and infinite possibilities. Breath acts like an anchor to the present moment, while at other times it is like a river (containing but flowing). These metaphors of ‘stillness’ and ‘movement’, of ‘anchor’ and ‘flowing’, evoke the mindful acceptance of emotions and sensations which are not fixed, and allow for non-clinging awareness and acceptance without judgement. (Dodds, 2008; Martin, 2008; Edwards, 2008)

- *Breath is spiritual connection.* Breath can be viewed as a link to God, (one’s higher self) and as a link to all human beings; with this spiritual theme being present in most world religions. It is generally believed that God made man from clay/dust and man only got life when God breathed life into him/her. Edwards (2008) notes that this subtle, vital, animating, and energising aspect of “God’s Breath” has long been recognized by ancient African, Indian, Greek, and Chinese traditions in concepts such as *umoyo*, *prana*, *psyche*, and *chi*, which form the essence of various spiritual healing practices. The spiritual healing task is to balance and harmonise various patterns of breath energy flow within and without our physical and subtle bodies (and in our interpersonal, social, ecological and spiritual relationships) through tuning in to the rhythm/vibrations of the cosmos, nature, and humanity (Edwards, 2008).

5.2.4 Meditation styles and techniques

Various meditational styles and techniques exist within contemplative traditions as well as within recent and western therapeutic practices, especially within mindfulness meditation. These styles may be practiced as seated meditations, movement meditations (such as walking) and body scans (physical sensations within body).

The techniques within these styles may range from prayer, to movement and dance rituals (such as yoga, drumming), sound vibration (such as song, *mantra* meditation), breath

awareness (concentration and contemplation meditation practices) and guided meditation and open awareness mindfulness techniques (contemplation practices). Some of these will be discussed below.

Open-awareness mindfulness techniques. In open awareness, attention is normally focused on whatever arises in the realm of consciousness, and as one object of consciousness fades awareness is shifted to the next object that comes into one's awareness (without engaging the reactive and analytical mind). One simply observes, cultivating a "bare hovering attention". This technique assists the individual to become aware without engaging with the content of thought. (Kristeller, 2007)

Guided awareness. Guided awareness engages a particular aspect of the self in a mindful, rather than an analytic or judgemental, manner. The goal of guided awareness is to first increase awareness of a targeted issue (hunger, stress, depression) and then to modify the nature of cognitive, behavioural or emotional responses and reactivity to such experiences. (Kristeller, 2007)

Breath awareness. The goal of breath awareness is to use breath focus as a way to both cultivate and re-engage the attention when it becomes caught up in analytic thinking. Training the mind to focus on the breath is an important element of mindfulness (Kristeller, 2007). Within these practices there are various types of breath work:

- *Equal breath (sama vritti breathing).* Equal breath otherwise known as *sama vritti* breathing is a when the inhalation and exhalation are equal in length. *Vritti* refers to the length of the breath and *sama* means same. This equalizing of inhalation and exhalation can be achieved through counting and in some instances through the use of *mantra* (sound). When performing this breathing, the length of inhalation and exhalation can be increased or decreased. For example, inhalation and exhalation can start with a duration of four beats or counts and can increase to a duration of 5-8

counts before being decreased to four counts. This type of breath work can be practised alone or in conjunction with other breath work such as Conqueror's Breath (*Ujjayi*) or Digital breathing (*Nadi Shodhana*). (Brown, 2003; Iyengar, 1979; Vidyananda, 2011)

- *Conqueror's breath (ujjayi breathing)*. One of the most important type of breath work is *Ujjayi* breathing or Conqueror's Breath. The name *Ujjayi* is descriptive of the way the chest is held during respiration – lifted up and expanded, like that of a proud conqueror. The breath is felt in the throat and upper palate and a slight resistance for the breath is created which can be heard and felt inside the throat. Generally the inhalation is relaxed, allowing the vacuum created by the downward movement of the diaphragm to be filled with air. During the exhalation the stomach muscles can contract, aiding the action of the diaphragm to squeeze the air out. (Brown, 2003; Iyengar, 1979; Louw, 2008)
- *Breath retention*. Breath retention is when the breath is retained for a period of time. There are two aspects to this type of breathing, *interior* and *exterior* breath retention. In interior breath retention (*kumbhaka*) an individual inhales completely and then holds the breath. For exhalation breath retention (*kumbaka*) one exhales completely and then retains the breath. The flow of air is controlled so that it is even and not rushed. (Louw, 2008)
- *Viloma breathing*. The word *viloma* when broken down into its component parts means literally anti-hair, or going against the grain or the natural order of things. It means to breathe in an unnatural way or to interrupt the flow of air into the lungs several times when inhaling or exhaling. For example, an individual breathes in for two seconds, holds for two seconds, breathes in again for two seconds, and then repeats until the lungs are full. This is followed by exhalation in a long continuous

breath for beginners, or in an interrupted manner for experienced individuals. (Brown, 2003; Iyengar, 1979; Louw, 2008)

- *Sitali*. *Sitali* is one of the few breathing techniques that are done through the mouth as well as the nose. Extend the tongue outside the mouth and roll the sides of the tongue up so that it forms a tube. Inhale and draw the breath in through this tube. At the end of the inhalation, draw the tongue in, close the mouth and exhale through the nose. (Iyengar, 1979; Louw, 2008)
- *Breath of fire*. This is known as the yogic "breath of fire". It heats and energizes the body. Inhale deeply through both nostrils, expanding the abdomen, and exhale with a forceful contraction of the abdominal muscles. Do not strain. The next inhalation takes place by passively allowing the abdominal muscles to expand. After completing rapid breaths in succession inhale and exhale deeply. It is important that the rapid breathing is from the abdomen and not from the chest. (Iyengar, 1979; Louw, 2008)
- *Digital breathing (Nadisodhana)*. In digital breathing, the thumb and ring finger of the right hand are used to regulate and control the flow of breath through the nostrils. At the beginning of the breathing exercise, the right nostril is closed with the thumb and breathe is inhaled through the left nostril. Then the left nostril is closed with the ring finger, release the thumb on the right nostril and exhale through that nostril. Next, inhale through the right nostril and then close it, open the left nostril and exhale through the left nostril. (Brown, 2003; Iyengar, 1979; Louw, 2008)

5.2.5 Length of meditation practice

According to Kristeller (2007), both concentration and contemplative meditative practices involve a certain length of time, such as 20 to 40 minutes twice a day. Kristeller

(2007) cites a number of authors (e.g., Fontana & Slack, 1997; Rozman, 1994) who maintain that shorter periods of time (5 to 10 minutes) may be helpful for children. Shorter meditation is also helpful in a special setting, however, Kristeller (2007) notes that shorter periods may not allow the mind enough time to shift into an absorptive state, particularly earlier in practice. However, the moment-to-moment awareness of daily life (whether 3-5 minutes or 3-5 seconds), may become a very powerful part of practicing mindfulness.

5.3 Meditation as a management tool

Recently, meditation training has become increasingly accepted in Western societies as a legitimate form of psychological treatment; with a number of recent studies having viewed meditation as a strategy for enhancing attention awareness (gaining control over our attention process) and/or as a reduction training technique (increasing focus). Zylowska et al. (2008) maintain that meditative training activities are likely to engage diverse aspects of attention (e.g. alerting, orientating, and conflict attention) leading to improvements in metacognitive inhibition and working memory – improvements which have clear relevance for the treatment of ADHD. Moreover, Zylowska et al. (2008) cite the work of Barkley (1997) who maintains that difficulties associated with ADHD (attention, working memory, inhibition, arousal, motivation, and emotional regulation) can be categorised as self-regulation impairments and may be subject to change, in part, through training in awareness and/or self-regulation abilities; with such training being central to meditation practices.

5.3.1 Meditation and the management of ADHD

This section reviews and evaluates, empirical studies that have employed meditation practices in the treatment of ADHD, with specific reference to the use of meditation practices as intervention strategies in university/college settings.

Zylowska et al. (2008) examined the efficacy of an eight week mindfulness training programme for adults and adolescents with ADHD. Twenty-four adults and eight adolescents with ADHD were enrolled in an 8-week mindfulness training programme, with the majority of the participants completing the training and reporting high levels of satisfaction with the training. The study showed improvements in self-reported ADHD symptoms and test performance, on tasks measuring attention and cognitive innovations, were noted. Improvements in anxiety and depressive symptoms were also observed. It was concluded that mindfulness training may constitute a feasible intervention in adults and adolescents with ADHD and may improve behavioural and neurocognitive impairments. Limitations of the study included the use of a small ($n = 32$) unrepresentative (female, white educated, medium to high socio-economic status) sample. In addition, the intervention was delivered in a group setting, in which social support may have contributed to the overall positive response and outcome.

Grosswald et al. (2008) tested the feasibility of using transcendental meditation (TM) techniques to reduce stress and anxiety, and as a means of reducing symptoms of ADHD. Students, aged 11 to 14 years old, were taught and practiced TM techniques twice daily at school. Common ADHD inventories and performance measures of executive function were administered at baseline and at 3-months post-intervention. Post-intervention evaluations indicated significant reductions in stress and anxiety as well as significant improvements in ADHD symptoms and executive functioning. Limitations of the study include a small sample size ($N=10$) and the absence of a control group.

Bögels et al. (2008) conducted a study designed to investigate the effects of mindfulness-based cognitive therapy (MBCT) in a sample of adolescents with externalizing problems. The sample consisted of 14 adolescents (ages 11 to 18) with different primary

diagnoses, namely ADHD, Autism Spectrum Disorder (ASD), or Oppositional Defiant Disorder (ODD)/Conduct Disorder (CD); with participants' parents (eight mothers and six fathers) also being involved in the intervention. The mindfulness training was based on an 8-week course of MBCT for depression, developed by Segal et al. (2006), with the intervention being adapted to the age and specific presenting problems of participants. The parent group received MBPT in sessions that ran parallel to the MBCT sessions of the children, with sessions lasting for 1.5 hours. In the treatment group, children evidenced significant improvement in attention, impulsivity, and awareness after 8 weeks of MBCT, as well as significant reductions in both externalizing and internalising behaviours, with these improvements being maintained at 8-week follow-up. However, limitations of this study included: the use of a small sample and a quasi-experimental design that did not permit strong causal inferences. In addition outcome measures were only administered to participants and their parents (i.e., excluding teachers or others in the child's environment).

Harrison et al. (2004) employed Sahaja yoga meditation (SYM) as a family treatment method for children with ADHD, with 48 children (41 boys and 7 girls), aged 4-12 years participating in the study. The meditation process involved the practice of techniques whereby subjects were helped to achieve a state of thoughtless awareness. The SYM programme for parents and children consisted of twice-weekly sessions over a 6-week period. Parents and children received the training in different groups that ran parallel, with parents being trained in techniques designed to assist them to guide their children during their meditation exercises at home. Meditation had to be practised at home regularly. Study findings indicated improvements in children's ADHD behaviour, self-esteem, and relationship quality, with children who participated in the programme reporting improved sleep patterns and reduced levels of anxiety. Moreover, participants reported better concentration at school and less engagement in interpersonal conflict; with parents reporting

that they felt happier, less stressed, and more able to manage the behaviour of their child. Although the findings from Harrison and colleagues (2004) study suggest that SYM may offer an effective family-oriented treatment for children with ADHD, such a conclusion needs to be considered in the context of study limitations which included: a small sample size, the absence of a control group, a high drop-out rate (26% and 30%, for study groups 1 and 2 respectively), and an exclusive reliance on parental self-reports to obtain estimates of treatment effects.

Jha et al. (2007) found enhanced alerting attention effects after a month-long mindfulness meditation retreat and also reported enhanced orienting attention among those receiving MBSR mindfulness training. The authors also reported that meditation experience was associated with increased cortical thickness, a finding that is consistent with findings from previous studies (e.g., Lazar et al., 2005).

5.3.2 The use of meditation in university/college settings

In a study of the effects of meditation on the academic performance of African American college students, Hall (1999) randomly assigned 56 undergraduates to two study groups, one of which was exposed to concentration-based meditation. The meditation intervention (which included guidance in simple attentional focusing and relaxation exercises) involved one-hour session of meditation instruction twice a week throughout the academic semester. Meditation was practiced for 10 minutes at the start and conclusion of each one-hour study group session, with the meditation group being instructed to meditate at home and before exams. The control group also met for one hour of study a week but was not introduced to meditation. The groups did not differ in grade point average (GPA) at the beginning of the study, but at the end of the Spring academic semester (following the Fall

semester training) the treatment group achieved significantly higher GPA scores than were achieved by the control group.

Shapiro et al. (1998) examined the effects of an 8-week MBSR program on symptoms of anxiety and depression, both of which have been found to be elevated in medical student populations. Results indicated decreased levels of anxiety and depression in the MBSR group as compared to the wait-list control group. These reductions were maintained even during a stressful final exam period, with these findings being replicated when the waitlist control group received the MBSR intervention.

In a further study, Shapiro et al. (2007) examined the effects of an MBSR course on stress and mental health symptoms in graduate counselling psychology students. This semester-long, 10-week intervention followed the MBSR programme model, including weekly instruction in a variety of mindfulness meditative techniques and home-based practices. Compared to matched controls, participants in the MBSR intervention evidenced significant post-test declines in perceived stress, negative affect, rumination, state and trait anxiety, and significant increases in positive affect. MBSR participation also led to an improvement in self-reported mindfulness.

In a randomized controlled trial, Oman et al. (2008) found evidence to suggest that meditation-based stress-management practices reduce stress among college graduates. In addition, the researchers found a correlation between participation in the meditation programme and forgiveness.

A study conducted by Tloczynski & Tantriella (1998) examined the effects of Zen breath meditation on college adjustment. Seventy-five undergraduates reporting heightened anxiety were randomized into three groups: meditation, relaxation, and control groups. While anxiety and depressive symptoms significantly decreased in both meditation and relaxation

groups as compared to the control group, only the meditation group showed a significant positive change in self-reported interpersonal relationship quality.

Jain et al. (2007) conducted a randomized controlled trial designed to compare the effects of mindfulness meditation versus relaxation training on: distress, positive states of mind, rumination, and distraction. Study participants were 83 medical students (graduate nursing students, and undergraduate students majoring in premedical or pre-health studies), all of whom reported distress. Study findings suggest that exposure to either a month-long programme of mindfulness meditation or to a month-long programme in somatic relaxation produced similar salutary effects on distress reduction and enhancement of positive mood relative to no-treatment control students. However, only those enrolled in the mindfulness meditation programme showed improvements in the ability to reduce distractive and ruminative thoughts and behaviours.

5.4 Conclusion

Meditation is seen as a practice of gaining access to our 'inner wisdom' – an investigation into 'who we are'. It encompasses a wide framework of awareness, attention, presences, acceptance and management and, it can be divided into two categories: techniques of contemplation (mindfulness meditation, insight meditation, *vipassana* practice) and techniques of concentration (single point meditation on breath, on sound, on a movement, etc.). Virtually all meditative approaches combine elements of both categories including mindfulness meditation and breathing meditations.

Several empirical studies have been conducted on the effects of meditation on the wellbeing of research participants. Studies on meditation and ADHD have found improvements in anxiety and depressive symptoms; reductions in stress and anxiety, improvement in ADHD symptoms and executive functioning; improvement in attention,

impulsivity and awareness; improvements in ADHD behaviour, self-esteem, relationship quality, better sleep patterns, reduced anxiety, and less conflict. Studies conducted on meditation and university/college settings report improvement in GPA scores; decreased levels of anxiety and depression; declines in perceived stress, negative affect, rumination, state and trait anxiety, and significant increases in positive affect; reduction in stress; improvements in anxiety and depressive symptoms; and a significant positive change in interpersonal relationship. Some of the limitations of these studies are: small sample sizes, a reliance on unrepresentative samples, and a failure to include control samples.

These studies have shown that meditation has a positive impact in both areas of overall ADHD wellbeing as well as within tertiary settings. Thus, meditation as a new and innovative management tool to address ADHD within a tertiary setting can contribute to intervention method within the Mental Health Framework.

CHAPTER 6

Methodology

According to Mills (2014) “*methodology determines how the researcher thinks about a study, how they make decisions about the study and how they position themselves to engage firstly, with participants and then with the data generated/collected.*” (p. 32) Further, Mills (2014) maintains that “*methodology is the lens a researcher looks through when deciding on the type of methods they will use to answer this research question, and how they will use these methods for best efforts.*” (p. 32) Thus during the methodology phase, the researcher decides how best to conduct the research, with multiple decisions being made regarding an appropriate research design, sampling, data collection techniques, and data analysis techniques.

Following a brief restatement of the key research questions (cf., Section 1.2), this chapter examines the methodology used in this thesis, examines the tools and apparatus utilized in the study, and highlights some of the limitations of methods used.

6.1 Key research questions

The key research questions addressed by the research (cf., Section 2.1) were:

- How does ADHD impact on student’s university life at a bio-psycho-social level?
- What coping strategies/mechanisms do students utilise/develop to cope with issues/concerns relating to ADHD (are these strategies/mechanisms effective, and what more is required)?
- What types of access and accommodation services does the university provide to these students?

- How does mindfulness breathe meditation practice impact on students in managing their ADHD symptoms and their wellbeing on campus?

6.2 Type of research

As this research required in-depth and extensive information on the subject matter, a mixed method design was utilized. In keeping with the aims and objectives of the study, both qualitative and quantitative methods were utilized.

There are generally two major types of research design: quantitative and qualitative designs. From a quantitative perspective, it is postulated that designs are ‘architectural blueprints’ that are fixed and specific in advance of execution and are defined by technical considerations (Bicksman et al., 1998; Mouton & Marias, 1990). Quantitative researchers collect data in the form of numbers (quantifiable data) and use statistical types of data analysis in order to make broad and generalizable comparisons (Durrheim, 2008). This approach falls predominantly within the positivist framework, where the researcher believes that what is to be studied consists of a stable and unchanging reality in which (a) an objective and detached epistemological stance to reality can be adopted and (b) methodologies that rely on control and manipulation can be employed. Positivist research employs a deductive stance in relation to data analysis. (Bhattacharjee, 2012; TerreBlanche & Durrheim, 2008)

Qualitative research on the other hand, views research as an iterative process; it is more open, fluid, and changeable with research designs being selected in terms of pragmatic decisions rather than technical considerations (Durrheim, 2008). Qualitative methods allow the researcher to study selected issues in-depth, with openness, and in detail; with data being collected in the form of language and data analysis tending to involve the identification and categorisation of themes (Henning et al., 2005). According to Berg (2009), qualitative researchers are “*most interested in how human beings arrange themselves in their settings*

and how inhabitants of these settings make sense of their surroundings through symbols, rituals, social structures, social roles, and so forth.” (p.8). This approach provides a means of accessing unquantifiable facts which involve detailed explanations and in-depth information (Berg, 2009; Durrheim, 2008; Henning et al., 2005)

Qualitative research is based on the axiom that reality is socially constructed and that behaviour cannot be observed objectively. Hence, the meaning of the data collected varies and the researcher may need to find a way of interpreting the meaning of research findings (Henning et al., 2005). Qualitative researchers prefer an inductive approach which: (a) favours an interpretative and constructionist framework, (b) starts with a set of vague speculations about the research question, and (c) tries to make sense of the phenomena while observing a set of particular instances. According to TerreBlanche & Durrheim (2008), in an interpretative paradigm, peoples’ subjective experiences of external reality are studied, an intersubjective or interactional epistemological stance is employed, and methodologies such as interviewing or participant observation are utilized. In a constructionist paradigm, the researcher believes that reality consists of a fluid and variable sets of social constructions, with the researcher needing to adopt a suspicious and political epistemological stance that permits the researcher to deconstruct versions of reality.

As discussed above, the present study was located within a multi-method research design as this was deemed best suited for the research topic. Qualitative research methods allowed the researcher to study the in-depth subjective experiences of ADHD students on campus and to explore the different management tools these students employed. This method was applied extensively in this research project and was utilized to explore: (a) how university students experience their ADHD symptoms in the University context, (b) what coping strategies and management tools these students employ to manage these symptoms and, (c) issues of access and accommodation within the university. This information was

primarily gathered through primary and secondary sources such as one to one in-depth interviews and the perusal of participant files. Further, this method permitted the researcher to receive and observe behaviour in an open and flexible manner and to interpret the meaning of findings in a manner that ensured that the research questions were answered.

Quantitative methods were utilized to measure whether mindfulness breath meditation practices assisted students in managing their ADHD symptoms and wellbeing on campus. Information was gathered by introducing a three month mindfulness breath meditation intervention programme to the participants of the study and, thereafter the Copeland Symptom Checklist for ADHD was utilized to measure changes (increase or decrease) in symptoms over this period. Furthermore, quantitative methods were utilized to compare first semester and second semester academic results of participants in order to measure whether mindfulness breath meditation had an impact on student academic success.

6.3 Research design

Once a decision was made on the type of study (qualitative vs quantitative), the researcher had to further locate the research within a framework that would guide the research process. There are generally three kinds of research design: exploratory, descriptive and explanatory. Exploratory studies are used to make preliminary investigations into areas of research where very little is known about the topic being investigated or about the context in which the research is being conducted (Bhattacharjee, 2012; Blaike, 2000; Bless & Higson-Smith, 1997; Dane, 2011; Durrheim, 2008; Mills & Birks, 2014). Because very little is known, exploratory studies normally “*generate speculative insights, new questions and hypothesis*” (Durrheim (2008, p. 44).

Descriptive studies on the other hand, aim to describe phenomena accurately. (Bhattacharjee, 2012; Blaike, 2000; Bless & Higson-Smith, 1997; Dane, 2011; Durrheim,

2008) Hence, according to Blaike (2000, p. 74), “*descriptive research is more rigorous and it’s usually narrower in its focus....*”, while explanatory studies aim to provide causal explanations of phenomena (Bhattacharjee, 2012; Blaike, 2000; Bless & Higson-Smith, 1997; Dane, 2011; Durrheim, 2008).

As the focus of the present study constitutes a relatively new area of research, an exploratory framework was deemed to be appropriate for the research.

