

**An Exploration of the Risks and Benefits of Incorporating Physical Activity, Specifically  
Walk and Talk Therapy, into the Therapy Session**

**By**

**Angela Macdonald-Belanger**

**Paper submitted in partial fulfillment of the requirements for the degree of**

**Master of Counselling**

**in the**

**Division of Arts and Sciences**

**City University of Seattle**

**2023**

**This paper is accepted as conforming to the required standard.**

**November 24, 2023**



**Dr. Davis P. Tharayil**

**Supervisor**

**City University of Seattle**

## **Acknowledgement**

I want to thank and acknowledge the community who assisted with completing this project. To all of my classmates and professors, your knowledge and dedication to the profession is an inspiration. Drs. Michael Kariwo, Koreen Martfeld and Christine Mhina, whose dedication to their students and continual support through the research and writing process is truly a labour of love. I would especially like to thank Dr. Davis P. Tharayil, my research supervisor, whose patience, knowledge and encouraging words helped me complete this work. Thank you for not giving up on me even when it seemed like I had given up on myself.

To my friends and family who supported me through the last few years of graduate school, this writing, and recent illnesses, I thank you. To my mom, dad, aunt, brother and husband, you have all contributed so much and filled in when I was absent. From driving my boys to hockey, feeding us, cleaning my house and constantly reminding me of my worth, there are no words to express my gratitude fully.

Finally, to my boys, I do not know if you will ever know how much you have both inspired me. Thank you for understanding that I was doing all of this not just to help others but for both of you, too. I hope you will always find the time to come for a walk and talk with your mom.

### **Abstract**

Accessing mental health support is not an easy feat for many people. From perceived stigmas, associated costs and lack of access, many barriers can impact the ability to attend psychotherapy. Research indicates many positive correlations between physical activity and positive mental health outcomes. Additionally, much research exists supporting the benefit that time spent in nature has on people experiencing isolation, stress, burnout, depression or other mental health disorders. Incorporating both physical activity and nature into therapy by performing walk and talk therapy has excellent potential to help many different presentations of mental illness, can help eliminate barriers and lead to better outcomes for many. This project reviewed studies on the potential risks and benefits of performing walk and talk therapy with diverse populations and various symptoms of different mental health issues. Studies included both therapist and client perspectives and a variety of variables that come into play during walk and talk sessions. The research revealed that walk and talk therapy elicited many biological responses, including connections to the natural world and positive neurobiological changes. Psychological responses, including improved mood, focus and a lessening of symptoms for many mental disorders, were also reported. Finally, social responses, such as feelings of social connectedness and reduced stigma, were also associated with walk-and-talk therapy. It is recommended that psychologists wanting to incorporate walk and talk therapy into their practice consider possible risks and ensure all ethical guidelines are followed to hopefully reduce barriers and more positive overall outcomes for their clients.

*Keywords:* walk and talk therapy, outdoor psychotherapy, nature-based psychotherapy, eco-therapy, physical activity, mechanisms of change, mental illness, adults

## Table of Contents

Acknowledgement.....	2
Abstract.....	3
List of Tables .....	6
Chapter One: Introduction.....	7
Background .....	7
Research Problem .....	11
Rationale/Justification.....	15
Significance of the Study.....	15
Definition of Key Terms .....	16
Theoretical Framework.....	17
Researcher Positionality .....	18
Chapter Two: Methodology.....	20
Literature Search Process.....	20
Inclusion and Exclusion Criteria .....	21
Selection of Articles .....	21
Data Analysis Procedures .....	21
Chapter Three: Review of Literature and Findings.....	22
Role of Exercise in Wellbeing.....	22
Role of Exercise in Mental Health.....	24
Walk and Talk Literature Findings.....	27
Biological Responses to Walk and Talk .....	27
Psychological Responses to Walk and Talk .....	33
Social Responses to Walk and Talk .....	40
Methodological Critique of the Literature .....	45

Ethical Considerations.....	52
Informed Consent and Withdrawal .....	54
Debrief .....	55
Protection of Participants.....	56
Confidentiality .....	57
Deception.....	58
Chapter Four: Application to Clinical Practice .....	60
Why Walk and Talk? .....	60
Clinical/Therapeutic Applications .....	61
Following Ethical Guidelines .....	62
Contributions to Scientific Knowledge .....	63
Contributions to Wellbeing and Removing Barriers .....	64
Cultural and Diversity Considerations.....	66
Chapter Five: Conclusions & Recommendations .....	69
Conclusions	
From Literature Analysis.....	69
From Methodological Analysis.....	73
Recommendations	
Clinical /Therapeutic Level .....	74
Future Research.....	76
References.....	80