6.4. Sampling method

According to Durrheim (2008), sampling involves the selection of research participants from an entire population; a process which entails decision-making regarding which people, settings, events, behaviours, and/or social processes are to be observed, with the main concern in sampling being the representativeness of the sample used. There are generally two ways of selecting samples: randomly and non-randomly. In random sampling (also known as probabilistic sampling) each member of the sampling frame has an equal chance of being selected. Random sampling falls within a quantitative research paradigm and includes several types of sampling methods such as random sampling, systematic sampling, stratified random sampling, and cluster sampling. In non-random sampling, each member of the sampling frame does not have an equal chance of being selected, as each participant is selected on the basis of the characteristics they possess or their availability to participate. Non-probability sampling falls within the qualitative research paradigm and includes sampling types such as convenience sampling, quota sampling, dimensional sampling, purposive sampling, and snowball sampling (Durrheim, 2008; Vanderstoep & Johnston, 2009).

6.4.1 Purposive Sampling

Purposive sampling was employed in the present study. Yin (2011) defines purposeful sampling as “*the selection of participants or sources of data to be used in a study, based on their anticipated richness and relevance of information in relation to the study’s research questions.*” (p. 311) Thus, in purposive sampling, the sample is deliberately selected from individuals who are likely to produce the most valuable data (Bailey, 1987; Bless & Higson-Smith, 1997; Dane, 2011; De Vos, 1998; Yin, 2011). This type of sampling is based entirely on the judgement of the researcher and it is also sometimes referred to as ‘judgement sampling’ (Bailey, 1987). Further, with purposive sampling, the sample is composed of elements which contains the most characteristics and typical attributes of the population.

6.4.2 Sample recruitment

Following the granting of ethical clearance for the research, recruitment of participants commenced in 2011. The researcher worked closely with the Disability Office at Howard College Campus of the University of Kwa-Zulu Natal (UKZN) to access participants. At the time there were approximately 15 students with ADHD working with the Disability Office. E-mails were sent to all of these students explaining the purpose and value of the research project, with eight students indicating a willingness to participate, and five students completing all phases of the research process (see Table 6.1).

Given the small sample size, the researcher opted to utilize an intrinsic case study approach, in order to gain in-depth information from participants. This approach enabled the researcher to examine complex relations both within the field of research and within participants’ broader social context.

Table 6.1 General information about ADHD students participating in this research

	Jerrie	Hendry	Danel	Laraa	Rosie
Sex	Male	Male	Male	Female	Female
Age	22	19	23	23	21
Program	Bachelor of Architecture	Bachelor of Science in Engineering (Mechanical Engineering)	Bachelor of Arts	Bachelor of Science in Engineering (Electronics Engineering)	Bachelor of Arts
Year of first registration	2008	2011	2009	2008	2009
Status	ADHD combination of attention deficit and hyperactive-impulsive	ADHD predominantly inattentive	ADHD combination of attention deficit and hyperactive-impulsive	ADHD combination of attention deficit and hyperactive-impulsive	ADHD predominantly inattentive

6.5 Case Studies

According to Stark & Torrance (2005), “*case studies seek to engage with and report the complexity of social activity in order to represent the meanings that individual social actors bring to these settings and manufacture in them.*” (p. 33) This phenomena has ‘identifiable boundaries’ (Henning et al., 2005). It is an exploratory form of inquiry that provides in-depth information of the unit of study (Steward, 2014).

Berg (2009) cites Stake (1994,1995) who identifies three different types of case study: intrinsic, instrumental, and collective. In intrinsic case studies, the researcher wants to understand a particular case. In an instrumental case study, the researcher identifies a single issue and identifies a single case to illustrate this. A collective case study, (also known as a multiple case study) is used to obtain a detailed understanding of several cases.

Rule and Vaughn (2011) motivate for the choice of case studies as they facilitate intensive and in-depth study. Rule and Vaughn (2011) postulate that case studies allow researchers to explore complex relations both within a case and within the broader social context. Case studies are also flexible in the sense that: (a) 'a case' can range from an individual to a country, and (b) case studies allow for the use of a variety of investigation methods.

However, a weakness of case studies is that it is not possible to confidently generalize findings from one, or a small number of, cases to the population as a whole (Bhattacharjee, 2012; Henning et al., 2005). In addition, Bhattacharjee (2012) cautions that the interpretation of findings may depend on the observational and integrative ability of the researcher, with a lack of experimental control making it difficult to establish causality.

6.6 Procedure

According to Durrheim (2008), data are the basic observable materials with which researchers work in order to draw valid conclusions about the research study. As this study is an explorative study, requiring in-depth subjective explanations on the research topic, data can be collected either by interviews or by observing and recording human behaviour in the context of ongoing interaction (Durrheim, 2008). For the purpose of this study, in-depth, open-ended, interviews were employed as the primary data collection strategy.

Kelly (2008) emphasises that conducting an interview gives the researcher an opportunity to get to know people quite intimately, so that they can really understand how people think and feel. Interviewing falls within an interpretive paradigm, which allows the researcher to create an environment of openness and trust within which the interviewee is able to express himself or herself authentically. There are different kinds of interviews which fall into three broad categories: standardised (formal or structured) interviews, unstandardised

(informal or nondirective) interviews, and semi-standardised (guided semi-structured or focused) interviews (Berg, 2009; Noonan, 2013).

6.6.1 Interviews

Data for this study were collected using semi-structured, conversational style, single system, multi-phased interviews. According to Robson (1993), semi-structured interviews are “*interviews, where the interviewer has worked out a set of questions in advance, but is free to modify their order based on her perception of what seems most appropriate in the context of the ‘conversation’, can change the way they are worded, give explanations, leave out particular questions which seem inappropriate with a particular interviewee or include additional ones....*” (p. 230). This style allows the researcher “*the freedom to digress.*” (Berg, 2009; p.107).

Interviews were conducted with each participant at various phases over a three-month period. In total 15 interviews were conducted (three interviews per participant) over a 6-week period. These interviews were conducted in an office at the UKZN Disability Unit.

Initial interview. The first interview was primarily designed to gather background information relevant to the study. This interviews contained many open-ended questions designed to give participants the opportunity to provide detailed descriptive information regarding their experiences of ADHD in a university setting and in order to explore participants’ coping mechanisms and management styles (see annexure 2). The initial interview was also designed to gather baseline information which could be used for purposes of comparison in future interviews; with the gathering of baseline data being guided by the Copeland Symptom Checklist for ADHD (annexure 3).

Second and third interviews. The second and third interview were conducted primarily to explore any changes that occurred in participants’ ADHD symptoms and behaviour on

campus after intervention (mindfulness breath meditation – discussed below) was implemented. During these interviews the Copeland Symptom Checklist for ADHD was utilized as a measuring tool to monitor changes in participants' symptoms since implementation of intervention. Furthermore, participants were encouraged to provide any additional information that contributed to the research. These interviews were held approximately six weeks apart.

6.6.2 Document perusal

Accessing documents, or already existing data bases, to assist in the research process is also a means of data collecting (Flick, 2011). This process is also referred to as generating data (Mills 2014). In keeping with the ethos of accessing and generating relevant data for this research study, the researcher accessed existing student files from the Disability Unit on campus. Information was also accessed through the Student Management Systems (SMS) data base

Participant files. The researcher gained permission from participants to access their personal file that were kept at the Disability Unit Office. Participants' personal information (name, student number, degree registered for, type of disability, type of reasonable accommodation, etc.) and diagnosis (a professional diagnosis by a psychiatrist, educational psychologist) were kept in these files. These files also contained information of any relevant contact students had with the disability coordinator. That is, whenever a participant had a challenge on campus, meetings with the coordinator would be briefly noted in these files.

Student Management Systems (SMS) data base. The Student Management System data base contains information on each student – personal details, the courses students are registered for each year, and marks obtained courses. The researcher utilized this medium to

firstly, gain correct details of students; and secondly, to compare first semester and second semester results once breath meditation was implemented.

6.6.3. Training and implementation of mindfulness breath meditation

Equal breath, also known as Sama Vritti Pranayama, a technique that falls within the mindfulness breath meditation practices (discussed in Chapter 4) was taught to students by the researcher (who is a yoga instructor), in the second semester of 2011 (find attached CD, Appendix 6; and instructions, Appendix 4). In this technique the length of the inhalation is equal to the length of the exhalation and participants are encouraged to expand and increase their breathing patterns. This process ensures a rhythm that maintains mindfulness.

6.6.3.1. Preliminary planning meeting

First the researcher met with the group to familiarize and to formalize a breathing technique that was recorded on a CD. At this session the researcher discussed the breathing technique with the participants, did a pilot breathing session with the participants so that participants could experience it and discussed the formulation of a CD. The participants seemed to be pleased with the session but were concerned about its length. Ideally, most breathing practices are 20 minutes long but participants indicated at these sessions that 20 minutes is too long to sit still and focus (symptom of ADHD). It was decided that students will start to do this meditation for approximately 10 minutes a day, twice a day. Once participants were familiar and were managing the practice, it will increase to 20 minutes. This whole process was implemented over a period of at least three months. However, due to management difficulties (see Chapter 9) on part of the participants this practice remained at 10 minutes.

6.6.3.2. Practice meetings

The researcher met with the participants as a group for five sessions to ensure that the correct procedure, posture and technique of the breathing were followed. Once participants were confident that they were managing with the breathing instructions on the CD, a three-month implementation period was executed.

6.6.3.3. Implementation meetings

Participants were encouraged to do the breathing exercise at least twice a day. A record sheet (Appendix 5) was handed to the participants to note when they did their breathing sessions and to record some of their thoughts on that breathing session. During this period, the researcher met with the participants twice a week for guided meditation during the first half of the intervention (approximately six weeks). For the second half, the researcher met with the participants once a week for a guided meditation. Guided meditations were not held during the holidays. Regular SMS's were sent to student as a reminder to do their meditation.

6.7 Reflexivity

According to Birks (2014), "*Qualitative research, by its very nature, requires an investment of the self.*" (p. 24) As a result, the researcher's philosophical position informs the methodological preference and this is referred to as methodological position. Thus, it is imperative to be reflexive. Birks (2014) define "*reflexivity as an active process of systematically developing insight into your work as a researcher to guide your future actions.*" (p. 25) This process provides a critical review of the involvement of the researcher in the research process and the outcome of the research.

Berger (2015) describes three types of researcher's positioning in reflexivity. One, when the researcher shares the experience of the study participants – "insider". Secondly,

when the researcher has no familiarity or experience with what is being studied – “outsider”, and thirdly, when the research moves from a position of an “outsider” to a position of an “insider” in the course of the study. When the researcher shares the participants’ experiences, the researcher has a better in-depth understanding of participants’ lives but the research must avoid projecting their own experiences. Berger (2015) highlights three practical measures to maintain a balance in this regard: to use a log where the researcher documents what was said by the participant, what the researcher felt and thought about it, to administer repeated reviews of the research material, and to seek peer consultation.

Reflexivity under the conditions of changed position from “outsider” to “insider”, offers an opportunity for the researcher to compare and analyse data in terms of their positioning in the study. Reflexivity in the absence of the researcher’s personal experience, may control the effects of stereotyping and stigmatizing perceptions. However, the researcher should be cautioned not to adopt a patronizing stance. A measure for maintaining balance in these instances is for the researcher to seek guidance from the participants and from peers who are familiar with the topic.

During the research process, the researcher occupied the position as an ‘insider’. Firstly, the researcher was a student at UKZN, accessing the services of the Disability Office. The researcher was diagnosed for Audio Processing Challenges and Visual Processing Challenges. This positioning allowed for the researcher to understand service provision and to empathise with the participants in this regard. In addition to being a student accessing the Disability Unit services, the researcher has been previously employed on a part time basis at the Disability Unit on the Edgewood Campus UKZN. Secondly, even though ADHD, Audio Processing Challenges and Visual Processing Challenges are different diagnoses; there are overlaps with regard to symptoms manifestation (focus). Thus, the researcher was able to have a greater and more in-depth understanding of issues discussed. These situations were

managed through reflections, discussions with the supervisor, and discussions with the coordinators (social workers) at the Disability Unit.

6.8. Data Analysis

There are various types of data analysis tools a researcher could choose from, depending on the nature of the study. For the purpose of this study the researcher opted to adopt firstly, an interpretive data analysis as a means of engaging, coding and understanding the data. And secondly, a descriptive analysis as a means of “*statistically describing, aggregating, and presenting the constructs of interest or association between these constructs.*” (Bhattacharjee, 2012; p. 119)

Descriptive analysis played a very small and very basic part in this research. As stated above, quantitative methods allowed for the researcher to measure the effectiveness of the implementation of an intervention using the Copeland Symptom Checklist for ADHD (noting whether symptoms have improved, remained the same or deteriorated) as well as, to compare first semester to second semester academic results of participants. The majority of the data collection was qualitative and an interpretive data analysis (discussed below) was employed to explore how university students experience their ADHD symptoms in the University context, what coping strategies and management tools these students employ to manage these symptoms, and issues of access and accommodation within the university. As far as possible, the steps below were utilized in the research process.

6.8.1. Interpretive Data Analysis

According to TerreBlanche et al. (2008), “*the key to doing good interpretive analysis is to stay close to the data, to interpret it from a position of empathetic understanding.*” (p. 321) That is, to provide a thick description of the phenomena being investigated as well as an

account of the researcher's role in constructing this description. Below are the steps in interpretive data analysis:

Step one: familiarisation and immersion. The researcher at the data analysis stage should be quite familiar with the ideas and theories about the phenomena being researched. At this stage the researcher needs to read through the text (data collected from the interviews) many times over, making notes, as well as drawing diagrams and/or brainstorming. It is important for the researcher to know the data well enough to know what can be found where, as well as what kind of interpretations are likely to be supported by the data and what are not.

Step two: inducing/developing themes. This process is a bottom-up approach, where general rules and classes from specific instances are inferred. There are no hard and fast rules about what sort of themes or categories are best, nor is there one best way for organising these. TerreBlanche et al. (2008) provided the following pointers:

- use the language of the interviewee,
- examine the content in of themes in terms of processes, functions, tensions and contradictions,
- find optimal levels of complexity,
- play around and use different kinds of themes, and
- themes should relate directly to the focus of the study.

Step three: coding. Coding entails marking different sections of the data as being instances of, or relevant to, one or more of your themes. A phrase, a line, a sentence or a paragraph pertaining to themes under consideration might be coded.

Step four: elaborations. At this stage themes are explored more closely in order to get to the finer nuances of meaning not captured before in the coding system. A type of 'recoding' takes place. The purpose is to keep playing around with ways of structuring the data until the researcher feels very good about the account of what is going on from the given data.

Step five: interpretation and checking. This is the final step, and involves the 'putting together' of the researcher's interpretation. This is a written account of the phenomena the researcher studied using thematic categories from the researchers' analysis as subheadings. It is vital to find examples of similarities and contradictions and to determine whether the researcher has over-interpreted or not. Further, it is also a good opportunity for the researcher to reflect on their role in collecting data and creating interpretations.

During this research process, the researcher listens to the interviews several times and further, reads through material several times as well. The researcher listens to the content as well as the tone of participants responses to fully comprehend the data. The researcher also examines notes made during the interview taking note of the participant's body language and nonverbal cues. Thereafter, the researcher utilizes the research questions as guidelines to the themes that are emerging. As far as possible the research uses the language of the participants to develop the themes. Coding is utilized by highlighting different themes that run through the section with different coloured fonts on the computer and thereafter cutting and pasting these in relevant sections. The process of coding is repeated several times to ensure that the data is being presented adequately. Finally, the researcher is able to comfortably identify headings and subheadings that are emerging. These emergent themes are presented in Chapters 7, 8, 9 and 10.

6.8.2. Assessing the impact of mindfulness breath meditation

The researcher utilised three measures to assessing the impact of mindfulness breath meditation (see chapter 9). Firstly, the researcher took note of the behavioural responses to ADHD symptoms, with the aid of Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist. This checklist was administered before and after the implementation of mindfulness breath meditation. The researcher noted changes in behaviour and changes in symptom presentation (see table Table 9.2). Secondly, at the final interview (3rd interview) participants were asked by the researcher to describe how they had experienced the mindfulness breath meditation, and their responses were noted (see, Section 9.2.2). And thirdly, the researcher compared first system semester and second semester results of the participants to access any changes in their academic performance (see Table 9.3). This latter information was accessed from the University's Student Management System.

6.9. Credibility of research findings

Minimizing bias and ensuring rigour is a vital part of any research process. This process entails ensuring the precision with which the findings accurately reflects the data and ensuring consistency in the analytic process. Within the quantitative research framework, these processes are referred to as reliability, validity and generalization. Noble & Smith (2015) have provided an alternate framework for qualitative research and refer to these as truth value (as opposed to validity), consistency/neutrality (as oppose to reliability) and applicability (as opposed to generalisability). According to Noble and colleague (2015), *truth value* recognises that personal experiences and viewpoints of the researcher may have resulted in methodological bias. *Consistency* guarantees that the researcher's decisions are clear and transparent (such that an independent researcher should be able to arrive at similar or comparable findings). *Neutrality* is a process designed to ensure that the methods and the

findings are intrinsically linked to the researcher's philosophical position, experience and perspective; while *applicability* refers to whether findings can be applied to other contexts, settings or groups.

Noble and Smith (2015) provide strategies for researcher to adopt in order to ensure the credibility of research findings. These strategies are highlighted in the table below, with an additional column indicating steps utilized by the researcher in this research process to ensure that bias was minimized and rigour maintained.

Table 6.2 Strategies to ensure credibility of Qualitative study

Strategies to ensure credibility of study findings to enhances truth values, consistency/neutrality and applicability in Quantitative studies	Steps taken by researcher to support strategies.
Accounting for personal biases which may have influenced findings;	<ul style="list-style-type: none"> - The researcher kept a research diary that noted any critical incidents and reflected on these. This was crucial especially since the researcher as an 'insider' (see, Section 6.7) in this researcher process. For example, one of the participant shared with researcher that she had experienced reading difficulties in school. The researcher could identify with this. The researcher noted this, and explored ways (peer debriefing), to ensure that it did not influence the analysis and interpretation of data. - The researcher also sought debriefing through consultations with her supervisor, personnel in the Disability Unit, and social work colleagues.
Acknowledging biases in sampling and ongoing critical reflection of methods to ensure sufficient depth and relevance of data collection and analysis.	<ul style="list-style-type: none"> - The researcher deliberated intensely on the choice of sampling, data collection, and data analysis techniques. As far as possible, the researcher provide all options available within every phase of the

Strategies to ensure credibility of study findings to enhances truth values, consistency/neutrality and applicability in Quantitative studies	Steps taken by researcher to support strategies.
	<p>research process, provided justification for choices made, and examined the limitations and strength of these choices.</p> <ul style="list-style-type: none"> - Further, the researcher sought guidance from the research supervisor.
Meticulous record keeping, demonstrating a clear decision trail and ensuring interpretations of data are consistent and transparent.	<ul style="list-style-type: none"> - All interviews were audio recorded transcribed. - Furthermore, the researcher read over transcripts several times to ensure consistency and clarity in interpreting data. - The development of themes was guided by the aims of the research project and the research questions.
Establishing a comparison case/ seeking out similarities and differences across accounts to ensure different perspectives are represented.	<ul style="list-style-type: none"> - The researcher conducted a comprehensive literature search on this topic. - The researcher, as far as was possible provided different perspectives and critical insights on various areas relevant to the research.
Including rich and thick verbatim descriptions of participants' accounts to support findings.	<ul style="list-style-type: none"> - As this study was a qualitative, exploratory study, rich and thick data emerged. To be transparent in the research process, verbatim descriptions of participants' experiences are provided.
Demonstrating clarity in terms of thought processes during data analysis and subsequent interpretations.	<ul style="list-style-type: none"> - The researcher was guided by interpretive data analysis techniques. - The researcher was guided by the aims of the research and the research questions. - The researcher listened to interview recordings several time, and read over the transcripts several times when developing themes and interpreting the data.
Engaging with other researchers to reduce research bias.	<ul style="list-style-type: none"> - The researcher read extensively and engaged with peer reviewed journal articles on related topics to gain a vast and critical knowledge-base on the topic.

Strategies to ensure credibility of study findings to enhances truth values, consistency/neutrality and applicability in Quantitative studies	Steps taken by researcher to support strategies.
	<ul style="list-style-type: none"> - Further, the researcher engaged with secondary sources such as Disability Unit Audit Reports and various Policies on Disability (see chapter 3)
Respondent validation: includes inviting participants to comment on the interview transcript and whether the final themes and concepts created adequately reflect the phenomena being investigated.	<ul style="list-style-type: none"> - The researcher did obtain feedback from participants with regards to the implementation of Mindfulness Breath Meditation (see 6.6.3.1
Data triangulation, whereby different methods and perspectives help produce a more comprehensive set of findings.	<ul style="list-style-type: none"> - Both Qualitative and Quantitative methods were adopted in this research process. The researcher utilized interviews, perused documents, and utilized ADHD checklists as a guideline to measure change in behaviour after the implementation of Mindfulness Breath Meditation

6.10. Ethical Considerations

According to Wassenaar (2008), the essential purpose of research ethics is to protect the research participants. This protection is fundamental to social research and needs to be afforded on all levels of planning, designing, implementing, and reporting the research findings. The researcher must adhere to accepted philosophical principles such as, autonomy and respect for the dignity of persons, non-maleficence, beneficence, and justice. Autonomy and respect for the dignity of persons includes gaining informed voluntary consent of research participants, protection of individual and institutional confidentiality. In this research project, the researcher adhered to this principle by designing a consent form (annexure A). Furthermore, pseudonyms were used in the writing up of the research, thus protecting the identity of participant and ensuring confidentiality and anonymity. In order to

ensure non-maleficence and beneficence (i.e., no harming of participants as a direct or indirect consequence of the research) the researcher informed participants that participation was voluntary and participants had the option to exit the research process at any point. Furthermore, confidentiality and anonymity were discussed with the participants throughout the research process.. These steps ensured that every participant was treated with fairness and equity during all stages of the research.

-

6.11. Conclusion

This chapter outlined the research methodology utilized to gather data for this study. The study employed a multi-method study method; with purposive sampling methods being used. The researcher worked closely with the Disability Office at Howard College Campus where ADHD student access support services. Since this population is a small one, data were collected by utilizing a single system multi-phased case study design. One-to-one in-depth semi-structure conversational style interviews, with the help of an interview guide and Copeland Symptom Checklist for ADHD, were administered at different phases of the implementation of the research. Interpretive data analysis was utilized to interpret, organise and present the findings. The five steps of interpretive data analysis – familiarizing and immersion, inducing/developing themes, coding, elaborations and interpretation – as proposed by TerreBlanche et al. (2008), were employed. Strengths and limitations that impacted on the credibility of the research findings were discussed and ethical considerations such as autonomy and respect, confidentiality, non-maleficence, beneficence, and justice were addressed.

CHAPTER 7

Research Findings 1:

Descriptions of ADHD within the University context

This chapter provides descriptive information regarding the study sample (including their ADHD status). Thereafter (a) participants' perceptions of ADHD symptoms are explored, (b) academic and social challenges/coping mechanisms associated with an ADHD diagnosis are examined, and (c) access to services for students with ADHD is critically evaluated. The chapter concludes with a summary of key findings.

7.1 Demographics

7.1.1. Information on ADHD students

Data were obtained from interviews with ADHD students being assisted by the Disability Unit at UKZN; with a total of 5 students participating in this research process (3 males and 2 females, age range: 19-23). These students were from the College of Humanities and the College of Agriculture, Engineering and Science on the Howard College Campus. Participants were enrolled for a variety of degrees: Bachelor of Architecture, Bachelor of Science in Engineering (Mechanical Engineering), Bachelor of Arts, and Bachelor of Science in Engineering (Electronics Engineering). Four of these students had spent an extra year or two in a tertiary setting, either at UKZN repeating certain modules, or at another university doing a different programme (cf., Table 9, Chapter 9).

7.1.2. ADHD status

There were two types of ADHD within this group:

- A combination of attention deficit and hyperactive-impulsivity (ADHD combined type), with participants reporting symptoms of distractibility, impulsivity, and hyperactivity ; and
- ADHD predominantly inattentive (ADHD inattentive type), with participants reporting symptoms of inattention.

Comorbid disorders were dyslexia and anxiety, with one student reporting that they “were not sure” whether they had been diagnosed with any comorbid disorder (this student did, however, manifest high levels of anxiety). Three students had first been diagnosed with ADHD during primary school, one in high school, and one at university. All of these students had been prescribed medication for their disorder, with all but one student currently being on medication (see Table 7.1 below).

Table 7.1 Participants’ ADHD status

	Participant				
	Jerrie	Henry	Danel	Laraa	Rosie
Status	ADHD combination of attention deficit and hyperactive-impulsive	ADHD predominantly inattentive	ADHD combination of attention deficit and hyperactive-impulsive	ADHD combination of attention deficit and hyperactive-impulsive	ADHD predominantly inattentive
Symptoms	Inattention/ Distractibility Moderate Hyperactivity Hyper-cognitivity	Inattention	Distractibility Hyperactivity Impulsivity	Distractibility Hyperactivity Impulsivity	Inattention
Comorbid diagnosis	Dyslexia	Dyslexia	Anxiety	Dyslexia	None specified
First diagnosed	Primary school	Grade 4	Late 2009 (21)	Grade 3	Grade 9 2006
On medication	In the past	Currently	Currently	Currently	Currently

7.2. Manifestation of ADHD Symptoms

Participants manifested one or more of the defining symptoms of ADHD, with these symptoms being discussed below:

7.2.1. Inattention/Distractibility

Symptoms of inattention and distractibility were present as an inability to focus and concentrate for extended periods and/or experiences of “spacing out”, going into a trance like state, or simply thinking about off-task things. These symptoms were described by participants as follows:

“...ya, even if I do like the lecture and I still couldn’t concentrate on the whole thing I will just fade out. I’ll missed just like a minute. Maybe doodling. And then I’ll come back to it and then leave another minute from another time...”

“....Well, it does make it hard to concentrate in especially double lectures. It does become rather um ... towards a long, long day; it does become hard to carry on focusing the whole time.....”

“.....And I know when people are talking to me, especially when I they talking to me for a while, like when my dad lectures me for a long time or when I went to see the counsellor, I’ve seen her twice, and in one of the sessions where she was talking to me a lot, I kind of spaced out and thought about other things and I really didn’t pay attention to the conversation....”

“....Like I go into some weird trance thing and I come back. I kind of lose focus with the conversation.....”

One student spoke about being *hyper-focused* – that is, getting fixed on something that interested him, and then concentrating more on that focus than on the task at hand or alternatively, of making a special effort to focus exclusively on the task at hand:

“...the funny thing you know, it’s called ADD, where you can’t pay attention. When I get fixed onto something I can’t get my attention off it.”” ...I hyper-focus.....”

“But if I like the lecture I concentrate quite a bit better (you hyperfocus) ya, like one lecture where I actually do take quite a lot of notes...”

“...yes, I hyper focus. Right now I'm finding software to back up my pictures and the next minute I'm looking at how I can store stuff on the Internet as back up and how it would automatically.... I just spent about two days of my free time just looking that up. And looking up the best for mmm instead of BBM I'm looking at the best applications for chatting. I kind of get focused on finding the best information or whatever...”

“....Er if I don't want to pay attention to something I will pay a lot more attention to something else ...”

“I think it's cool that I hyper focus. I actually really enjoy it but if I'm trying to do something like work it's probably too bad. When I'm trying to do something specific.”

7.2.2. Hyperactivity

Symptoms of hyperactivity within the university context presented in a number of forms, including: moving around, not being able to stand still or sit still, fidgeting, or drawing /doodling during lectures. Hyperactivity also presented in the form of cognitive hyperactivity – that is, having a thousand thoughts and thinking about everything at the same time. These behaviours were described by participants as follows:

“...I just want to see everything and I want to see how it works but I can kind of control that, but I can't sit still and I can't stand up for too long. I kind of need to move around....”

“...I don't really focus that well, but like during a lecture I'll start like fidgeting or drawing or grab my phone or something.”

“....I think I stick with conversations well but like during the conversation I will have like 10000 thoughts....”

“.....I think about everything all at the same time. I have pictures in my head, things I want to make, things that I've seen, whatever, just goes through my head all at the same time....”

7.2.3. Impulsivity

Symptoms of impulsivity presented in a number of forms including 'butting in' or interrupting people, and/or speaking without carefully considering what is said. For example:

“...I don’t really finish other people’s sentences, but I guess I do but sometimes”

“I battle with not saying too much in lectures and trying to get overly involved. I have to almost hold myself back now.”

“...I feel I have to pull my reins back...”

“I might just say something cause I’m a very blunt and bashful person. And I just say stuff that I mean because it just comes out of my mouth. I say it before I even think about it, but then I also interrupt people a lot...”

7.2.4. Dyslexia

Dyslexia presents itself through reading difficulties and difficulties in processing or presenting information. The following extracts were taken from the interviews.

“.....basically cause I couldn’t read until I was eleven.....”

“.....in Grade three the only reason they knew why I couldn’t read is because I couldn’t memorize the books anymore. Apparently I was memorizing the books. Like I would have them read to me and then I would then I’ll go home and like there we go and then I’ll like tell her what it is. I wasn’t actually reading. I was just going from memory and that’s when they discovered. I couldn’t memorize the whole book so I would forget the ending or bits and pieces here and there. So they started to notice that I couldn’t actually read. I was memorizing rather than reading.....”

“.....they found that I did have a problem with processing my information and but memory was good and I can remember things but I have a problem with processing the information and like often have a problem with putting it down on paper. So in the exams I have to sit there and think about it and I’ll have to make sure that everything is right and err sometimes when I’m thinking of a long answer err like I may forget where I started so I have to go back and reorganize my thoughts so I can write it down. Eerrr and once I wrote it down I have to read through it because I have to ...eerr ya so I would take long and I wouldn’t finish my paper but what I would do I would do well in....”

7.2.5. Anxiety

One student was diagnosed with ADHD when he was at university, and is currently exhibiting symptoms of an anxiety disorder; with anxiety impacting on his daily functioning:

“The other challenge is anxiety. Even with the medication sometimes you can just play mind games with yourself and just get overly anxious about your day and yah, it can sometimes take you an hour to leave home with no reason. You are just worried about what will happen. Ya.”

7.3. Symptom manifestation

This section will provide data on student’s manifestation of ADHD symptoms within the context of: lectures, assignments, tests and exams, reading, comprehension, spelling and writing, social and academic relationships, and general campus environment – as well as coping strategies employed by students in order to minimize the effects of symptoms.

7.3.1. Lectures: challenges and coping mechanisms

7.3.1.1 Challenges

Students with ADHD find the following to be challenging in term of lectures: long lectures; afternoon lectures, the way in which lectures are presented, the effects of medication, and distractions during lectures.

- **long lectures**

Students reported that they found it difficult to concentrate during standard 45 minutes lectures, with these difficulties being particularly marked during double (90 minute) lectures.

Participants reported on these difficulties as follows:

“...lectures are a bit long. 45 minutes is a bit long. And doubles are really hard. I cannot....I really don’t like doubles. There are so long and they are boring.”

“...and I did pay attention But a little bit near the end I was like kind of just sitting there and staring at the page.”

“Well, it does make it hard to concentrate in especially double lectures.”

“...well, generally they give you 10 minutes between. Well, they do with us most of the time. Unless they get on a roll then they don't. I actually...I don't know how I cope. I don't think I do to be honest. I try my best but sitting next to mates is probably not such a good idea. Cause we will both start talking to each other or we will try and pay attention but that won't work so well. Doubles don't work so well.”

- **afternoon lectures**

Students experienced difficulty concentrating and focusing during afternoon lectures, especially when the effects of their medication started to wearing off.

“I'm on Ritalin so I'm generally okay til two. So my afternoon lectures I struggle.....”

“...so I have design in the afternoon. Design isn't a lecture. You sit there and you listen to other peoples' presentations. So I find that very tedious and very boring cause we all doing the same project. And we all have the same ideas so it very repetitive and I can't sit and listen to that for too long so I always have to sit in the back. So I always start talking to someone.”

“It does become rather difficult ... towards a long, long day; it does become hard to carry on focusing the whole time.

“...often at the end of the day my Concerta is wearing off and it gets hard because all your ADD symptoms come back to you and then you start getting distracted and you ya all those sorts of things and you tend to make mistakes accidentally and all those sorts of things.”

- **The medium of presentation**

The presentation of lectures in a purely verbal (audio) medium constituted a challenge for participants; with participants reporting that these challenges were compounded in situations where the lecture was rushed or where key concepts were not well explained. Participants also reported that they experienced difficulties multi-tasking (i.e., simultaneously writing and paying attention to what the lecturer was saying).

“I also think it more a style of teaching that needs to be reformed but lecturers just tend to talk too much and not attempt to explain too well. I had a lecturer the other day that just rushed through the material as fast as she could and she finished twenty minute too early. I kept thinking she could have taken twenty minutes extra to explain and ya she just flipped on fliers with lots of information just to super quickly end. And having ADD on top of that makes it harder because you find its too much information to listen to and absorb. Ya”

“...it differs but generally it is more audio, sometimes visual...”

“...more audio but again it depends on the lecture and depends on the content as well. If there is very little content and its audio then it’s going to be more of a challenge.”

“...well all the lectures they always have slides. The only one we really had to sit down and scribbles notes through was thermodynamic. He said his not going to post his notes on the web and the problem with that lecture though was that as soon as you finish writing the slide he would move on to the next one because he would describe while you were writing so you could pay attention.” “I couldn’t write and pay attention to him at the same time.”

“Because I couldn’t do the two things at the same time even when I was on Ritalin I can’t do that...”

- **medication**

While medication appeared to be helpful in relation to symptoms such as inattention or distraction, it tended to increase the levels of other symptoms (i.e., hyperactivity). For example:

“....in my lectures, the part I battle with the most is because I am medicated. I’m on Concerta. So that does help with the distractibility. But the problem is that because in the past when you were always missing information, you use your spare energy to sort of synthesise the material and make it all coherent for yourself. But now the problem I had now was that the medication was not making me distracted and I had this excess of energy, and still now I battle with not saying too much in lectures and trying to get overly involved. I have to almost hold myself back now. Which is a good thing, but that’s probably the challenges, trying to deal with the hyperactivity. You feel almost over hyper, more hyperactive when you are on medication.

- **distraction in lectures**

Distractions, such as lack of ventilation, people talking in lectures, noisy air conditioners, and the opening of lecture doors during lectures were experienced as being distracting by participants:

“...well in lectures, because of the architecture they not well ventilated, so you kind of get sleepy, and then...”

“...It is at the back where people talk...”

“Sometimes the aircon will make a noise, like the aircon will squeak, that will distract me quite properly. I will be fixating on that squeak and how someone could stop it.”

“People keep opening lecture doors. Why they do that during the lecture, I don't know. They open the door, look in, then shut the door. And it happens quite often ...”

7.3.1.2 Coping Strategies

Coping strategies employed by participants to deal with challenges experienced during lectures included: fiddling during lectures so that students could deal with their hyperactivity while remaining focused on lectures; obtaining information that was missed during lectures (because of distractions and inattention) from friends/colleagues, taking a break between lectures, sitting in the front row of the lecture theatre, voice recording lectures, and accessing lecture notes on the web.

- **fiddling during lecture**

At times students felt the need to fiddle during lectures (e.g., doodling or playing games on the Ipad), which helped students to deal with their hyperactivity and enabled them to concentrate more effectively on the lecture.

“...lectures I just fiddle. But if I like the lecture I concentrate quite a bit better (you hyperfocus?). Ya, like one lecture where I actually do take

quite a lot of notes and then when I want to fiddle, I draw what he talks about, like when he talks about a retaining wall I draw that and it kinds of keeps me from going to some random thing.”

“I make sure I’m isolated. I sit on my own. So I always have something with me to fiddle with... like I always have my Ipod with me at all times. Because that has games on it so I’ll sit quietly and play games in the background”

- **Obtaining information from friends/colleagues**

Information that was missed during lectures was obtained from friends and colleagues:

“...miss a bit, get it from friends...”

“Than what I do is I usually grab notes from other people just before exams. I just copy as many notes as I can and I summarize everything that I got ...”

“...I mean if its tutorials, you find a clever friend and sit next to him and ask him for help.”

“Like today I have at the end of the day...I have four math’s tutorials. It’s long again. So I would sit with a group of ous [friends] and who know what they are doing and just ask them for help if I get stuck.”

- **Taking a break during lectures**

Taking a break during lectures assisted some participants to maintain their attention:

“.....that’s why our lectures let us out for a mid-way break...to get some air into us. And then we will come back and listen to them more. But me I kind of need a little bit more. A few more breaks than other people.”

- **Sitting in the front row**

Sitting in front of the lecture helped some participants to maintain focus and avoid distractions:

“...very close to the front. As close as possible to the front. That again to avoid distractions. Which is a bit tricky from a social point of view. You can’t always sit with your friends. Cause you just have to focus. And they don’t want to be sitting up in front of the class and stand out. Ya.”

“Sit in the front row I started sitting in the front now. Where it’s very quiet. It’s at the back where people talk.”

“...as close as possible to the front. That again to avoid distractions.”

- **Audio-visual styles of lecturing**

Audio-visual style of lecturing assisted some participants to maintain attention:

“...using multimedia means such as audio plus visual, showing video clips, helped.”

- **Use of a voice recorder**

Some students recorded lectures on a voice recorder so that information could be accessed at a later time:

“...no I used to. But I don’t do it so much anymore. I used to. I probably should start doing it again. But a lot of the lecturers, they don’t mind you doing it. They are quite happy you are doing it. It’s just with you doing so many lectures, you run out of space very quickly. So the recorder is not big enough to handle all the information....”

“...recording lectures....” “....So I tried to write notes but I like to record it so I can get everything andlater I can see it because.....err ya,...in case I don’t pay attention or whatever or if I don’t if I forget what they told me I have it there so I can listen to it whenever I want to. Ya, ...”

- **use of medication**

In general medication assisted students to maintain focus during interviews. One student who stopped taking her medication and ended up failing a semester commented:

“..most definitely. I tried a semester without Ritalin I got through like half the semester. I got through like three weeks and I decided ‘no, it wasn’t working, I couldn’t do it.....,’ it was in second year, second semester. Err, I stopped attending lectures because they were boring. I started watching videos because it was more entertaining. I started to fall behind ‘cause I’ll go home and I’d say I’d work later. Meanwhile I didn’t do it in the day. I hadn’t done nearly enough. And then I wrote a test for something and got like 0 for it. So I was like, perhaps this wasn’t working. I can’t do this without

medication. I can't do this degree without it... I don't take it during holidays. I only take it in the weekends when I have a test on Monday and I'm learning in the weekends then I take it. And during exams I'll be honest. But other than that I don't take Ritalin. I take it during the week."

- **accessing lectures notes on the web**

One participant indicated that when lecturers posted lecture notes online it was easier for her because she did not need to write during lectures (i.e., she could pay attention without simultaneously having to write):

"...well all the lecturers they always have slides. The only one we really had to sit down and scribbles notes through was thermodynamics. He said he's not going to post his notes on the web and the problem with that lecture though was that as soon as you finish writing the slide he would move on to the next one because he would talk while you were writing so you could not pay attention. I couldn't write and pay attention to him at the same time."

7.3.2. Assignments: challenges and coping mechanisms

7.3.2.1 Challenges

Challenges experienced by students with ADHD in relation to assignments were: the late submissions of assignments and poor planning of assignments. Participants tended to submit assignments late (due to procrastination) and reported that they found it hard to start and to structure an assignment.

- **late submission of assignments**

Participants reported that they procrastinated a lot before starting with their assignments. Although some participants were able to submit assignments on time, others tended to submit at the last moment, while others tended to submit after the deadline:

"Whenever I get work or when it comes towards exams I just want to clean my room. I have to make my own space clean than I clean my room, like I

start with my desk and then I move things there...then that area is messy so I move that mess somewhere else, than my whole room is cleaned and moved around and stuff. Just to stay away from my work.”

“...behind in handing in work. Pretty slow worker”

“Err, and then time management, that’s been a constant battle especially in courses where they are not clear and definite about the deadline. Then I battle to pace myself and submit work on time. Ya.”

“...always handing in assignments on time, it’s just like during when we have a week deadline ...eer I’ll leave it and I’ll procrastinate quite a lot. And then rush it in the end....”

- **Planning/structuring assignments**

Starting and structuring assignments was reported as being a problem for one participant, who indicated that she often handed in assignments after the submission deadline:

“...ummm well...I’m not...like I don’t know for big assignments and everything it will take me a lot of while to do it and sometimes I also emm I have a major problem starting errr assignments because emmm I won’t know what to put down and so I’ll tend to leave it and procrastinate because when I look at the question I won’t know where to start and I won’t know when to write down and what to say. I have no clue like how to start my assignments so I end up handing it in late or I errr ya, and I take long. I can’t start ...”

7.3.2.1 Coping mechanisms

Coping mechanisms used to cope with challenges in relation to assignments included keeping a diary and working with other students.

- **keeping a diary**

“I write things on my hand still and I write memos on my phone. Just because I kind of forget. I have so many thoughts. I forget what I was trying to remember. So I have to write them down otherwise they just going to be forgotten I guess.”

“...I always have a diary on me so I can always check it.”

- **working with other students**

“That’s easiest for me when I work with other people. I’m pretty much a leach.”

“...emm, I’ve been asked...I ask a lot of my friends for help on like guidelines especially if an essay like for help with like for structuring, a basic outline of the essays...”

7.3.3. Tests and exams: challenges and coping mechanisms

7.3.3.1 Challenges

Participants reported challenges relating to studying for tests and examinations (procrastination and difficulties relating to studying for extended periods of time) as well as challenges faced while writing tests/examinations (poor time management, difficulties processing questions, evaluation stress, and stigma associated with the use of separate venues and additional time allowances designed to accommodate for their disability).

- **procrastination**

Procrastination took a number of forms, including repeated cleaning of the study room and/or putting off studying until a short while before a written evaluation:

“Whenever I get work or when it comes towards exams I just want to clean my room. I have to make my own space clean than I clean my room, like I start with my desk and then I move things there than that area is messy so than I move that mess somewhere else than my whole room is cleaned and moved around and stuff. Just to stay away from my work.”

“Well,I sort of tend to procrastinate a hellava lot which does put a lot of pressure on me as you saw in the last week causes we’ve had a couple of tests this week and then I put off studying, I’ll say I’ll do it tomorrow, no I’m okay I’ll do it tomorrow and then eventually come time I wake up like at four in the morning before the test to study causes I just haven’t studied enough.”

- **Difficulty studying for long periods of time**

One participant found it difficult sitting still and concentrating for an extended period of time when studying:

“ya, to study for like long periods of time is difficult. I found last semester when you just have, especially when you just have frees ... to study for an hour solid it's near impossible. It's really hard to just sit still and try and concentrate for that amount of time and I mean that cuts down on your studying time quite a bit then you don't even study as much as you should.”

- **poor time management**

Participants indicated that they struggled with planning their time during examinations.

That is, if they got stuck on one question, they would tend to focus on this question no matter how long it took. Participants also indicated that they tended to drift off and lose their concentration when writing exams:

“I don't plan the exam much. I just go through it. When they say half way I kind of look if I am somewhere near half the questions and then I just work a little bit faster for about five minutes and then I lose concentration again. And then I rush.”

“I've got crappy time management. So if I get stuck on something I have to solve it. I can't not solve it and I'll sit there and sit there and sit there until I get it. And by the time I get it I've run out of time so...”

“... majority of my papers I don't complete.”

“It does like when the first like hour of exam is fine but after that you like drift off a little and then you don't concentrate and you have to catch yourself and bring yourself back ... it's like, it gets quite difficult sometimes.”

- **processing examination questions**

One participant found essay type questions particularly difficult to deal with:

“...exams is like quite a bit because like emmm. Exams actually ya. Because when it multiple choice or emm you know short questions emm than its generally fine. But when it's like err longer eer short essays or long essays or whatever err like I said I have to sit there and think about it. How do I write this essay and then usually it will take me like forever to like process. So err past couple of exams I've been trying to like write notes on the essay and I just structure it a bit. And err, and I'll start writing and I'll stop to think I'll err write a bit more and if I'm stuck I'll err try and formulate it and then I'll try and just pause once in a while in the exams. Ya, and I'll just stop and just sit there.”

- **Exam stress**

Generally participants did not feel at ease while writing examinations. They tended to lack confidence that they would pass and tended to doubt their own abilities.

“I hate exams. I don’t like exams. I haven’t been good at exams. I go in either over confident read the first question and shit myself because I don’t really know what’s going on. Or I’ll go in assuming I don’t know what’s going on. I doubt myself because I do know what’s going on but I doubt myself and I change things and then lead up I was right but then I changed it and I was wrong. So I’ve never been good at exams. I can’t do exams, I don’t like exams. They are not my favorite things. Ya, but I can happily sit down and learn for an exam.

“I’m a very confident person in certain aspects....Like my campus life, my friends, erm people. I can stand in front of a crowd and talk and do what you want me to do. But if I’m writing exams and thing I will often write something down and think. No that was too easy, it can’t have been the right answer. You wrong. You wrong. So I’m not a very confident person when it comes to that sort of thing. Unless I’ve learnt the answer and I know it’s the right answer then I know it’s the right answer. But if I’m not really 100 percent sure, I’ll doubt myself there. But on most occasions I’m a very confident person. I like to talk. So I can do most things very well. It’s just I doubt myself very often and in exams and some tests...”

“Exams are a bit of a challenge but it’s also generally a challenge with everybody because it’s always just hard to write under pressure and that pressure is very hard to cope with”

- **stigma associated with reasonable accommodation (separate venues and extra time)**

ADHD students are encouraged to write tests and exams in a separate venue and they receive extra time to complete their test and exams. These forms of accommodation are, however, observed by their classmates who are at times skeptical about the accommodation they receive. Students are also reluctant to take advantage of additional time offered, as the extended time allowance makes them feel “different’, awkward” or “odd”.

“...because I get extra time for my exams and I also write in a separate exam venue, it’s a bit tricky with some of your friends because they ask you oh you weren’t in the exams because they write in a larger venue and it’s just a bit tricky then because you say you write in a separate exam room and they ask

why and then you say I generally say it's because I got ADD or ADHD, ya" ...Some of them get a bit skeptical and I say to them just go to the psychologist and get your own diagnosis, you know. Ya. if you really think it is unfair."

"...sometimes I'll stay for an extra minute or two. And just grab as much in because the exams is so very long, I don't want to stay for extra time. For half an hour ..."

"I feel awkward. Every one leaves and the lecturer kind of ...I don't know I just feel awkward. Like I shouldn't be using it or something. It's a bit odd being the only one sitting there."

"...maybe the lecturer knows about it. I don't know. It's just that. They know about it, just don't feel normal, making them wait."

7.3.3.2 Coping mechanisms

Some of the coping mechanisms that participants used to handle tests/examinations include: using scribes, developing personalized strategies for coping with examinations demands, studying with friends, and taking breaks in between exams.

- **use of scribes**

Participants indicated that the use of scribes to write down information during examinations helped a lot: *"ya, it will be faster if it's spoken. I know some people they get scribes to write down what they say but that will probably be the easiest way to do an exam."*

- **applying personal strategies**

A number of participants indicated that they had developed their own strategies for coping with examination demands, including: summarizing work that needed to be learnt and answering examination questions in a systematic manner:

“...because what I do is I take the important things and I summarize pretty well that I summarize the night or two nights before I don’t do a long learning thing because whatever soaks in that’s what I generally pass on. I actually know my stuff rather than I cram it.”

“I just sit there and I’ll calm myself down and I read through the paper. That’s what I start to do. I read through the paper and circle the questions I know I can do and start with those. And then I’ll move on to the ones for less marks and slowly I’ll go on to the ones for more marks. Cause the ones for most marks would generally take longer so rather spend a little bit of time doing each thing.”

- **studying with friends**

Some participants found it advantageous to study with other students.

“And I try to ya, also what I try and do is to make it easier. What I’ll do is sometimes I’ll find someone else who is writing the same paper err I’ll go through it with them and I’ll just like err talk about what the topic is with them and like often emmm so when I talk to them they’ll just give me the points and everything so I see how they do it and I try and do that in the exams...”

- **breaks in between exam**

Participants felt that examinations were too long, and that it would be advantageous if there were breaks in between examinations.

“...exams are too long – there needs to be a break in between...”

“And also if they had a break but they can’t give a break during exams. Maybe if they stopped half way through the exam show you a video clip and then carry on...”

- **time reminders**

Participants felt that half-time reminders, provided by examination invigilators would be helpful in terms of time management.

“I don’t plan the exam much. I just go through it. When they say half way I kind of look if I am somewhere near half the questions and then I just work

a little bit faster for about five minutes and then I lose concentration again. And then I rush.”

7.3.4. Reading, comprehension, and writing: challenges and coping mechanisms

7.3.4.1 Challenges

Many participants found it difficult to read lecture notes and course handouts, either because the readings were too long, or because they: were slow readers, read the words incorrectly, left words out, or skipped lines when they are reading.

“...read very slow, read brief wrong....”

“...reading, I am very, very slow....”

“...ya the bigger the words the easier I often find it because I think they pronounce them more accurately according to the word rather than some silent ‘k’s or double ‘e’s or whatever.”

“...sometimes I can read the brief wrong or I’ll leave out things that are in the brief but I skip a line or I read the same line like 17 times before I notice that I’m not going down the page, I have to use my finger. It kind of does slow me down especially if I have to write something.”

“Well I can't read for more than I'd say 20 minutes or so without getting a headache like up here. That pretty much affects like studying time and in tests so I get savage headaches.”

Participants also struggled to write legibly and/or to write quickly enough to respond to examination questions in the time allocated:

“And I mean writing My writing is un-neat which doesn't help much with tests. If you write a little bit un-neat and the lecturer can't see exactly, then you get wrong often. Which is, it doesn't always help.”

“...errr writing when I was assessed at school they found that my writing speed was very low and errr and so it's another reason why I take long. I'm not sure why...”

“I battle with, sometimes my hand writing is not very tidy so I battle cause when I study French we get short mini assignments where it is not 5/6 pages,

it is only half a page or something. And sometime we have to submit that hand written...

A number of participants also struggled with spelling, but did not feel comfortable enough to bring this to the lecturer's attention.

"...I spell lots of things wrongand I'll spell things wrong. And that I know, words like 'if', and somehow I spell it wrong. If you can spell 'if' wrong then, I will do it."

"My language is not good but I know of words that I just can't spell them. I can spell the bigger words ...the smaller words I just can't. I find that very strange."

"I never remember to go to the disability office to get a form that says... I can get a form that says I am disabled or whatever but I first of all I feel weird saying hey I'm disabled and I look perfectly fine. I feel weird saying hey I can't spell and here is a piece of paper that proves it."

7.3.4.2. Coping mechanisms

Students identified the following as effective ways of coping with challenges relating to writing, reading, and spelling: human and computer support, spelling concession, presentation of material in point form, having access to scribes, and choosing courses that are mathematics-based with little theory.

- **Human and computer support**

Participants indicated that they asked other students how to spell and used cell phone and computer software to check spelling. At times they also asked other students to read for them. Participants preferred to use word processing packages, and favoured the use of computer programmes such as *Dragon Naturally* which translate spoken words into written words.

"...I ask people how to spell..."

“...I work in groups for design projects, I’ve been working within groups so there is always someone there who has read through it and go on ok this is what we need to do. So, I’ve actually never had to do it myself.”

“...ummmm I’ve just tried, umm, I’ve tried to speed up with my writing. To remind myself like write fast, write fast. And ummm with my reading I’ve been trying to write notes to like maybe help me with that and I’ll mmm speak to a friend about it and find out what their take on the subject is...”

“And I generally have to ask people how to spell things or else I will use my cell phone. I used to have a spell check computer thing but I lost that...”

“...errr, I often ask people about the brief. I really don’t read the brief sometimes. Because I get so much wrong. So what I do is that I just highlight the depths and the amount and I pretty much just do it accordingly to that. But I’ll often get someone to read the brief out.”

“I prefer to type that. It’s a lot neater on the computer.”

“...Like I wanted one of those computer programmes that lets you speak – you know that software that you speak and it types for you. Like that will actually make the work a bit faster. I don’t know if that’s because I am ADD... I probably start speaking of something random which will ... I feel like...it will probably make life go much faster. Speaking is faster than typing...”

“Well, maybe if it were all via the computer. I could do it with dragon which is just speaking to the computer but I don’t have the software.”

- **spelling concessions**

Participants felt that they benefitted from spelling concessions granted to students with reading and writing disabilities:

“...spelling concessions help...”

“And a lot of them take it in account I can’t spell because they know. So if I put ‘desing’ instead of ‘design’ they say well OK, we know what you mean. Ya, so they’re really cool with that.”

- **presentation of material in point form**

Some participants found it easier to write in point form rather than in narrative form, particularly in relation to theoretical questions:

“...briefs are in point form...”

“And if they do want theory, it is easier if you give it in point form.”

- **accessing scribes**

Participants felt that it may be advantageous to use scribes, rather than attempting to write examinations themselves.

“I know some people they get scribes to write down what they say, but that will probably be the easiest way to do an exam.”

- **Avoiding modules that are examined using essay type questions**

Participants found essay-type responses to be particularly problematic, with some participants deliberately avoiding modules that tend to be evaluated using essay-type questions.

“...well my degree is very maths based...well, I’m doing a subject at the moment that’s got an essay in it. And that like probably like three or four subjects in my whole 4 years of degree that has essays in it. So it’s very much like you sit down and you formulate and you calculate how to get it down.”

7.3.5. Social relationships

7.3.5.1. Challenges with friends

In marked contrast to the academic difficulties reported by participants, they had little difficulty making and maintaining friendships; with friendships being rated as being particularly important:

“I make friends easily...”

“...from an early stage with ADD how you can...you have a very strong influence on your social spaces or your social ranking and even to the extent where you willing to sacrifice your own integrity in order to achieve that. So it’s hard letting go of that. Cause you always want to be seen or heard, be accepted and feel like you belong and that people like you.”

“I can make friends easily. Put me in a crowd and I’ll know everyone by the evening. I can very easily make friends. I enjoy people. I like socializing. I’m very cocky. So I, I can find out what you like and so I will focus on that. If

you like cars for example then I'll talk to you about cars. So it's very easy for me to adapt to situation, when need be."

"I do make friends. I just start talking to someone, err I go off on a rave sometimes..."

"well ya, emm, they just see me as a fun random person..."

"...when I'm meeting people, especially recently I don't tend to keep quiet, ... I think they call it 'word vomit' – you know where you can't stop talking, diarrhea yah 'verbal diarrhea'. Ya, I tend to start talking and I just can't stop talking. Everything comes out. I don't even think about it. Ya, so I make friends easily like that because I am...kind of unorthodox."

"Ah ya, but I am quite loud...I don't know how to explain it. I am kind of very forward. I say what I think. I don't say it in a rude way. People don't mind it. Most of my friends. It kind of weird most of my friends...but no one actually seems to mind it. I do say things straight away and I don't really care if you don't like it. I don't know, maybe I say it in a way that doesn't bother people. Ya it's not hard to make friends."

7.3.5.2. Challenges with lecturers

Participants found many lecturers to be supportive, although a minority of lecturers were found to be unsupportive of the difficulties experienced by disabled students:

"...generally I'm okay with talking to my lecturers except when I miss a lecture or I came late or something than I be scared to talk to them or I'll be scared to talk or to go in the lecture."

"...generally, they are understanding. Just one or two just sometimes ya, have ignored me and altogether about my condition. Ya."

"...it's very, very relaxed. And I'm allowed to do as many as I need to do to get this degree. They are very relaxed because of my ADD. Cause they know."

"Because the lecturers are very cool in the engineering department. If you have any problems just go to the lecturers. And if they not there, send them an email."

"Nine times out of 10, with almost all my lecturers, I had to just let them know that I'm ADD or ADHD. So they could understand towards giving me extensions or so on."

7.3.7 Self-confidence

7.3.7.1. Challenges

Some participants were self-confident, had a high self-esteem, and rarely sought social approval; while others were less confident in both social and academic contexts:

“...I’m pretty confident, high self-esteem...”

“...ya, I’m not worried if I think I’m going to do badly. I generally don’t think I’m going to do that.”

“...don’t look for approval from other people...”

“I’m not so much of a confident person. Actually I err..... Affected my drama marks last year because I was quite bad on the stage when I did my monologues and everything. I mean I’m very nervous.”

“I’m a very confident person in certain aspects...Like my campus life, my friends, erm people. I can stand in front of a crowd and talk and do what you want me to do. But if I’m writing exams and thing it will often write something down and think. No that was too easy, it can’t have been the right answer. You wrong. You wrong. So I’m not a very confident person when it comes to that sort of thing. “

“You have highly developed social skills and you tend to joke around ya a lot...”

7.3.7.2. Coping mechanisms

Medication and an acceptance of an ADHD diagnosis assisted participants to deal with many of the challenges outlined above:

“Being on medication. Its help clear up your thinking err my thinking and it’s just helped me realize what and where my weaknesses actually lie and where my strongest strengths are and that sort of thing....”

“I just come to terms with (ADHD status) and start accepting yourself and come to peace with who you are and that sort of filters through everything.”

7.3.8 Adapting to campus life

7.3.8.1. Challenges

Participants indicated that they battled with noise on campus, especially in the libraries and LANs. Large numbers of students on campus, combined with a lack of personal space, also posed a challenge for participants:

“...oh campus life. I battle in libraries because there is a lot of which is ironic but in this library there is a lot of err its very noisy. And I just battle. Any sort of any sort of peripheral noise as such is difficult to deal with because you just trying to focus, your key thing being ADHD is always trying to focus and try to avoid distractions as much as possible and when there is too much of background noise. Ya, those kind of things I battle with. In lectures not so bad because the sound is more contained to that lecture room. It's more in libraries or in computer labs as well, I also battle a lot...”

“I have access to the Computer LAN. They have a separate Computer LAN for the disability students. It tends to be very noisy as well. There tends to be a lot of African students in there as well and it's just a culture clash where... the problem is they tend to use that LAN as a socializing sort of space and that also impacts quite heavily on my academics.”

“So the noise levels don't affect me because I'm probably making more noise than them...”

“... sometimes people like don't actually like notice like your personal area like some people just like rub up against you, they don't care but I don't like people rubbing up against me on a hot day or like most days. I like to be out of a crowd.”

7.3.8.2. Coping mechanism

Attempts to cope with the challenges of campus life took a number of forms, including: working at home, using headphones to block out noise, using separate venues or coming to campus early on the day when it tends to be quieter

“...work from home...I don't spend much time on campus. I pretty much come from my lectures and then I go home.”

“I don't know. I just like home because it got my food. I don't have to walk down the road for my food. I don't have to do all of that. Everything is where want it.”

“Well, it does get distracting sometimes if you are doing lectures but I mean other than that I don’t spend too much time on campus because I’m either in lectures or at home studying and at home it is rather quiet so that’s fine.”

“Ya, I have to resort to putting head phones on when I’m working on a computer, just to block sort of white noise to block out that outside sound. Ya”

“Separate classroom to study...”

“Separate computer LAN...”

“...well on campus we either in lectures or we in the design lab or in the Lan upstairs from the design lab, so the people that are in and around I know very well.”

“So we never outside and we very isolated where we are. So it’s not a problem.”

“So the other coping mechanism I actually use is to arrive at varsity very early in the morning. In other words wake up before everyone else does so you can get to varsity and you can find some study time when it is relatively quiet. Ya... Anything to up to about 9 in the morning is pretty quiet. Yah...”

“I can shut out noise. Like right now I haven’t noticed it until you mentioned, other people’s noise.”

“...umm sometimes like a lot of people have err like urrr there is so many people walking around, there is so much activity. That helps with the zoning off. Instead of looking at all the people walking pass you can just look at your paper on the desk or doodle instead. Umm I guess sometimes it’s loud so I’ll like err, I don’t know if I do this unconsciously or consciously or what but then I’ll like zone off or like something. But it’s not too bad it’s just that I tend to know it’s loud but I won’t really hear it because I’ll”

7.4. Accessing services for disabled students

Participants in the present study accessed only a limited range of services from the Disability Unit on campus – i.e., time concessions for tests and examinations, separate test/examination venues, access to a separate LAN, and spelling concessions; with participants being generally unaware of other services offered by the Disability Unit.

A number of participants also indicated that they had only become aware of the services offered by the Disability Unit after having been a registered student for some time.

One student only discovered where the Disability Unit was two years after she first registered as a student. She had a letter indicating that she needed extra time in tests/examinations, but was only able to locate the Disability Unit after her mother came to campus to assist her.

Moreover, participants were largely unaware of other support services offered on campus and felt that they needed to be informed of what these services were and how they could be accessed. Although one student was receiving support from the Student Counselling Centre on campus, she had initially found it difficult to establish where their Student Counselling offices were located. Another student had decided to see a psychologist off campus because the psychologist in question was older and had specialized knowledge in the treatment of ADHD (suggesting, possibly, that psychologists at the Counselling Centre may have been perceived as being young and/or inexperienced).

These concerns relating to service access are clearly evident in the following transcripts:

“...maybe if there was someone who actually told you about services on campus and how it affects you or how it could affect you and then you’ll know what you can actually get help about. Like right now I just know there is a Disability Unit and they give help with the extra time when I do my lectures. I don’t know if the Disability Unit does it or if they actually told you that they do this and the clinical service do that. I don’t know what else there is.”

“I’m actually not sure what else that they [Disability Unit] could do. I know I think the counselors will be able to assist and I think the Disability Unit will assist with extra time and everything and I’m not quite sure what like other programmes they errr assessments they could put in place that will help me and ya. Maybe educate me as well about ADD. I know some but I don’t know really much about it.”

“...since it was so late and it was during the holidays, I went to see them (Disability Unit) emm I got err I’m getting err they just said that I’m they hope to get me extra time. So I think that will help with completing papers. And ummm ya, I’m actually not sure what else they (Disability Unit) can..”

“errr, for first two years on campus err..... I really didn’t know how they could help me. And I just like had a letter from school saying that I needed some extra time. So I didn’t go there that often because I didn’t I’d go for my lectures or I’ll forget or I’ll be doing other stuff. So I think I went three times

ermm to the humanities office and I said I have a letter for extra time who should I go see? Errrr no I thought I had to see them. So I had the letter and I tried to give it to them but they always so busy so ummm. I think once they did mention the Disability Unit. I can't really remember too well but I didn't know where it was so I didn't really know how to go about doing anything. Ya, so I ummm. Only recently at the end of last semester when we were writing exams ummm my mum came with me and we tried to find out from them and we kept asking where do we have to go, where do we have to go and then eventually we found out err no we had to go to Disability Unit and see Mr Bala Naidoo and we went to see him. And we talked to him about it about extra time and everything. And when I went for errrr I also didn't know where the counselors were. Apparently no one knows where that is on campus. And actually everyone you ask nobody knows. I only found out where they were because when I went for errrr my religion exams and I went with other students from from the Disability Unit, it was one of the girls and she had err epilepsy and she was going to the counselors and she told me where is it and she told me why don't I come and make an appointment and see someone. I was a bit nervous about seeing a counselor again but err I booked an appointment and I've seen her like twice now. But I only started doing this after the first semester."

"I have a private psychologist that I see. Ya...Because you find that it's not as specialized you generally find that you dealing with people who have very little experience as a psychologist.has just had much more experience in his field than the...and that helps cause his more specialize...and his an older person as well. His not someone close to my age. Ya."

7.5 Summary of key findings

Key findings from this chapter are summarized in Table 7.1

Table 7.2 ADHD challenges and coping mechanisms and services within the University context

	Challenges	Suggestions of coping mechanisms students employed and would like to employ	Services provided by University structures as identified by students
Lectures	<ul style="list-style-type: none"> • Long lectures • Afternoon lectures 	<ul style="list-style-type: none"> • Fiddling during lecture 	

	Challenges	Suggestions of coping mechanisms students employed and would like to employ	Services provided by University structures as identified by students
	<ul style="list-style-type: none"> • Medium of presentation (audio or visual) • Effects of Medication in lectures • Distraction in lectures 	<ul style="list-style-type: none"> • Obtaining information from friends and colleagues • Taking a break during lectures • Sitting in the front row • Audio visual style of lecturing • The use of a voice recorder • Accessing lecture notes on the web 	
Assignments	<ul style="list-style-type: none"> • Late submissions of assignments • Planning/structuring assignments 	<ul style="list-style-type: none"> • Keeping a diary • Working with other students 	
Test and Examinations	<ul style="list-style-type: none"> • Procrastination • Difficulty with studying for long periods of time • Poor time management • Processing examination questions • Exam stress • Stigma associated with reasonable accommodation 	<ul style="list-style-type: none"> • Applying personal strategies • Studying with friends • Time reminders • Use of scribe • Break in-between the exams 	<ul style="list-style-type: none"> • Extra time for test and examinations • Separate examination venue

	Challenges	Suggestions of coping mechanisms students employed and would like to employ	Services provided by University structures as identified by students
Reading, writing and spelling	<ul style="list-style-type: none"> • Long lecture notes and course hand outs • Slow reading • Reading words incorrectly • Leaving words out while reading • Illegible writing • Writing slowly • Spelling incorrectly 	<ul style="list-style-type: none"> • Avoid essay question modules • Human and computer support • Spelling concessions • Presentation of material in point form • Accessing a scribe 	<ul style="list-style-type: none"> • Spelling concessions
Social relationships	<ul style="list-style-type: none"> • No challenges reported with interacting with students • Challenges found when interacting with lecturers 	<ul style="list-style-type: none"> • Disclosure 	
Self-confidence	<ul style="list-style-type: none"> • Some were self-confident while others were less confident in both social and academic context 	<ul style="list-style-type: none"> • Medication • Acceptance of diagnosis 	
Campus environment	<ul style="list-style-type: none"> • Noisy environment • Large number of students and the lack of personal space 	<ul style="list-style-type: none"> • Working at home • Using headphones to block out noise • Coming to campus earlier 	<ul style="list-style-type: none"> • Access to a separate LAN

	Challenges	Suggestions of coping mechanisms students employed and would like to employ	Services provided by University structures as identified by students
		<p>when it is quieter.</p> <ul style="list-style-type: none"> Utilizing separate venues (LANS and lecture room) 	

7.6. Conclusions

Data were obtained from interviews with 5 ADHD students working with the Disability Unit at Howard College, UKZN. There were 3 males and two females ranging from age 19 to 23. All three defining characteristics of ADHD were experienced by the participants in this research process (i.e., inattention/distractibility, hyperactivity and impulsivity). Dyslexia and anxiety were found to co-exist with ADHD symptoms.

Students with ADHD found challenges with the structure of lectures; with structuring and handing in of assignments; with studying and writing tests and exams; with reading, writing, and spelling; with disclosing their status to lecturers, and with the overall campus environment being regarded as being too noisy and too crowded. Most participants reported that they felt confident, had high self-esteem, and rarely needed approval; with most participants appearing to have developed social skills. While participants expressed a high degree of general confidence, they lacked confidence in some areas (e.g., while writing examinations). General challenges reported by participants included: issues regarding medication, procrastination, poor time management, and stigma associated with reasonable accommodation.

Coping mechanisms adopted to meet the challenges above were the use of medication, human and computer support, use of assistive devices (tape recorders), use of

reasonable accommodation, accessing the web, a preference for audio visual style of lecturing, acceptance and disclosure of diagnosis, and utilizing separate facilities. Other general coping mechanisms students mentioned included the use of breath work for anxiety, reading self-help books, regular exercise, eating healthily, and joining a support group.

A number of participants were initially unaware of the services offered by the disability unit or of any other support services leading to limited access to services such as time concessions for tests and examinations, separate test/examination venues, access to a separate LAN, and spelling concessions.

CHAPTER 8

Research findings 2:

Service Provision by the Disability Unit to ADHD students

The chapter provides data on service provision by the Disability Unit on campus. This section will provide data on role of the Disability Unit in terms of general service provision as well as service provision to students with ADHD, challenges experienced by the Disability Unit, and future recommendations. This information was collected by interviews with two permanent staff members.

8.1. Service provision: Role of Disability Unit

The role of the Disability Unit is defined as creating equal access to the university services through identifying barriers to learning and implementing strategies to overcome these barriers. These services include advocating for the needs of students with disabilities and liaising with appropriate bodies on campus to ensure that disabled students are included in the university environment. These services will be presented first in relation to general services to students with disabilities (this includes students with ADHD) followed by a presentation of services offered specifically to students with ADHD. General services include exclusion, funding, counselling, accommodation at residences on campus, liaising and negotiating with lecturers, and arranging separate venues. Specific services for ADHD students include reformatting material, extra time, spelling and grammar concessions, use of computers and 'skip the queue' letters.

The role of the Disability Unit was defined by one of the service providers as follows:

“The role of the disability office is largely to create equal access to the academic environment for students with disabilities. This equal access would mean things like ensuring that students are able to access university education with minimal challenges, to help to identify the barriers that students might experience, and look at strategies to overcome these barriers which might mean working with different offices at the university, for instance, the access office, the orientation office, academic departments and facilities on the campus, ensuring that they are aware and make the necessary accommodations so that students with disabilities that come to university are able to become easily integrated into a university life.”

8.2. General services provided to students with disabilities include:

- **inclusion**

When students are excluded from the University, the Disability Unit motivates for their inclusion.

“well, if you take for one, support, the first level of support will be ‘we’ve been excluded’, ‘we want to come back to campus’, and ‘we want a motivation from the disability office’, to motivate that they be considered for support, considered to remain on campus.”

“...hence they come to university or they come in the second semester and have either failed or performed poorly and face exclusion and then they are forced to seek help. When they seek help they either come to student counselling where they are seen by a psychologist who then refers them to the Disability Office, for us to implement some kind of plan to help these students...”

- **funding**

The Disability Unit sources funding for student studies to ensure that minimal challenges are faced. This funding is incorporated into tuition fees, book allowance, meal allowance as well as for assistive devices such as laptops, computer software, and so on.

“...we also try to find funding support for them from inside or outside university. One of our big sponsors is NSFAS and they get bursaries from NSFAS which incorporate tuition fees, tuition fees are paid for, meal

allowances are paid for, book allowances are paid for, including assistive. When I talk about assistive devices I talk about things like laptops, voice recorders and other essential items that are required at that particular time according to that specific disability. So all of these services... ”

- **counselling service**

The Disability Unit provides counselling services and also refers to other professionals when needed.

“They become very anxious during exams. Sometimes they don’t need that much attention and support during just tests or I mean just during tests but during exams they become more anxious. That when they would just pop in and say that I would need I think I am feeling very anxious right now and I feel like I don’t want to write today, I am feeling sick, I don’t know, they like you to sit with a student then you come up you prioritize with the student and then you come up with alternatives suggestions...”

“...refer them to a psychologist for on-going support....Often they would come with medicals or reports from psychologists which we then obviously work with the recommendation from the psychologist.”

- **accommodation at residences on campus**

The Disability Unit motivates for accessible accommodation in university residences..

“...also we motivate with accommodation as well, inside on campus accommodation and we advocate on their behalf to have accessible accommodation. The accommodation at UKZN is not accessible to students with disability, the majority at here at Howard College there are only two residences that are accessible to students with disabilities and it was through the Disability Unit to make those accommodation accessible to students with disabilities.”

- **liaise and negotiate with lecturers**

The Disability Unit liaises with lecturers to discuss the needs of individual students with disabilities. These negotiations are via emailed letters and one to one meetings.

“...at times I am required to leave my office to go to that lecturer and sit with that lecturer and tell him/her of the needs of the student. I do write letters, I do email them and also do write letters and explain the condition of

that student before even meeting them before. From the onset after I have done my assessment with that student I would quickly do a sort of report like a letter which will detail the disability and the requirements of the student and also email them as well. But that does not work, I have seen that you have to also visit their offices and talk about what you have written in that particular letter for e.g. talk about the spelling concession and what should I do if this is an English programme I have to penalize the student and if he/she is not spelling correctly in all of that but after our discussion and they become they trust us at the Disability Office... ”

- **separate venues**

The Disability Unit arranges for a separate venue for test and exams to be written so that ADHD students do not get distracted by the crowds and noise. A separate computer LAN is also provided.

“...some students would want to sit alone during exam time and would not want any distractions and would also want a totally separate venue and some students at times they do not mind to be mixed with others, they are fine.”

“In terms of an example, considering the separate venue, students have said that when they write exams in the Old Mutual Sports Hall, where most of the exams are written they get a bit overwhelmed, okay, and they would prefer, we then refer them to the clash area. However, some of them felt that the clash area still is recently getting quite crowded and it can be quite noisy and disruptive. They wanted to write in a separate venue, so what we’ve done is we then arranged for partially sighted students as well as students with learning disabilities, students who are physically disabled, we put them all into one venue. To write the exams together. So that is what that providing a special venue has been offered for these students.”

“Ummm with the LAN we do have a separate LAN for students with disability. It is very accommodative to them because they can go anytime. It’s not mostly congested like any other LAN ...”

8.3. Specific services provided to ADHD students.

- **reformatting of lecture materials, test and examination scripts and course hand outs**

The Disability Unit assists with reformatting lecture materials, test and exam scripts, and course hand-outs into preferred electronic format.

“Some of the services that we provide are that we reformat materials for them when there is a need....we scan and edit information so that it is accessible in electronic format.”

- **extra time during test and exams**

The Disability Unit motivates for extra time during tests and exams. Students get 15 minutes extra for every hour to accommodate their challenges.

“... they will need extra time to concentrate.”

“We provide 15 minutes extra time during tests and examinations for every hour during the examination so that they are able to focus and better cope with the examination because it would be unfair if we treat them as if they do not have disabilities. Thus hence we sort of provide a standard 15 minutes extra time..”

- **spelling and grammatical concessions**

The Disability Unit motivates for spelling and grammatical concessions to ensure students are not compromised in assignments, tests and exams.

“A spelling concession is for e.g. when the student would make a lot of spelling errors where when he/she is writing and during our assessment the student would indicate and even the report from the specialist would say that the student would need a spelling concession. Then we would have to engage with that particular lecturer, and inform him/her to please be aware that this student would require 15 minutes extra time per hour and as well as the spelling concession. In that way its whereby for e.g. the lecturer would not penalize the students for the errors, grammatical errors in the assignment and all of that because sometimes our students did face difficulties when they fail maybe because they did not spell correctly and when the lecturer did not understand their writing. Sometimes it becomes very important to engage

with the lecturer so that the lecturer becomes aware that they must look at the content and see if what is being said makes meaningful sense. And all of that rather than penalize the student because he/she did not spell correctly.”

- **use of computers during test and exams**

The Disability Unit also motivates for students to have access to computers during test and exams to aid in legible writing, spelling checks, and correctly constructed sentences.

“Because I indicated that some of them would want to use a computer rather than using their hands to write tests...”

“...say that I think that my lecturer will penalize me because I have messy handwriting, maybe perhaps if I can be given a computer to write because at least I am more literate with computers and I am fast in terms of typing maybe that will lessen my anxiety...”

- **‘skip the queue’ letters**

The Disability Unit also provides ADHD students with ‘skip the queue’ letters to accommodate their challenges.

“...for a student with ADD, waiting in a long queue in registration can be very frustrating, but we grant those students with disability a ‘skip the queue’ letter.”

8.4. Challenges experienced by the Disability Unit

In providing accessible services to students with disabilities, the Disability Unit experiences challenges. These challenges were identified in the areas of: lack of staff, lack of space, overcrowded and noisy lecture rooms, lack of services, lack of national standard time for test and exams, lack of understanding the nature of challenges facing students by lecturers, apathy by other students, late acknowledgement by students of their status, past feedback and over-parenting.

- **lack of staff**

Lack of staff hampers service provision. There are minimal full time staff and the university opts for employing student assistants whose services are very limited. Departments cannot assist due to lack of a budget. Employment of more permanent staff would appear to be indicated.

“I have said also that one of the most challenging parts of the disability unit is that we lack staff. We rely on students to assist us especially during tests. Because during exams, the exam department they do help us to provide invigilators but during tests everything lies with the disability unit and the departments won’t give us assistance. They would say they do not have a budget. As well as the students assistance would be limited....so it becomes a difficult challenge...” “To be very honest, in view of the lack of capacity at the disability unit, we’ve not been able to probe those areas for students...”

“I mean we’ve had students who, you know, who have actually dropped out of university because they felt that they couldn’t cope. We won’t even go, I mean I don’t think there is any mechanism in the university that actually goes and identifies why these students left and find strategies to deal with that. We don’t have the capacity in the disability unit to do that.”

“... it’s very challenging to do that because the Disability Unit here is short staffed. There are two Disability Unit officers employed on permanent basis who do the assessment and also we do not have enough student assistance.”

- **lack of space**

Lack of space is also very challenging. ADHD students prefer a separate space in which to write their tests and exams and also a separate computer LAN because of distraction and noise.

“If you take our Red Lan, at the moment we have students with learning disabilities who access the Red Lan. I’ve had experiences where students with learning disabilities have said ‘the Red Lan is too noisy for us, we want a Lan of our own’. So we can’t, we don’t, have the resources to meet those needs for those students.”

“Yah... so that’s a difficult part for the separate venues (for test and exams) but we do provide it when we see that there is a need and when the students request it.”

- **overcrowded and noisy lecture rooms**

Another challenge noted was overcrowded and noisy lecture rooms.

“I’ve heard students say that classes can be rowdy, students are talking, so all we encourage is our students is to go and sit more in front of the class,but lecture venues have become a lot crowded these days, there’s more students ...”

- **lack of services**

Another challenge identified was the lack of available resources for ADHD students:

“Again I have to say that there are very few services available to students with ADHD. There are students with disabilities I mean learning disabilities who have ADHD who have come to us asking for added support, to access for example campus health, or student funding centre or sports. I am not too familiar with the challenges there but I will think there would be...”

- **non-existence of national standard extra time**

Presently there is no standard allocation for extra time for assignments, tests and exams.

Extra time is allocated by supporting documents from professionals who will indicate the amount of time needed.

“Thus hence we sort of provide a standard 15 minutes extra time, at the moment in our country we are still battling... we do not have the national standard time that should be given to all students with disability. So in our university, and I think in most universities as well at the current moment, we sort of provide 15 minutes. If a student needs an extra hour or extra time he will then need a supporting document from a professional who will stipulate that the reasons why this student would not benefit from the 15 minutes extra time then we would and we do extend it to 30 minutes per hour or 45 minutes per hour.”

- **lack of recognition for extra time for handing in assignments**

The university has not yet recognized extra time for handing in assignments. Students are expected to hand in assignments at prescribed times despite their challenges.

“for example we’ve had a student... who had to hand in a design assignment, okay, and he was not able to achieve that task, because obviously being in fourth year is pressurized already and he wanted, the students are given 28 days to hand in their assignment, so he was saying that he should actually be given 7 days extra, and if you giving the 7 days to the student it’ll actually be a challenge because the engineering counsel says their exit led outcomes which mean he needed to hand in the assignment in the prescribed time. So even exit level outcomes have not considered the needs of students with learning disabilities, who need to be considered, they need to be accommodated within those.”

- **lack of understanding the nature of challenges facing students by lecturers**

Another challenge is the lack of understanding of the nature of ADHD and the impact that events at the university have on disabled students. Students struggle with distractions and become agitated and this impacts on their performance. Also, students need extra time because of these challenges but instead students are seen as lazy and irresponsible.

“...a student with a learning disability was writing and suddenly there was a power failure, and he became totally overwhelmed by that experience and actually felt that he couldn’t focus any longer, and came to me and said “You know, I am going to fail this paper”, and there was nothing I could do to respond to his need, because obviously other students after the power came on were able to just get back and write, for him he was in a totally different space after that and we did not have the support to come in and provide the support he would need, and he became very agitated and wasn’t able to continue. So there are huge challenges that we have with being able to support these students.”

“I think within many faculties, I think academics needed to be engaged more with actually what it is to be a student in the class with ADD or ADHD. And for many people I don’t see a physical disability and hence I don’t understand why I should give the student extra time.”

“We struggle with getting academics to understand what it is to have a student in your class who has a learning disability, lecturers often say they have huge classes to deal with. In this huge class, you have one student with a learning disability, and sometimes they are reluctant to make special accommodations for one student, and we’ve had challenges where you know, all students are pressurized to achieve academic outcomes, there seems to be a reluctance to understand that a student who is ADHD or a student with

a learning disability, their needs become a lot more challenged and they feel that they rather give all students extra time, why accommodate one student? And that has been my experience with academics.”

“We are having serious challenges with lecturers. I yah that one I am not afraid to say. They become supportive when you truly engage with them and try to make the understand what is ADHD and ADD because one of the thinking for e.g. they will say no I think this student is lazy, she does not want to do the work, it because now its exam time she only comes now, why didn't this student come earlier on.so lecturers become very skeptical when they come very late but they become very supportive afterwards and but not all the time and you have to engage with them, so it's an ongoing process.

- **apathy from other students**

Other students on campus often expect ADHD students to receive the same treatment as them.

“So it is very challenging, I mean for example a student with ADD waiting in a long queue in registration can be very frustrating, but we grant those students with disability a ‘skip queue’ letter and obviously a student with a learning disability or ADD getting a ‘skip queue’ letter and suddenly there's a long queue and now he's going to the front of the queue he incurs a lot of resentment from his fellow college students who want to know “what makes this student more special than us, we pay fees just like every other student.”

- **late acknowledgement by students of their status**

Another challenge is that new students coming into the university do not disclose their status at first due to fear of being discriminated against, and only when they are in a crisis do they seek assistance from Disability Unit.

“Also I think one of the things I have seen is that with these students is they would come to us very late. They wouldn't come to us on the onset where they during their registration time, they will come when there is a crisis, when they writing a test or an exam to say that I have to say that I have this problem and these are my challenges. Then you can't just assist, you need the medical report. Some students do not have a medical report, they have to go through an assessment first to truly provide them quality service....understanding that it is very difficult for them to disclose their disabilities from the onset because they don't know how the university will

think about them, even their friends. It becomes like an issue to be linked with the disability unit, hence then they don't come to us on time.

"I think for many of them, they thought that coming to university they can let that part of their life remain behind so that they don't declare, many of them don't declare their ADHD, ADD or ADHD status on their application forms. they hope that by coming to university they will by declaring it they might actually be discriminated against, so they don't declare it. What happens most often that as they start their academic year, we pick up many of our students most often when they perform poorly in the second semester. Then they come and they say that 'we want support'."

"What we have also observed is that many of the students while in school would have been linked to an educational psychologist, there would have been early diagnosis and interventions. For those students who have taken for example medication we find that many who have actually performed poorly have not been compliant with their medication and hence the poor result, the attention challenges start to surface; in you know, university life, and obviously university is quite a hectic pace, it's a very noisy environment, there's competing demands at the university, this challenges the students who are ADD or ADHD and hence they come to university or they come the second semester and have either failed or performed poorly and face exclusion and then they are forced to seek help. When they seek help they either come to student counselling who then they are seen by a psychologist who then refers them to the disability office for us to implement some kind of plan to help these students so up until now, that has been our challenge."

- **past feed back**

A challenge faced by the Disability Unit is the low confidence and self-esteem that students possess due to feedback from school psychologists, teachers, and parents.

"For those that have consulted with me I think a big number do not have self-confidence at all. They are very low in terms of their self-esteem. For example I have on student who shared an experience with me that she was informed I won't say by which professional that she from high school that she will not make it to university due to so many challenges she had at high school. Messy handwriting even with she is having difficulties for e.g. to spell even though she is English speaking but in terms of even in her presentation, talking as well as writing she can't concentrate on one item and all of that and so she was given a report to say that she must not consider university, maybe she must go to a technical college or do something practical not university at all and also the report indicate to her directly there are little

chances she will reach matric even. But I am surprised that she is here doing engineering and with the support we have given her she is just coping just like any other student and I feel that if where she has challenges it is normal. So for me this gave me like another picture in terms of looking at students with ADHD, that their self-esteem is too low because of what is being said to them either by parents or by teachers at high school or even by their professional reports that are given to them (laughing) or yah. So at the same time like it becomes a dilemma as well because we in order for us to provide services we need medical reports to confirm disability so I am not too sure how that could be looked at in terms of accommodating them but looking at their medical reports because there is a sort of I don't know like a thin line there because students become frustrated about these reports because they feel like it's a dead end."

- **Over-parenting**

Another challenge experienced is demanding parents who over-parent their child even though they are at university and they make decisions for them and they take over the responsibility of their child.

"...also the observation I have made is demanding parents, and inappropriate career choices, having something I have observed. Parents with an ADHD child, this is my experience is that they seem to have seem to be very close monitors of their children, and I can understand why, but sometimes this line becomes so close that they take away from a child, the responsibilities that young people need to grow up with. It sounds like a contradiction. You need a coach, but you also need someone to hand tools to people to enable them to manage their own lives. So you'll find that parents will continuously call the disability unit and it takes away from the student that responsibility to do these kinds of things. Okay, I've had parents call; "My child is writing a test today, and is he going to get the extra time?" and I'm thinking to myself shouldn't we ask that student to take that responsibility but I suppose for that parent, this is what he or she has done all their lives. Okay, the second thing is parents seem to think that you know, "I don't think my child will cope with this career.", so they will put they will suddenly become the career counsellors for their children and say "I think my child will be better off in this career". And they are very set in those ways, and you put a lot of pressure on the students, dealing with ADHD is one, dealing with parental pressure is two, dealing with a new academic environment three, for a student with ADHD all these competing demands that can be quite pressurizing. I've had students who actually then go the route of becoming totally introverted and they don't talk about the issues, they can become quite

depressed, I've seen that kind of thing I've had to refer students to student counselling for those kind of issues”.

8.5. Future recommendation

In order to overcome the challenges mentioned above, future recommendations were identified by service providers as being: awareness campaigns, engaging forums between students and lecturers in terms of teaching strategies, an increase in staff capacity, an increase in resources, and having a smaller number of students in classes. Solutions suggested to address these challenges included: creating a separate LAN space, creating a disability assessment centre, addressing the gaps in Disability Policy, building a coaching system, creating awareness at the writing place, registering through the access office, and ensuring a broad engagement of university services,

- **awareness campaigns**

Creating awareness of ADHD on campus through awareness campaigns could assist in overcoming challenges experienced by staff and students.

“Ummm I think we need to have more awareness in focusing in this disability because like in the past we never focused we never do like a sort of awareness campaign here at Howard in terms of looking at ADHD. We have just been sort of doing like because majority of our students are have visual impairments so we have been more focusing on that part and also with physical disability but not into this disability. So I think maybe we can confront ahh do like an educational awareness programme workshops and campaigns. Maybe that will help non-disabled students to have a better understanding even maybe the lecturers as well to have a better understanding of the disability.”

- **fora between students and lecturer in terms of teaching strategies**

Students and lecturers should get together and engage in dialogue about appropriate teaching strategies in class so that student needs are addressed.

“...maybe it’s something that should be negotiated at a higher level and also and I particular feel that maybe we need to have a programme like an educational sort of programme with the lecturers. I am not too sure if I’m pronouncing it correctly if I am saying educational programmes because it not an education programme per se but it’s sort of a forum where lecturers would inform us and maybe we could engage with students with ADHD because I feel they have the best experience of it to inform the lecturers of what kind of maybe strategies teaching strategies they can adopt in terms of teaching them. So that should be sort of an engagement between the students and the lecturers to come up sort of a strategy or a sort of a policy. Yah a plan of action, yah something like that to address their needs. It would need like a collaborative approach with the students and the lecturers in a forum, well that’s my suggestion. But lecture venues are not accessible that one I can say it and I am aware that lecturers do not have best teaching strategies to address students with ADHD.”

“..and ahhh the manner in which for e.g. they implement their teaching strategies for e.g. are for some of them are still using the old way of teaching, like writing on the board and all of that and they can’t we can’t address this. I think it becomes because not all ADHD students are facing that particular kind of problem. I am just mentioning what is coming from my mind now. They would say like, uhhh they don’t consider the way that they speak at times, like they can’t easily capture what they saying and some would prefer overhead projectors that are clearly indicated that are bold enough. Some would just write on the board in small writing and some would come having prepared a nice presentation: and would use the computers and projectors, but their writing is still very small, they can’t sort of visualize what is there and ummm...”

- **increasing staff capacity**

More permanent and professionally skilled staff members are necessary to increase services to students with ADHD:

“...but I think it could be possible if the university can provide with permanent members of staff that could be students assistants and provide for e.g. help with reading and provide assistance to the student to read the material if that is the preferred means for that particular student.”

“All the support that comes to the student at the moment is coming from the disability unit and we’re not always capacitated with the skills to provide the student with the best support that student would require.”

“Up to now we are bold as to say that our services to students with learning disabilities is very poor, and needs to improve. And the way it could improve is if the university puts more resources into disabilities so that we are able to deal with the diagnosis, put in the support the students would need, and be able to track these students regularly.”

- **increasing resources**

More resources, such as specialized computer software, are needed to support students with ADHD

“From what I’ve seen at other universities in the country there seems to be a greater emphasis on supporting these students, with specialised software for example that students can have access to. We’ve not reached that level yet. We should....”

- **smaller classes**

The large number of students in lecture rooms leads to congestion of classes and this forces students to sit at the back of the class where they can’t hear the lecture well.

“...lecture rooms are much too congested is what some of the students are saying. There are too many students and the lectures become too full at times. They sit at the back, and they don’t hear the lecturer properly.”

- **separate LANs**

Dedicating a separate LAN for ADHD students was recommended:

“...maybe I am not too sure maybe if we need like an extra Lan particularly for ADHD group. At this current moment I’m not too sure if it’s possible because it was even difficult to have that dedicated Lan. Ummm so that’s one of the challenges they are facing.”

- **disability assessment centre**

The creation of a Disability Assessment Centre, comprising a professional committee, was recommended as a means of examining student needs on an annual basis:

“I propose that the university create what you refer to a ‘disability assessment centre’, at the beginning of each year, and we bring on board a range of professionals to look at the student and provide the support for the student. So in other words I think the university could do a lot more if we utilize the services of the disability assessment committee, where we could look at the individual student with a disability, identify their needs, and then say this is the support we provide to the student, currently we don’t have that at the university.”

- **addressing gaps in Disability Policy**

More attention and resources are needed to ensure that the stipulations within the disability policy are carried out.

“I’d like to see our university start to embrace diversity in a bigger way, and the way we do it is to actually fully use the university’s disability policy which currently seems to be very much a lovely policy on paper, but I think the very serious gap between the practice of what’s in the policy.”

“...well the disability policy’s intention is to create equal access to the university environment within that policy it creates some entitlement for students with disabilities, what I think is lacking is to put more tweak to that policy, to put more resources to that policy, to make it work.”

- **establishing a coaching system**

Personal coaching systems are recommended for students with learning disabilities (including ADHD).

“We could also look at creating a better coaching system at the university where students with learning disabilities could get personal coaching. This could be done through extending the student assistant programme for example. You know that could work very well. What I’ve observed is that, students with learning disabilities often over focus, or under focus and they require people to be there to say “you’ve got an assignment due in three weeks’ time, how far have you gone?”, you know to help to create this kind of robust help to say that you need to get this done.”

- **educating the “Writing Place”**

Educating the Writing Place (a writing assistance centre) about challenges faced by dyslexic students is vital to ensuring that their challenges are met.

“I think at the university, the writing place could also be educated about some of the challenges that students with dyslexia for example have. It is so easy to label disabled students by saying, ‘I mean you’re a university student you ought to be better than this’, ‘you know if we you know educate people’. Then maybe a student with a learning disability will feel more comfortable to have a space they can go up to, to know it doesn’t criticize, doesn’t condemn them, is conducive and will be accepting of them and not one that pushes people away, that’s what I think they could do.”

- **registering through the “Access Office”**

Students with learning challenges could do a pre-university year with the Access Office where they learn skills such as academic writing to minimize their challenges. The role of the Access Office is to provide individual mentoring to students by working closely with the psychologist, the disability unit, and the lecturers. This is good grounding and they will be able to cope better within mainstream education thereafter.

“The humanities access office is an office that deals with students who will be challenged to access university education, so they will come to university to the humanities access office where they will get a pre-university year, they will learn skills to cope in the mainstream, so they’ll get skills in academic writing, in computers so when they get into the main stream the challenges will become less. There has not been too many students with learning disabilities that have come that route, I think students with learning disabilities will actually benefit coming in through that route, however it will mean that you’ll take a little longer to finish the degree but, we’ve observed that students who go through the access route actually tend to do pretty well going to the mainstream after that because their challenges would have been minimized.”

“...gives them a wonderful grounding, and it helps them to deal with all their stresses their support, there’s a psychologist programme, there’s a close link between the access office and the disability unit, there’s almost individual mentoring of students, the academics are very close to the students, they pick up problems, challenges and deal with them immediately. So when those students get into the mainstream they fly literally.”

“Again I think the access office, would have to build capacity to be able to do that, currently there are 120 students in that programme on average per year and so it’s a smaller number and it’s broken into different courses, modules, so that lecturers have a closer relationship with the student. I’m sure within that you could build in support for students with learning disabilities, because currently there is support for students who are blind, there’s support for students who are partially sighted, there’s support for students who are physically disabled, you know, so it’s easier to deal with smaller numbers, they have the support they would require. I would imagine that a student with learning disability who comes to university coming to the access route is likely to do well.”

- **broad engagement of University services**

A broad engagement with services on campus is necessary.

“And if we had to deal with the challenges of students with learning disabilities then I think it’s going to require us to start to engage with the disability office, engage with the access office, engage with academics, to engage with the university environment, to see what it is we have to do to make the university more accessible...”

8.6 Conclusions

The role of the disability office is largely to create equal access to the academic environment for students with disabilities. General services provided to students with disabilities include: issues of exclusion, accessing student funding, student counselling services, student accommodation at residences on campus, liaison and negotiations with lecturers on related students matters and accommodation, motivate for separate venues for test and exams and a separate computer LAN. In addition to these services, the Disability Unit provide Specific services provided to ADHD students such as reformatting lecture materials, motivate for extra time for tests and exams, spelling and grammatical concessions, use of computers during test and exams and ‘skip the queue’ letters so that students don’t wait in lines.

In providing accessible services to students with disabilities, the Disability Unit experiences challenges. These challenges were identified in the areas of: lack of staff, lack of space, overcrowded and noisy lecture rooms, lack of services, lack of national standard time for test and exams, lack of understanding the nature of challenges facing students by lecturers, apathy by other students, late acknowledgement by students of their status, past feedback and over-parenting. In order to overcome the challenges mentioned above, future recommendations were identified by service providers as: awareness campaigns, engaging forum between students and lecturer in terms of teaching strategies, increasing staff capacity, increasing resources, and a smaller number of students in classes. In addition, recommendations were made for separate Lan space for ADHD students, creation of a disability assessment centre, addressing the gaps in Disability Policy, creating a coaching system, creating awareness at the “Writing place”, registering through the access office and ensuring a broad engagement of university services.

Key findings from this Chapter are summarized in Table 8.1.

Table 8.1 Experiences of the Disability Unit: Services provided, challenges experienced and future recommendations

DSU services	Experiences
Services provided by the Disability Unit to students with disabilities	<ul style="list-style-type: none"> • motivations for inclusion • accessing relevant funding • counselling services and referrals to other professional • accessing accommodation at residence • liaising and negotiating with lecturers on behalf of students with disabilities • arranging separate venues for tests and examinations. • reformatting lecture materials, test and examination scripts and course hand outs • extra time during test and exams • spelling and grammatical concession • use of a computers during test and exams • skip the queue letters
Challenges experienced by the Disability Unit	<ul style="list-style-type: none"> • lack of staff • lack of space • overcrowded and noisy lecture rooms

DSU services	Experiences
	<ul style="list-style-type: none"> • lack of resources and services • non-existence of national standard extra time • lack of recognition for extra time when handing in assignments • lack of understanding by lecturers about the nature of challenges faced by ADHD students • apathy of other students • lack of knowledge by ADHD students of their status • previous feedback from school psychologist, teacher and parent • over-parenting
Future recommendations for provision of services	<ul style="list-style-type: none"> • awareness campaigns • forums between students and lecturers in terms of teaching strategies • increasing staff capacity • increasing resources • smaller classes • separate LANs • disability assessment centre • addressing gaps in the disability policy • establishing a coaching system • educating the “Writing Place” • registering through the “Access Office” • broad engagement of university services

CHAPTER 9

Research findings 3:

Effects of Mindfulness Breath Meditation on Students with ADHD

This chapter provides research findings on the implementation of mindfulness breath meditation practice and the effects it had on students' ADHD symptoms. The chapter first provides data on the implementation process by examining how efficient students were in executing their meditation practice and by exploring implementation challenges. The chapter concludes by examining the effects meditation had on the general symptoms of ADHD within the university context.

9.1. Implementation of Mindfulness Breath Meditation

Participants were requested to do their meditation practice twice a day over a three month period. Record sheets were given to students to monitor these practices. Short message systems (SMS) were sent to participants on their cellular phones as reminders to practice the meditation. Further, group guided meditations were held with the researcher twice a week for the first half of implementation and once a week for the second half (group guided meditations were not held over the weekends or holidays).

However, participants were unable to implement the meditation effectively twice a day for a period of three months. In total, students were only able to implement interventions 59% of the time (table below reflects the percentage of total implementations by participants). Further, participants were unable to keep daily records of implementation and thus only estimates were provided during the interviews.

Table 9.1 Implementation of Mindfulness Breath Meditation twice a day over three-month period 15 August to 15 November 2011 (total 184 days)

Participant	Number of days implemented	Planned number of days	Implementation (%)
Jerrie	93	184	51%
Henry	92	184	50%
Danel	80	184	43%
Laraa	129	184	70%
Rosie	148	184	80%
Mean (%)			59%

9.1.1. Reasons for failing to effectively implement meditations

Participants identified the following reasons for failing to implement the meditation:

distraction, the need to be hyperactive, hectic schedules, studying for tests and exams, and the view that meditation was unlikely to have a direct effect on their academic performance:

- **distraction**

Students would get distracted and the meditation sessions would just slip their minds; with students becoming especially distracted over weekends and holidays.

“it’s just like a daily thing. It’s not like I have to remember to do it. I don’t know. It’s still not cause I have to make time because it still like as soon as I get on my computer and like I want to do it and it like just let me rename this song and I rename this song and then it’s like kind of hard to get back to it. “Or and you look at the time and it’s like oh shit, its two hours later. Two hours just went by while I was trying to do the breathing. ER I don't know.”

“...it kind of just like goes out of your mind. You can remember about it but you can’t do it in just 5 minutes. You know it’s like let me finish this episode.

“Oh, that was cool. Now let me just look at these pictures. It’s kind of like eating. You know, you just pushing it till later. So you get hungry. Except

there is no natural need that you can feel to do the breathing. So it kind of just slips my mind.”

“...yah some time especially when like on weekends. On weekends I find it really hard to remember to do it. Because then you not like thinking of anything. Like I have to do this or I have to do that. I just I just enjoy myself.”

“...during the vac, it didn't happen all that much. I was half busy with work-related stuff and varsity and I just ER my rhythm was oh the varsity pattern or rhythm was just thrown out.”

“...at the beginning of October I went on holiday and then I was on holiday and you don't think of stuff like that.”

- **the need to be hyperactive**

Some students were finding it difficult to “slow down” with these reports coming mainly from those who were diagnosed as ‘ADHD combined type’ (i.e., both inattention and hyperactivity symptoms present).

“Because you know how everything slows down when you're doing this. Because you going fast fast fast fast fast. And then all of a sudden you slow. And then it feels like you sitting there forever and then it's like I just go to bed now.”

“...ya like it's difficult and when you have to slow down you get a bit itchy sometimes.that's why once or twice I stopped through the meditation.”

“...more lazy.a bad thing. Because I had to make the sessions as early as possible. And so later in the evening because I have to get the work done. So I have to do it as early as possible to take into account that for an hour I'm not going to be able to anything. And then I have to do the work I need to do and finish it before I can breathe again. Because for an hour I can't do anything or won't do anything. Well I won't say that I can't do anything because I could but I don't want to so I won't. So it's not a good thing (laughing)”

- **hectic schedules**

Hectic university schedules often took priority over the meditation.

“...not really because I don't really have the time, my course is very time pressed so to take that 10 minutes it feels like to much even though it's not a lot of time it actually feels like it. You know. Cause you not doing anything.”

“...well it's just that err... it a pity this research didn't happen on the first half of the year because I would have had more chance to emmm have ... I

just had a better routine in the first half of the year. And in the second half of the year I just had some unexpected things come up that I hadn't really planned well for. And this obviously emmm was negatively affected by those commitments which were much bigger than ... ya, or much more directly important."

"...the schedule was just a bit hectic..."

- **studying for tests/exams**

During tests and exams, learning took precedence over everything including the meditation.

"...err also with tests I study as much as I can and then I just sort of drop died. Very much. And then there is no time to do that."

"...ya, I feel that when you're under heavy time pressure, it's just that to sit still for 10 minutes and do this it feels like a waste of time almost. Because you think you could be doing more studying or you could at least catch up on some sleep or you could do this or you could do that. And you still have this to do any still have that to do. And you feel the meditation there is no point in that because you thinking of all this while you trying to do the meditation. And then your mind isn't clear which is like the opposite of the purpose of the whole thing."

"...no I do try but I think the problem is that it does work but I think that the thing is like like with this week I had like test after test after test after test. You lie there and for the first I think like five minutes it's nice. Like you calm down but then like wow like I realize like it was when I think it was Thursday night like I was lying the by like counts of six, I was like this is taking long. I could be doing this. I could be doing this. I could be doing this. Because you know how everything slows down when you're doing this. Because you going fast fast fast fast fast. And then all of a sudden you slow. And then it feels like you sitting there forever and then it's like I just go to bed now. And I switch it off. And then I didn't count it. Because it's like halfway through. So you can't really count it. Ya, that's what I find sometimes. It happens especially when I have lots of tests. Like this week."

"...well, that is when exam started so the learning took precedence over the breathing. (Yup) started early in the morning and finished late at night. So, I was kind of overdoing the breathing. I won't lie. It was effort. It was effort to even start like from right in the beginning it was very hard to get into doing it twice a day and sitting down for 15 minutes just to breathe. It was such a mission. And now with exams on top of that I was a rather no just it's two weeks you missing out. It shouldn't really affect it. At all..... ya, I had my mom reminding me every day to do it."

"...ya it was in November was when I was writing exams so I was busy studying and my mind was all over the place and so it was kind of hard to remember when I was err also sometimes you also ya there is breathing

meditation but I have to study first. Like I need more time to study than to do other stuff.”

“well exams was a bit tricky. Exams I didn't really do a lot because my routine went out of the window. It was mostly just studying, studying, studying. So I didn't do it as much during exams. I did it every now and then when I remembered.”

- **not as important as other things in their lives**

Students found that implementing the meditation was not as important as other things happening in their lives such as eating or attending to university activity.

“...err breathing twice a day was a bit tricky. I only managed one today. It was just tricky to implement in my everyday normal routine. Partly, because I'm good with routine and partly... And partly because although it does help you it not like an immediate have to. Like varsity or even silly things like eating or whatever.”

- **not seen as having a direct effect on academic performance**

Doing the meditation was not seen as a high priority especially since it was not seen to have a direct effect on academic life and performance.

“...ya, unfortunately I mean this although it was important and it does have a profound effect on your life. It wasn't important in the sense that it wasn't affecting my academic life or performance directly (ya..) if it had a much more direct effect on that then ya I guess it would take a it would take a high priority. Ya,.. “

- **forgot to do it**

Students just simply forgot to do it.

“...sometimes like you just forget. Like I forget thing a lot. So then errr and other times it's like like okay I'm going to do that you know I must remind someone to remind me to do it. But then.... sometimes I like to remember and I be like okay I'll do it later in the day type of thing and then I forget.”

“...ya, cause you don't kind of do anything that is part of your routine. You know. Because it's just like every day so like you kind of just. Some days I will just forget about it completely and other days I will keep pushing it back until I forget about it.”

9.1.2. Recommendations for future implementations

Participants suggested the following recommendations to ensure that meditation was effectively implemented: make it part of a routine, implementation at night, guided group meditations at university by the facilitator, and having reminders from significant others. The problem with the SMS reminders were that they were sent when participants were engaged in other activities or when they were not at home to do the meditation.

- **Making intervention part of routine**

Making meditation a structured routine was recommended:

“...to get it to be part of my routine.”

“...but then if there is a specific time like I know like I remember like half past 12 today, Wednesday and Thursday is the breathing exercise (group meditations) then I come for that and I remember it. But then if it's like anytime I'm just like I will forget. Or I'll do it later or youya, so when they tell me this time we do it then like there.... Structure helps.”

- **easier to implement at night**

It is easier to implement at night just before going to sleep.

“well at night time it's easier to do. But during the day it's kind of harder. Because night-time you do it it's like errr I'm going to bed now...”

“...err towards the end. Still in the beginning of September I was a bit I just forgot you know it's just you don't think of it you just go to bed. It's like that okay. It's not like wait there is something to do and you go to bed. And it's been happening more lately now that I it has sort of become habit habitish.”

- **easier to do in a guided group meditation at university**

Students found it easier to meditate in guided groups with the facilitator.

“... during the day one it would be awesome to do it is a group. But then the problem is I will come every day to university. So we just makes it hard.”

“... it's a lot more easier because I'm here and I'm coming and is a whole lot of other people. As soon as you on your own and you try and do it is just a bit more difficult. And then you don't do it.”

“...it was also easier to do the breathing when I had to come to you. Because it was at half past twelve and there were other people doing it. It's kind of like gyming with your friends. You want to gym with your friends. You don't want to do it alone. When you got your friend with you will kind of do it.”

- **Reminders from significant others**

Reminders from significant others were more effective than reminders by the researcher.

“Because my mum will like remind me that every morning I must take my tablet.”

9.2. Effect of meditation

9.2.1 Participants' responses in interviews

Participants' reflections in interviews with regard to the impact of meditation were that the intervention made them feel calmer, more focused, and less hyperactive. Some of the participants noticed that they are able to focus better and listen better to lectures. Participants used the breathing exercises in exams and found that it helped with focus. Students reported that they were more focused on assignments and on hand-in deadlines. However, one participant noticed that he still found it difficult to control his hyperactivity and impulsivity. Factors participants identified as contributing to positive changes were: an increased awareness of their ADHD diagnosis, an increased acceptance of ADHD symptoms, use of medication, support from significant others and ADHD students, and support from the student counselling services.

9.2.2 Summaries of students' interviews regarding the effects of Mindfulness Breath Meditation

1. **Danel** said he didn't notice much but found that Mindfulness Breath Meditation impacted in a short-term sense. It gave him a bit of relief from stress and anxiety, increased and brightened his mood, and calmed him down. He also found that he was more confident for an hour or two but that the effect soon wore off. He noticed once or twice when he did the meditation that he was able to focus better in lectures and get more work done, and he stopped being anxious about assignments and exams. However, in a long-term sense, he felt that all of his symptoms were still there.

2. **Henry** said that it was difficult to say much about the impact of Mindfulness Breath Meditation. He found that it did help a bit with falling asleep. When he did the breathing at night, it cleared his mind, he was calmer and he fell asleep easier. He noticed that in the mornings when he did the meditation, he was able to focus a bit better. He also noticed that when guided meditations were done at lunch time at the university with the facilitator, he was able to focus better during afternoon lectures for the first half hour. During examinations, he didn't do much of the meditation but he noticed that when he was writing a paper and losing concentration, he did a shorter version of the meditation (which he developed) and it helped with focus for half an hour or so. He mentioned that he didn't think there were many long-term benefits.

3. **Rosie** said that she didn't really notice the effects that meditation had on her. She mentioned that other people might have noticed. For example, when she started taking Ritalin her mum noticed her progress. She normally concentrates in the present moment and really didn't think about intervention effects. *"I think the reason why I don't know this stuff is because I don't. If I do hand in more stuff, I won't know if it is directly linked to whatever I'm doing."* She did mention that she is getting better at handing in assignments earlier and she seems to 'flow' more easily when answering examination questions. Further, she reported having more energy. She also felt more positive about her academics and reported that she

had been paying more attention in lectures. However, she said that other factors could have contributed to these changes such as being more aware of her ADHD status and being more accepting of her ADHD symptoms (this awareness and acceptance stems from her friendships she made from the guided meditations). Further, she is being counselled by the student counselling services, and has made a lot of ADHD friends from the guided meditation sessions whom she can identify with and get support from.

4. **Jerrie** said that he didn't really notice much regarding the effects of the Mindfulness Breath Meditation but when he gets irritated he just sits back and listens to his breathing or just breathes deeply and slowly and he relaxes. He has developed a shorter version of the meditation and didn't need to do the guided meditation. Further, he taps into the feeling he first experienced when he did the guided meditation. As he put it "*..I mean the 10 minute one helps because it helps me know what to do when I do a shorter version of it...*". When he loses focus, he uses breathing exercises to reset his focus. It helped him to become calm when writing exams or when in a lecture. As far as he knows he still 'butts in' (interrupts) during lectures and he still can't sit still.

5. **Laraa** said she is not aware of, or has not noticed, any effects of Mindfulness Breath Meditation. She suggested getting feedback on these from friends/colleagues. She did notice that after the meditation she did feel calm and happy. After one guided meditation on campus she had to do a presentation and she found she was a lot calmer for a short period. Further, she mentioned that she noticed one morning after the meditation, and before writing a paper, that she was less stressed, a lot calmer, more focused on the paper, and a lot more structured when writing the exams. She was able to plan which question to answer first, and which to answer later.

9.3. Adult ADHD symptom evaluation

The table below reflects the changes in the symptomatic behaviours in the Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist after a three-month period. Participants were asked to best describe their symptoms at the beginning of the meditation and then asked again three months later to complete the same form. Table 9.2 provides a comparison of symptoms both pre- and post-intervention reflection of the changes. [Note: *Improvement of symptom* denotes a decrease in the experience of the symptom, *Symptom remains the same* means that no changes had taken place, and *Deterioration of symptom* means there was an increase in the symptoms].

Table 9.2 Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

	Jerrie	Henry	Danel	Laraa	Rosie
1. How often do you have problems wrapping up the finer details of a project, once the challenging parts have been done?	Improvement of symptom	Deterioration in symptom	Symptom remains the same	Improvement of symptom	Improvement of symptom
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?	Symptom remains the same	Symptom remains the same	Symptom remains the same	Improvement of symptom	Improvement of symptom
3. How often do you have problems remembering appointments and obligations?	Improvement of symptom	Improvement of symptom	Symptom remains the same	Improvement of symptom	Improvement of symptom
4. When you have a task that requires a lot of thought, how often do you delay or	Improvement of symptom	Improvement of symptom	Symptom remains the same	Symptom remains the same	Improvement of symptom

	Jerrie	Henry	Danel	Laraa	Rosie
avoid getting started?					
5. How often do you get fidgety or squirm with your hands or feet when you have to sit down for a long time?	Improvement of symptom	Deterioration in symptom	Symptom remains the same	Symptom remains the same	Improvement of symptom
6. How often do you feel over active and compelled to do things, like you were driven by a motor?	Improvement of symptom	Symptom remains the same	Symptom remains the same	Improvement of symptom	Deterioration in symptom
7. How often do you make careless mistakes when you have to work on a boring or difficult project?	Improvement of symptom	Symptom remains the same	Improvement of symptom	Symptom remains the same	Symptom remains the same
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?	Symptom remains the same	Symptom remains the same	Improvement of symptom	Improvement of symptom	Improvement of symptom
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?	Improvement of symptom	Symptom remains the same	Symptom remains the same	Improvement of symptom	Improvement of symptom
10. How often do you misplace or have difficulty finding things at home or on campus?	Deterioration in symptom	Symptom remains the same	Deterioration in symptom	Symptom remains the same	Improvement of symptom
11. How often are you distracted by activity or noise around you?	Symptom remain the same	Symptom remains the same	Improvement of symptom	Deterioration in symptom	Improvement of symptom
12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated?	Deterioration in symptom	Symptom remains the same	Improvement of symptom	Symptom remains the same	Symptom remains the same

	Jerrie	Henry	Danel	Laraa	Rosie
13. How often do you feel restless or fidgety?	Deterioration in symptom	Symptom remains the same	Improvement of symptom	Symptom remains the same	Improvement of symptom
14. How often do you have difficulty unwinding and relaxing when you have time to yourself?	Improvement of symptom	Improvement of symptom	Improvement of symptom	Improvement of symptom	Deterioration in symptom
15. How often do you find yourself talking too much when you are in social situations?	Improvement of symptom	Improvement of symptom	Symptom remains the same	Symptom remains the same	Symptom remains the same
16. When you in a conversation, how often do you find yourself finishing the sentence of the people you are talking to, before they can finish themselves?	Symptom remain the same	Improvement of symptom	Symptom remains the same	Deterioration in symptom	Improvement of symptom
17. How often do you have difficulty waiting your turn in situations when turn taking is required?	Deterioration in symptom	Improvement of symptom	Improvement of symptom	Improvement of symptom	Symptom remains the same
18. How often do you interrupt others when they are busy?	Improvement of symptom	Symptom remain the same	Improvement of symptom	Improvement of symptom	Improvement of symptom

Table 9.2 contains 90 responses, with 45 (50%) responses indicating symptom improvement, 34 (38%) indication no change in symptoms, and the remaining 11 (12%) indicating symptom deterioration.

With regard to the three defining characteristics of ADHD – namely: inattention (items: 1, 2, 3, 4, 7, 8, 9, 10, 11 on the checklist), hyperactivity (items 5, 6, 12, 13, 14, 15 on the checklist) and impulsivity (items: 16, 17, 18 ion the checklist), it was found:

- For inattention symptoms, 51% of responses indicated symptom improvement, 40% indicated no change, and 9% indicated symptom deterioration;

- For hyperactivity, 46% of responses indicated symptom improvement, 37% indicated no change, and 17% indicated symptom deterioration
- For impulsivity, 54% of responses indicated symptom improvement, 33% indicated no change, and 13% indicated symptom deterioration.

9.4. Comparison of first and second semester exam results

Table 12.2 is a reflection of each participant's first and second semester exam result for the year 2011. The table reflects the number of courses students registered for in both semesters, the number of exam papers written, the number of exam papers passed and the percentage of exam papers passed.

Table 9.3. Analysis of participants' first and second semester pass rates

Name of participant	Semester	No of courses registered for	No of exams written	No of exams passed	% pass	Status
Jerrie	1 st semester	5	5	3	60%	Improvement in results
	2 nd semester	5	3	2	67%	
Henry	1 st semester	8	8	8	100%	Results were the same
	2 nd semester	9	8	8	100%	
Danel	1 st semester	4	3	2	67%	Deterioration in results
	2 nd semester	5	5	1	20%	
Laraa	1 st semester	8	7	2	29%	Improvement in results
	2 nd semester	3	3	3	100%	
Rosie	1 st semester	4	4	2	50%	Improvement in results
	2 nd semester	5	5	3	60%	

From Table 9.3, it is evident the modal outcome was an improvement in pass rates (3 students), with one student evidencing no change in performance, and one student evidencing a worse performance in the second semester.

9.5. Summary of key findings

The implementation of Mindfulness Breath Meditation twice a day over a period of three months was not received well by students. In total, students were only able to implement the technique 59% of the time, for various reasons. Some of these reasons include: distraction, the need to be hyperactive, hectic schedules, studying for tests and examinations took priority, it was less important than other things in their lives, and perceptions that meditation would not have a direct effect on their academic performance. Participants suggested the following recommendations to ensure that meditation was effectively implemented: make it part of a routine, implementing it at night, conducting guided group meditations at university run by the facilitator, and arranging SMS reminders from significant others. The problem with SMS reminders sent by the researcher was that participants were often engaging in other things, or that they were not home, when the message was received. It is important to note that some students developed their own adapted/abbreviated versions of the meditation, which they found to be helpful.

Although the study design does not permit meaningful causal inferences, it is encouraging to note that participation in the study was associated with improvements in 50% of ADHD symptoms assessed, with most participants demonstrating improved post-intervention pass rates.

CHAPTER 10

Discussion of research findings

This chapter will discuss and summarise the research findings. It will examine common themes prevalent in the research, link these findings to the existing body of knowledge and research, make suggestions for future research, highlight implications for practice, and discuss the limitations of the research process. Findings from Chapters 7 to 9 will be discussed under the following headings: (a) Presentation of symptoms, (b) Management and Accommodation, and (c) Lessons learnt regarding the implementation of Mindfulness Breath Meditation (MBM) as a management tool.

10.1 Presentation of Symptoms

10.1.1 Bio-physical presentation of symptoms

Study findings indicate that all three defining characteristics of ADHD (i.e., inattention/ distractibility, hyperactivity and impulsivity) were reported by participants. These symptoms clustering into two sub-types (inattention/distractibility, hyperactivity and impulsivity). While this symptom presentation is hardly surprising, given the use of purposeful sampling in the study, it is likely that the observed symptom profiles are likely to be present in an estimated 2%-8% of university students – many of whom do not present for university services, due to students being unaware of their diagnosis or students choosing not to seek assistance through fear of stigmatisation (DuPaul et al., 2009).

Interestingly, one participant in this research described his inattention/distractibility as being hyper-focused on things that he finds interesting. This finding yields a unique interpretation of student experiences of his ADHD symptoms on campus, (i.e., he experienced his symptoms in a positive and meaningful way). This finding speaks to issues of

agency and empowerment. More recently within the research arena, there has been growing support for a positive perspective on the diagnosis and management of ADHD; with there being emerging support for empowerment discourses, such as positive psychology and strength-based perspectives, in relation to ADHD. Kelly et al. (1993) strongly emphasise and nurture the positive aspects of ADHD and provide positive descriptions of the major identified symptoms of ADHD. With respect to the advantages of inattention and distractibility, Kelly et al. (1993) note that the inability to shift focus can be viewed as the ability to lock into tasks that are interesting to the individual (i.e., hyper-focussing). Further, being distracted by many things enables the individual to notice and store lots of information. Further, an array of disjointed thoughts and ideas can come together in imaginative thinking, which is an important ingredient in the creative process and which may be beneficial, for example, in brainstorming sessions designed to creatively generate new ways of thinking about a problem. With respect to hyperactivity, high levels of energy can aid to accomplish more than what others can do. For example, a fast-talking ADHD individual may successfully fill a variety of adult roles such as salesman, public relations expert, or a talk show host (Kelly et al., 1993).

According to Bester (2000; see also, Hartsmann, 1997) a positive perspective can be applied to each of the main symptoms of ADHD (see Table 10.1), with this alternative perspective encouraging us to understand ADHD in more depth and providing a more comprehensive perspective on the management of ADHD.

Table 10.1 Different perspective on ADHD symptoms (Hartsmann, 1997)

Symptoms of the ‘disorder’	Symptoms from a different perspective
Easily distracted	Constantly monitoring the environment
Attention span is short but can remain focused for long periods	Has the ability to shift attention at any time
Poor planning, disorganization and impulse	Adaptable – prepared to change strategy immediately
Unrealistic concept of time	Does not tire easily: has the ability to persevere once the goal is within reach
Impatient	Result-orientated
Not skilled into converting concepts into words. There may be a reading problem	Visual/concrete thinker who sees a tangible goal clearly, even if it cannot be put into words
Finds it hard to follow instructions	Independent
Daydreams	Quickly becomes bored with meaningless tasks. Enjoys new ideas and excitement
Acts without considering consequences	Prepared to take risks
Poor social skills	In a hurry. Does not waste time on niceties

With respect to comorbidities, study findings confirm that a diagnosis of ADHD is often associated with the presence of other psychiatric conditions – including, *inter alia*, learning disabilities, and anxiety (DSM-V, 2013; Bester, 2000, 2006; Kewley, 1999). With respect to learning disabilities, participants in this study reported challenges relating to spelling and reading; with reading challenges including: slow reading, reading words incorrectly, and leaving out words while reading. Symptoms of anxiety were also reported by one study participant, who attributed his anxiety to transition demands associated with university attendance.

Such comorbidities have previously been observed in studies of American college students. For example, in a recent study of rates and patterns of psychiatric disorders in a sample of 443 first year college students, Anastpoulis et al. (2016) found significantly higher rates of psychiatric comorbidity among students with well-defined ADHD.

This research also found that participants experienced challenges with regard to executive functioning. Poor planning in the structuring of assignment questions and examination answers often led to procrastination, resulting in the late submission of assignments and unanswered examination questions. Consistent with this finding, Weyandt et al. (2013) found that students with ADHD report greater overall executive dysfunction as compared to a non-ADHD control group.

10.1.2 Emotional and social presentation of symptoms

10.1.2.1 Stigma, disclosure, stress

Participants in this study indicated that they experienced stigma with regard to accessing reasonable accommodations (such as receiving extra time for tests and examinations). In addition, they found it difficult to disclose their status to colleagues and lecturers, and reported high levels of distress during test and examination periods. The present findings also suggest that apathy on the part of other students and lack of awareness of ADHD by lecturers contributed to stigma, non-disclosure, and stress. Similar findings have been reported by Cawthon and Cole (2010), who found that only a third of students with learning disabilities had discussed their disability, and their need for necessary accommodation, with faculty members. Research has shown that students often feel that the faculty views them as not belonging or as incompetent, and that faculty members do not have adequate knowledge to accommodate them (Kurth & Mellard, 2006).

In the present study stigma, non-disclosure and stress were also found to be associated with participants' depth of awareness (including acceptance of diagnosis) regarding their ADHD status. Participants who had received early diagnosis and treatment were likely to disclose more readily, were less affected by stigma, and experienced less stress. They were generally more confident on campus and were more likely to easily access services on

campus. Similarly, O'Shea and Meyer (2016) concluded that students' motivation and decision to utilize support services was framed by the level of acceptance of their disability and by the integration of their disability into their authentic self.

Over-parenting and misinformation by school teachers, parents and/or school psychologists regarding university expectations and services were factors identified by service providers at the Disability Unit as hindering awareness and acceptance of ADHD status; a finding that is congruent with results obtained by Grenwald-Meyes (2002), who found that family support can play a significant role in the quality of life experienced by college students with ADHD.

In order to address some of the issues raised above, and in order to assist students to make a successful transition to tertiary institutions, Hamblet (2014) suggests strategies for high school professionals to implement during secondary schooling. These strategies include educating students about college systems and academic expectation, educating families about college systems and expectations, encouraging students to be responsible for their own learning and future independence, teaching students to use assistive technology, giving students the documentation they require to work with the university structures, educating students about their disabilities and strengths, explicitly teaching students about learning and organizational strategies, ensuring students are prepared to apply for accommodation at college, and creating a provincial transition programme. These suggestions can play an important role in informing practice.

10.1.2.2 Confidence, self-esteem and social relationships

This research found that most participants were self-confident and displayed high levels of self-esteem. Here again, there appeared to be an association between positive self-concept and levels of awareness and acceptance regarding ADHD status. Participants with

earlier diagnosis and intervention displayed high levels of awareness and acceptance of their status and were more confident, reported higher levels of self-esteem, and were more comfortable in social relationships than were participants who had been diagnosed more recently.

10.2 Management and accommodation

This section examines the various management and accommodation tools that are available to ADHD students at UKZN.

10.2.1. Teaching and Learning Accommodations

In terms of the structure and composition of teaching and learning accommodations, participants preferred single (rather than double) lectures, with breaks between lectures being requested in the case of double lectures. Other suggestions made by participants were for: smaller and quieter lecture theatres; morning rather than afternoon lectures (when focussed attention is stronger and when medication is most effective), and preferential seating in the front of lecture theatres for ADHD students were some other suggestions made. Further, participants indicated a preference for: lectures to be presented in audio-visual style, test/examination questions to be answered in point form (rather than essay form), and for lecture notes to be made accessible via the web (so that students are able to listen in class and see written notes on the web). Participants also indicated that when it came to examinations they needed frequent time reminders and breaks in between examinations.

On the positive side, the following learning concessions were acknowledged by participants as enhancing learning: the use of separate test and examination venues, separate Computer Local Area Networks (LANs) for disabled students with specialised software (e.g., Dragon Naturally Speaking, reading software), access to scribes (when writing tests and

examinations), extra time, reformatting of reading material to a desired format, spelling and grammar concessions, use of computers in tests and examinations and ‘skip the queue’ letters. On the other hand, concerns were expressed with regard to the non-existence of national standards regarding extra time and the lack of recognition of the need for extra time when handing in assignments.

However, opinion regarding the need for disabled students to be granted additional time in tests and examinations is divided. On the one hand researchers such as Ofiesh and colleagues (Ofiesh, Moniz, & Bisagno, 2015) argue that students with ADHD and students with comorbid ADHD and learning disabilities require extended time for different reasons. ADHD students required extra time to focus, take a break as a result of difficulty with maintaining attention, distractibility, executive functioning issues, the need to move around, self-monitoring time, or a combination of these. Students with co-existing learning disabilities needed to ameliorate a slow reading rate or inaccurate decoding.

By way of contrast, Miller et al. (2015) and Lovett et al. (2015), question the use of extra time as a valid accommodation for students with ADHD. The Miller et al. (2015) study examined the effects of extra time on the reading comprehension performance of college students with and without ADHD. Their results show that students with ADHD performed the same as the typical group on reading comprehension when standard times were adhered to. Study findings also indicated that both groups improved overall performance equally when given additional time. However, the Lovett et al. (2015) study found that students with higher levels of ADHD symptoms and executive functioning problems are less likely to use extended time effectively.

In examining motivational styles of learning and the use of assistive devices to read, Carlson et al. (2002) found that learning that appeared game-like and competitive worked well for individuals with ADHD-combined type. However, cooperative learning was found to

work better for students with ADHD-inattentive type. Hecker et al. (2002) evaluated assistive device software programmes for enhancing reading performance for 20 College ADHD students and found that students reported less fatigue and distraction and enhanced reading rates when using assistive devices software. However, no changes in reading comprehension were noted.

Another interesting theme that emerged from the data was participants' need for support from classmates. Classmates assist the participants with: preparations for assignments, preparation for tests and examinations, clarification of lecture material, supplying lecture, tutorial and practical notes, readings and course outlines, and assignment questions. In this context, perhaps universities need to consider implementing learning communities as proposed by Tinto (2006, 2012) when providing effective learning and teaching to university students with ADHD. Tinto (2006, 2012) propose that colleges should reorganise themselves and construct an educational environment that promotes student learning by utilizing learning communities. Learning communities include the use of corporate and collaborative learning and problem based learning strategies that require students to work together in cooperative groups.

In addition to learning communities, universities might examine Tinto's (2012) suggestions for effective classrooms in higher education which can be operational in providing services to university students with ADHD, with special emphasis on: the provision of clear expectations, timely support, feedback on assessment, and the use of engaging pedagogies and enhanced teaching skills. Tinto (2012) states that high expectations are a condition for student success and should be communicated implicitly through syllabi, assignments, grading matrices, course management sites, and conversations. Tinto (2012) states that students adjust their behaviour according to expectations. Secondly, in addition to high expectations, student support is a prerequisite to student success. Such support must be

aligned and contextualised to the demands of the classroom so that students can easily translate the support they receive into success in the classroom. Thirdly, Tinto (2012) recommends assessment of performance and frequent feedback in ways that enable students, staff and faculty to adjust their behaviour to promote student success. Fourthly, the more students are academically and socially engaged with academic staff and peers, the more likely they are to succeed.

10.2.2 Support Service Provision by the Disability Unit

The role of the Disability Unit, as identified by a permanent staff member in this research at the Disability Unit, is to “*create equal access to the university services with minimal challenges by identifying barriers and strategies to overcome these barriers*”. The following strategies and services were identified by disability staff members to assist students overcome barriers: counselling students on their ADHD status and creating a coaching and support system; advocating and monitoring reasonable accommodation (separate exam venues and LANs, access to scribes, extra time, reformatting of material, spelling and grammar concessions, use of computers in examinations, and ‘skip the queue’ letters); mediating and networking on behalf of students with lecturers and departments; and educating students, lecturers, and the broad university community on issues relating to ADHD. Other services offered to ADHD students by the Disability Unit are funding support and accommodation at residences on campus.

However, there are challenges experienced by the Disability Unit in providing services to students. The following were reported by two permanent staff members: lack of staff, lack of space, overcrowded and noisy lecture rooms and lack of services. Recommendations for overcoming these challenges include: the running of awareness campaigns, engaging a forum between students and lecturer in terms of teaching strategies,

increasing staff capacity, increasing resources, and creating a smaller number of students in classes. Separate LAN space for ADHD students, the creation of a disability assessment centre, and addressing the gaps in the (UKZN) Disability Policy were also proposed strategies.

However, this study found that participants accessed only a limited range of services from the Disability Unit on campus – i.e., time concessions for tests and examinations, separate test/examination venues, access to a separate LAN, and spelling concessions; with participants being generally unaware of other services offered by the Disability Unit. Moreover, participants indicated that they had only become aware of the services offered by the Disability Unit a while after registration. Additionally, participants were largely unaware of other support services offered on campus and felt that they needed to be informed of what these services were and how they could be accessed.

As far as it can be ascertained, there is a limited body of knowledge, and limited research conducted, on disability unit services within tertiary education, especially in regard to ADHD. Thus, research is needed in this area. An existing study by Scott, Markle, Wessel, and Desmond (2016), examined the partnership between disability services and faculty members and concluded that collaboration can improve practice on campus and create a broader support for students with disabilities.

Fossey et al. (2017), address the complexities of negotiating and implementing reasonable accommodation for students with disabilities. Students describe such accommodations '*as a complex and variable process*' (Fossey et al., 2017:4) that takes place at multiple points during students engagement with the institution, involving multiple parties (e.g. Disability service staff, teaching staff, and the broader tertiary institution). Further, with regard to negotiating reasonable accommodation, there was little evidence as to who would negotiate reasonable adjustments with teaching staff. Findings from this study suggest that a

disability service should foster students' skills in self-advocacy thus enabling students to negotiate without disadvantage.

Emmers, Jansen, Petry, Van der Oord, and Baeyens (2016), in their study of the Functioning and Participation of Students with ADHD in Higher Education according to the ICF-framework, recommend that both critical student factors (bodily function, personal factors) as well as environmental characteristics (being accountable, learning from consequences, setting alarms and reminders, removing distractions, scheduling) be considered when implementing effective accommodations in higher education. Jansen et al. (2017), also emphasise the importance of considering both personal and environmental characteristics when selecting and implementing reasonable accommodations.

The above, reflect and relate pertinent and diverse views on issues concerning reasonable accommodations with regard to ADHD students in Tertiary settings. The United Nation Convention on the Rights of Persons living with Disabilities, refers to reasonable accommodation as necessary and appropriate modification and adjustments to ensure equal human rights and fundamental freedoms. However, these rights should not impose a disproportionate or undue burden (United Nation Convention on the Rights of People with Disabilities, 2007). Thus, these rights are granted within reasonable limitation. Further, article 24 subheading (e) refers, effective individualized support measures are provided in environments that maximize academic and social development, consistent with the goal of full inclusion (United Nation Convention on the Rights of People with Disabilities, 2007). This alludes to the development of an independent program for each student according to their personal support needs.

10.2.3 Personal Management style of participants

Some of the personal management styles adopted by the participants, in addition to support from classmates (discussed above) are: keeping a diary; fidgeting, doodling and/or drawing during lectures, coming to campus earlier when its quieter, working from home, and the use of medication. The use of medication assisted in the management of symptoms but in some instances hindered learning, especially when it wore off toward the end of the day and when it didn't address symptoms such as hyperactivity. It would be interesting to conduct research on the durational and/or selective effects of medication on ADHD students in a tertiary setting. The positive effects of medication is supported by DuPaul et al. (2009) who found that college students with ADHD report a positive treatment response to stimulants, although double-blinded placebo controlled studies have not been conducted specifically with college students.

10.3 Mindfulness Breath Meditation

10.3.1 Direct effects of the intervention

The original intention of the research was to employ an experimental design to assess the effects of Mindfulness Breath Meditation (MBM) on ADHD symptoms and academic performance. However, the fact that only five students volunteered for the study meant that random allocation of participants to treatment and experimental conditions was not feasible, with the researcher being compelled to employ a single-group quasi-experimental design that does not permit reasonable causal inferences. Further, process evaluation (based on feedback received from participants) indicated that only 59% of scheduled MBM sessions took place (see Section 9.1), with two participants indicating that they had employed an abbreviated/adapted version of the intervention (see Section 9.2). Thus, while it is encouraging to note that some students evidenced symptom reduction and/or improved

academic performance post-intervention, these improvements cannot, with any degree of confidence, be attributed to the MBM intervention.

Despite this limitation, the MBM intervention did provide valuable, and unique, information regarding the way in which the MBM intervention was experienced by individuals, with the analysis of participants' comments regarding the intervention suggesting a number of recommendations that could usefully be considered in the design of future MBM interventions.

10.3.2 Qualitative analysis of participants' experiences of the MBM intervention

Qualitative analysis of students comments regarding their participation in the MBM sessions suggest a number of issues that are likely to have negatively impacted on the efficacy of the intervention. First, it is clear that ADHD symptoms (i.e., inattention, distractibility and hyperactivity) made it difficult for some participants to remember to implement MBM sessions, with some students finding it difficult to "slow down" and achieve the degree of mindfulness required of them. Second, competing academic demands made it difficult for some participants to find the time to implement scheduled MBM sessions, leading to participants either skipping sessions, or using only an abbreviated version of the intervention. And finally, a number of participants afforded a low priority to the MBM sessions, believing that the sessions were unlikely to have an effect on their academic performance, or that the sessions were less important than other things in their lives.

Recommendations made by participants regarding how these various issues can be addressed included:

- All sessions being conducted at a routine time that is convenient for all participants (so that sessions will be easier to remember).

- All sessions being conducted by the researcher (who could ensure the fidelity of interventions and assist students who are finding it difficult to achieve the required degree of mindfulness).
- Implementing sessions at times during the year when academic demands are lower (e.g., during vacations or towards the beginning of semesters).
- Adjusting the duration of MBM sessions to accommodate ADHD students' ability to concentrate and remain focused. [Although 20 to 40 minute MBM sessions are the norm, shorter periods of time (5-10 minutes) have also been found to be beneficial (Kristeller, 2017).]
- Providing potential participants with psycho-educational input designed to clearly inform them of the potential academic (and other) benefits of MBM sessions.

Essentially, what the above recommendations point to is a need for researchers to more clearly accommodate the challenges faced by individuals with ADHD in the design of intervention studies, and a need to structure intervention in ways that don't conflict with competing academic (and other) demands

10.4 Summary of key findings

Key findings from the study can be summarised under the following points:

- Consistent with findings from previous studies (DuPaul et al., 2009), ADHD symptoms reported by participants impacted negatively on participants' performance in a number of ways including:
 - academic performance: including issues relating to the planning and handing in of assignments, studying and writing for test and exams, and challenges relating to reading, spelling and grammar; and

- psycho-social functioning (including feelings of stigmatisation, disclosure stress, self-confidence, impaired self-esteem, and poor quality of social relationships).
- Participants employed a number of strategies to cope with the challenges associated with their ADHD status, including fiddling during lectures, collaborating with colleagues, using voice recorders, accessing notes from the web, taking breaks during lectures, sitting in the front row of the lecture room, keeping a diary, audio-visual style lecturing and using scribes for tests and examinations.
- The Disability Unit experiences staffing and resource challenges which makes it difficult for them to adequately addressing the needs of disabled students – with more adequate resourcing of the Unit appearing to be an important priority.
- Many students do not make use of the resources offered by the Disability Unit due to either fears of stigmatisation associated with disclosing their status, or a lack of awareness of the services provided by the Unit.
- Although sample limitations did not permit an adequate evaluation of the effects of the MBM intervention, the intervention did provide valuable, and unique, information regarding the way in which the MBM intervention was experienced by individuals, with the analysis of participants' comments regarding the intervention suggesting a number of recommendations that could usefully be considered in the design of future MBM interventions.

10.5 Implications

With respect to *practice*, the rich and in-depth data provided by participants in this study provide new insights regarding the ways in which ADHD impacts on academic performance in tertiary educational settings and suggests a number of strategies for system

improvement, and for assisting students with ADHD to more adequately meet the challenges associated with tertiary educational studies

With respect to *research*, study findings provide a number of recommendations for how future MBM evaluation studies could be designed to: (a) more effectively address the needs/potentials/limitations of individuals with ADHD, and (b) permit reasonable causal inferences regarding the impact of MBM interventions

10.6 Strengths and limitations

This study provided a unique opportunity to explore the lived experiences of university students with ADHD, with the aim of gaining greater insights into: the manifestation of ADHD symptoms on campus, challenges faced, coping mechanisms employed, and, the effectiveness of service delivery. This study has particular relevance given the increasing numbers of students with ADHD pursuing higher education, as well as the fact that little research has been conducted on the topic to date.

Although the present study represents seminal work in a University context, the study was characterised by a number of limitations. Firstly, the sample size was small ($N = 5$). This precluded the possibility of systematically evaluating treatment effects, and possibly limits the generalizability of study findings. Second, the multiple roles adopted by the researcher (implementing all interventions, data collection, and data analysis) might have introduced elements of bias (future studies might usefully consider involving more resources and personnel in the research process in order to enhance the credibility of the research process). And finally, the implementation of MBM was hindered by participant's ADHD symptoms. That is, participants found it difficult to implement the practice as expected. To overcome this more supervision/coaching is needed, and perhaps more supervised guided meditations (possible of shorter duration) are indicated to ensure that the meditation practice is implemented as required.

CHAPTER 11

The researcher as an instrument in the research process:

Personal reflections on completing this thesis

This chapter examines the role of the researcher within the research process, thus giving context to the whole research process. It illustrates the author's personal reflections of the learning experience and presents critical analysis of the development of the author as a scholar as a result of conducting the study.

Hence, this chapter presents: professional development of the researcher (the development of primary and secondary research skills, the development of time management skills); personal development (increasing the level of self-confidence and self-awareness); and other challenges experienced with the research process and techniques employed to manage them.

11.1. Professional Development

The researcher has acquired valuable primary and secondary research skills during the course of conducting this study. It was an unprecedented experience, where the researcher grappled with qualitative and quantitative methods. Skills of adopting a case study approach, utilizing semi-structured interviews, appropriately selecting sampling methods, and engaging in interpretative data analysis methods were acquired. Further, the researcher engaged with secondary data sources, including books, journals and the Internet. During the literature review stage of the research, the researcher learned to prioritise the secondary data related to the research questions according to a set of important criteria. Another great contribution of the research experience to the level of competency of the author as a researcher relates to the formation of a critical mind-set towards the secondary data. Part of the research required the use of an alternative unconventional and new therapeutic management method – breath

meditation. Further, this research also had to examine access to services as an issue of inclusion and as a basic human rights issue. Thus, the researcher gained an in-depth knowledge about these practices which contributed to her professional development.

At a personal and professional level, the researcher benefited greatly from the research experience through the development of improved time-management skills. Specifically, the research process required extensive preparation and planning for each stage of the study. Each stage of the study had to be conducted in an organised manner. However, the researcher was faced with many challenges that impacted on her plan to submit her thesis within the required time frame. The researcher started this research project as a student with a disability (audio processing challenges) at the university and planned to finish this thesis within a four year period. However, during the second year of the study the researcher received a new diagnosis (visual processing challenges). This impacted on the researcher's ability to submit within the required time. However, in general, the research experience has contributed to the improvement of time-management skills of the researcher.

11.2. Personal development.

The level of self-confidence/personal growth of the researcher has increased significantly as a result of conducting this research. This was mainly achieved through identifying and overcoming challenges the author was experiencing.

Through interactions with the participants of this research, the researcher's self-awareness and acceptance of self increased. From one of the participants, who was diagnosed with ADHD later in life, the researcher learnt to accept the anxiety that comes with a late diagnosis. The researcher also learnt coping mechanisms in noisy environments such as the use of headphones and finding quieter venues to work in. And more importantly, the researcher learnt resilience; to keep doing what needed to be done. From listening to the

experiences of another participant, the researcher was able to identify with her own struggle to read in school, to accept the irrational need to fidget and move about, and more importantly, the value of sleep as a healing mechanism. A participant spoke of his ability to hypo-focus and his experience with hyper-cognition and dyslexia. The researcher could identify with these. A final lesson learnt from another participant was the need to engage with one's challenges, to change, and to accept oneself.

From the supervisor, the researcher learnt to believe in the research process, as a tool for self-development. The researcher received great support from the supervisor, especially in the writing and editing process. One of the challenges experienced by the researcher was reading for long period of time. To overcome this challenge, the researcher had to work with smaller concepts in each chapter and eventually submitted 14 chapters. The researcher also received considerable guidance from the supervisor with regard to this. Further, the presentation of journal articles (format) was a challenge to the researcher because of visual processing challenges. Information that is presented in larger font, point form, in tables, pictures, double line and word spacing and in one column (as opposed to two columns), is more suitable for the researcher. It was easier to access books as these were more reader friendly (especially the older books).

11.3. Other challenges experienced with the research process and techniques employed to manage them

With regard to reading books and journal articles, the researcher utilized the services of the Disability Unit on campus to reformat (16 font, double space) core reading materials and journal articles. This took place in the fourth year of the research process. However, the author chose not to work with these reformatted material, as they were difficult to follow as they were poorly reformatted. The researcher was used to a particular writing structure (i.e., the

paragraphs speak to the subheading which speak to the headings which speak to the title), but this structure was not apparent in the reformatted notes. As a result the researcher, learned, and relied on mind mapping as a visual tool when engaging with written material.

With regards to transcribing, the researcher utilized Dragon Naturally speaking (voice activated computer software that types). However, transcribing remained a tremendous task for the researcher, who has audio processing challenges. The Dragon software did, however, made this task more bearable.

There are many other assistive devices; computer software and electronic gadgets that could have assisted with the research process such as Learning Suite, Touch screen laptop, the SMART PEN, and/or the SmartView magnifier. However, these are costly and thus not available to the researcher.

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APPENDIX ONE

PARTICIPANT'S CONSENT FORM

Dear Madam/Sir,

I am a PhD student with the Psychology Department of University of KwaZulu Natal conducting research on ADHD – Attention Deficit and Hyperactivity Disorder with University students. More specifically, my research explores the use of mindfulness breath meditation as a management tool in reducing symptoms of ADHD and enhancing positive emotions.

As you are aware, ADHD as a diagnosis was reserved for children. However, recently it is believed that this condition continues into adulthood. This poses challenges for adults in a number of spheres including tertiary study, work, relationships, and marriage. Further, the University of KwaZulu Natal is increasingly allowing students with ADHD and learning disabilities to register with the University. In 2009 there were approximately 15 students registered with the Disability office on Campus. Understanding and exploring how student with ADHD experience campus life in terms of challenges and management is vital.

Thus, in exploring this research topic, I will try and examine:

- how you and other students who are ADHD experience their ADHD symptoms in the University context,
- what coping strategies and management tools do you and your colleagues employ to manage these symptoms,
- whether services provided by the University adequately support the challenges faced by you and your colleagues,

- whether a mindful breath meditation practice, as an intervention strategy, can assist you and your colleagues in managing your ADHD symptoms as well as enhance positive emotions and wellbeing.

You, might be wondering at this point, WHAT is mindfulness breath meditation? Well, it is a meditative breathing technique that enhances self awareness, self regulation and self-management. For the purpose of this study Equal Breath (Sama Vritti Pranayama) will be utilized. This type of breathing allows deep slow rhythmic inhalations and exhalation; the \ inhalations being equal to the exhalations, thus creating vertical and horizontal balances in all sphere of being. This process can be incorporated in sitting meditation and movement (walking) meditation.

If you agree to participate in this research project, I will need your commitment for the rest of the year. (and yes, we will be finish before exams). I will be collecting baseline data by conducting one-to-one in-depth semi-structured interviews with you and I will need to conduct interviews at several points in the year. In total, I will need to conduct three interviews with you. First, the information from these interviews will serve as a baseline data and later as a measurement tools. Equal breath (Sama Vritti Pranayama), a techniques of mindfulness breath meditation practices will be taught to you by me (I am a yoga instructor). This training is quite simple but training will take place for 5 sessions to ensure that correct procedure and technique is followed. I will also give you detail audio and visual notes. You will be encouraged to meditate for a maximum of 10 minutes twice a day for a period of approximately three months, the duration of a semester. For the first month of this implementation a guided meditation with me twice a week will be necessary either individually or as a group. For the rest of the time, you will

need to practice this on your own. A CD containing this practice will be handed to you for self practice.

To help with this research, I will need access to your files that are with Disability Office. Each of your files contain information about your diagnosis as well as your history and working relationship with the Disability office. Further, your first semester and second semester examination results will be accessed so as to compare any changes in your results.

All information collect from you from in-depth one to one interviews, from your files you're your examination results will remain confidential. Coded, disguised names will be used. (unless you agree to participate in a documentary on ADHD in South Africa) The research data will be keep for a period of 5 year in a safe and secure location by arrangement with my supervisor. Thereafter, this information will be shredded. Confidentiality also pertains to your examination results.

You are free to withdraw from this research at any time without any negative or undesirable consequences.

All of the above will be monitored by my supervisor, Professor Steve Collings of the Psychology Department. He has had many year of experience in supervising research. He can he contacted on 031 260 2414. His email: collings@ukzn.ac.za.

If you wish to obtain information on your rights as a participant, please contact Ms Phumelele Ximba, Research Office, UKZN, on 031 360 3587.

I.....(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

I,, hereby agree to participate in the documentary and understand fully that my rights to confidentiality will not apply.

SIGNATURE OF PARTICIPANT

DATE

.....

.....

APPENDIX TWO

ONE-TO-ONE SEMI-STRUCTURED INDEPTH INTERVIEW SCHEDULE

1. First interview

Date.

Participant name (anonymous), Age

Degree..... Year of study.....

1. When were you first diagnosed with ADD/ ADHD and what does it mean to you to have ADD/ADHD? Please elaborate?

.....

2. At this University, what are your symptoms and how do you experience your symptoms (positive and negative? Please mention as many symptoms as possible, be as specific as possible and give as many examples as possible.

.....

3. Is it any different from other situations (school, home). If so, how different?

.....

.....
.....

4. What type of coping mechanisms do you employ to address these challenges on Campus?

.....
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.....
.....

5. Are these copying mechanism effective?

.....
.....
.....
.....

6. You are a student who has accessed university support by working closely with the Disability Office. What type of assistance do you receive from the Disability Office and are they very effective?

.....
.....
.....
.....

7. What more can the University provide?

.....
.....
.....
.....

8. Have you practice any form of meditation? And in particular, mindfulness breath meditation? If yes, please elaborate.

.....
.....
.....
.....

9. If yes to above question, how did it impact on your symptoms?

.....
.....
.....
.....

2. **Follow up interview (mid intervention and after intervention)**

Date.

Participant name (anonymous)

Interview number:

1. Has your mindfulness breath meditation practice assisted you in managing your ADHD symptoms? Be very specific by elaborating on as many symptoms as possible with as many examples as possible.

.....
.....
.....
.....

2. How has it assisted? Be very specific by elaborating on as many symptoms as possible with as many examples as possible.

APPENDIX THREE

COPELAND SYMPTOM LIST /A=ADULT ATTENTION DEFICIT DISORDER

This checklist was developed from the experience of many specialists in the field of Attention Disorders and Hyperactivity. It is designed to help determine whether you, or someone you are rating, has ADHD or ADD and in which area(s) difficulties are experienced. Please mark all statements. Thank you for your assistance in completing this information.

Name _____ Date _____ Completed by _____

Shaded areas for office use only

Please check (✓) every item below, indicating the degree to which the behavior is characteristic of yourself or the adult you are rating.

	Not at all	Just a little	Pretty much	Very much	Score	%
I. INATTENTION / DISTRACTIBILITY						
1. A short attention span, especially for lo-interest activities.						
2. Difficulty competing tasks.						
3. Daydreaming.						
4. Easily distracted.						
5. Nicknames such as: "spacey" or "dreamer".						
6. Engages in much activity but accomplishes little.						
7. Enthusiastic beginnings but poor endings.						
					/21	
II. IMPULSIVITY						
1. Excitability.						
2. Low frustration tolerance.						
3. Acts before thinking.						
4. Disorganization.						
5. Poor planning ability.						
6. Excessively shifts from one activity to another.						
7. Difficulty in group situations which require patience and taking turns.						
8. Interrupts frequently.						
					/24	
III. ACTIVITY LEVEL PROBLEMS						
A. Overactivity / hyperactivity						
1. Restlessness - either fidgeting or being constantly on the go.						
2. Diminished need for sleep.						
3. Excessive talking.						
4. Difficulty listening.						
5. Restlessness during sleep. Kicks covers off - moves constantly.						
6. Dislike of situations which require attention and being still.						
B. Underactivity						
1. Lethargic						
2. Daydreaming, spiciness.						
3. Failure to complete tasks.						
4. Inattention.						
5. Lacking in leadership.						
6. Difficulty in getting things done.						
					/36	
IV. NONCOMPLIANCE						
1. Does not cooperate. Determined to do things own way.						
2. Argumentative.						
3. Disregards socially-accepted behavioral expectations.						
4. "Forgets" unintentionally.						
5. "Forgets" as an excuse (intentionally).						
					/15	

V. UNDERACHIEVEMENT / DISORGANIZATION / LEARNING PROBLEMS						
1. Underachievement in relation to ability.						
2. Frequent job changes.						
3. Loses things - keys, wallet, lists, belongings, etc.						
4. Auditory memory and auditory processing problems.						
5. Learning disabilities or learning problems.						
6. Poor handwriting.						
7. "Messy" or "sloppy" work.						
8. Work assignments are often not completed satisfactorily.						
9. Rushes through work.						
10. Works too slowly						
11. Procrastinates. Bills, taxes, etc., put off until the last minute.						
						/33
VI. EMOTIONAL DIFFICULTIES						
1. Frequent and unpredictable mood swings.						
2. Irritability.						
3. Underreactive to pain / insensitive to danger.						
4. Easily overstimulated. Hard to stop once "revved" up.						
5. Low frustration tolerance. Excessive emotional reaction.						
6. Angry outbursts.						
7. Moodiness / lack of energy.						
8. Low self-esteem						
9. Immaturity.						
						/27
VII. POOR PEER RELATIONS						
1. Difficulty following the rules of social interactions.						
2. Rejected or avoided by peers.						
3. Avoids group activity. A loner.						
4. "Bosses" other people. Wants to be a leader.						
5. Critical of others.						
						/15
VIII. IMPAIRED FAMILY RELATIONS						
1. Easily frustrated with spouse or children. Overreacts. May punish children too severely.						
2. Sees things from own point of view. Does not negotiate differences well.						
3. Underdeveloped sense of responsibility.						
4. Poor manager of money.						
5. Unreasonable; demanding.						
6. Spends excessive amount of time at work because of inefficiency, leaving little time for family.						
						/18

SCORING FOR THE COPELAND SYMPTOM CHECKLIST (ADHD / ADD)

(Child / Adolescent Checklist and Adult Checklist)

- Scores: Not at all = 0 Just a little = 1 Pretty much = 2 Very much = 3
- Each check receives a score from 0-3. Add the checks in each category. That score is placed over the total possible.
- Compute the percentages for each category: Scores between 35-49% suggest mild to moderate difficulties. Scores between 50-69% suggest moderate to severe difficulties. Scores above 70% suggest major interference.

Note: Children, adolescents and adults may have difficulties in only one area or all ten. Those with undifferentiated ADD on the more daydreaming, inattentive, anxious end of continuum frequently manifest difficulties only in the "Inattention/Distractibility", "Underactivity", and the "UNDERACHIEVEMENT" categories, while those with overactive, impulsive ADHD will have difficulties in many more areas of their lives.

APPENDIX FOUR

WRITTEN INSTRUCTIONS FOR AUDIO CD – MINDFULNESS BREATH MEDITATION

If you doing the seat meditation find a comfortable seated position

Or if you doing the walking meditation become mindful of your stepping and your posture.

Straighten your spine, extend the back of your neck, tuck your chin in slightly

Relax your shoulders,

Draw your attention to your breath without letting your thoughts stray

(breathing starts in background)

Seal your lips,

Activate your ujjaya valve (the glottis)

As if swallowing, feel the breath behind the sinuses and above the throat,

Remember: the length of the inhalation equals the length of the exhalation

Maximum inhaling: dropping the belly out first, expanding your diaphragm, expanding your rib cage,

Maximum exhalation: contracting your rib cage first, contracting the diaphragm, pulling belly button toward spine.

- we will start with 3 counts (metronome starts with first inhale) X 3
- inhale, now we increase to 4 X 3
- inhale increase to 5 counts x 3

(keep breathing at 5, keep the breath moving evenly and equally over all 5 tones),

- inhale for 6 x 3.

(keep breathing for 6 counts) exhale.

- inhaling for 7 x 3

(keep breathing at counts of 7)

- inhale Lets come back down to 6 x 3.
- inhale for 5 x 3
- (keep breathing at 5, keep the breath moving evenly and equally over all 5 tones),

- down to 4 x 3(count 1, continue breathing)
- to 3. (count beats X 3)

Now bring your breath to normal breathing,

Slowly and softly in and out through your nostrils

Allow the breath to become natural,

Find stillness in your body.

PRACTICE OVER

APPENDIX FIVE

Check list for Mindfulness Breath Meditation**August 2011**

To be practices twice a day, every day. Preferably, early morning and late afternoon/early evening.

	Day	1st practice time	2nd practice time	Comments	Guided Meditation Twice weekly
15	Monday				
16	Tuesday				
17	Wednesday				
18	Thursday				
19	Friday				
20	Saturday				
21	Sunday				
22	Monday				
23	Tuesday				
24	Wednesday				
25	Thursday				
26	Friday				
27	Saturday				
28	Sunday				
29	Monday				
30	Tuesday				
31	Wednesday				

All the best. God Bless.

APPENDIX SIX

Mindfulness Breath Meditation CD