**List of Tables**

Table 1. Findings related to the literature.....	28
--	----

## Chapter One: Introduction

### Background

This capstone explored the benefits, risks, and ethics of incorporating walk and talk therapy in an outdoor setting with clients. The World Health Organization estimates that one in eight, or approximately 970 million people, are living with some mental illness (WHO, 2022). Mental illness, which includes mental disorders, childhood behavioural disorders, substance use disorders, neurodevelopmental disorders, dementia, and self-harm, is the leading cause of disability today (Global Burden of Disease Collaborative Network, 2020). With cardiovascular diseases and cancer ranking as numbers one and two, mental illness is the third leading cause of the global burden of disease, leaving many human and economic costs in its wake (Global Burden of Disease Collaborative Network, 2020). Terms like mental health crisis were discussed in scholarly literature and mainstream media sources long before the COVID-19 pandemic, which research shows was significantly detrimental to the mental well-being of many (Dailey et al., 2022; Kapp et al., 2022).

While there are excellent preventative and treatment alternatives, most people, somewhere between 70% and 80% of those with mental problems, do not have access to them and instead face stigma, discrimination, and infringement of their human rights (WHO, 2022). Barriers to accessing mental health services are many, with availability, cost and perceived stigma around accessing help appearing near the top of every list discussed in related research (Chaudhry et al., 2022; Mason, 2022; Pfeiffer & In-Albon, 2022; Sweetman et al., 2021). Further intersectional barriers, exacerbating the problem for racial/ethnic minoritised people, include finding a bilingual therapist to treat them in their mother tongue or one who will understand and respect the cultural and religious diversity of their clients (Kapp et al., 2022; Siantz et al., 2023; Thomeer et al., 2023).

Accessing high-quality care is a financial and time commitment on the part of the client and, as such, many are looking to get the most rewards from fewer sessions or only as many as their health benefits will cover (Corscadden et al., 2019; Sweetman et al., 2021). Some people may be looking for alternatives to traditional in-office talk therapy because they may feel uncomfortable or, as in the case of new mothers, might have difficulty finding childcare (Smith et al., 2019). Others may be looking for ways to maximise the benefit of taking time away from work or school to attend a counselling session or even want to take their lunch break to participate in a walk and talk therapy session (Radez et al., 2021).

Metzl and Heffernan (2013) discussed how exercise can improve overall health and well-being, arguing that exercise can be an effective alternative to medication for various health conditions, including heart disease, diabetes, and depression. They emphasise the importance of finding enjoyable physical activities rather than simply focusing on the calorie-burning effects of exercise (Metzl & Heffernan, 2013). Bowman (2017) explores the role of movement in overall health and well-being, claiming that modern life, with its emphasis on sedentary behaviours and lack of variety in movement, can contribute to a range of health problems, including chronic pain and a multitude of physical and mental diseases. Bowman (2017) outlines the importance of incorporating a variety of movements into daily life, including walking, lifting, and stretching, to promote optimal health, emphasising the importance of considering the environment in which activity occurs, arguing that the design of the built environment can either support or hinder natural movement.

Similarly, Ratey (2008) explored the relationship between physical exercise and brain function, arguing that exercise can improve cognitive function and alleviate symptoms of various mental health conditions such as depression, ADHD, and anxiety. Exercise stimulates the production of brain-derived neurotrophic factor (BDNF), a protein that plays a role in the growth and survival of neurons (Kerling et al., 2017). Increased BDNF levels have been

associated with improved learning and memory and increased resistance to stress and depression (Ratey, 2008). Additionally, exercise-induced upregulation of BDNF elicits brain neurogenesis and a subsequent reduction of depression and anxiety symptoms (Ernst et al., 2006; Kerling et al., 2017). Exercise can also increase the production of endorphins, chemicals that act as natural painkillers and mood elevators (Ratey, 2008). In addition to the direct effects on the brain, exercise can improve mental health by providing a sense of accomplishment, boosting self-esteem, and reducing stress (Kerling et al., 2017). It can also serve as a social outlet, helping to reduce feelings of loneliness and isolation (Metzl & Heffernan, 2013; Ratey, 2008).

The therapeutic use of specific forms of exercise, from aerobic exercise in patients with PTSD, clients with depression participating in group Boulderling therapy, and yoga as a treatment for many mental illnesses, show promising results. The benefits of aerobic exercise include short- and long-term improvements in mental and physical health and the reduction of physical health conditions with continued activity, suggesting it may be beneficial as a supplement to conventional psychotherapy regimens or even because of its' simplicity. Aerobic exercise may also be a good alternative for people living with PTSD who are on waiting lists for therapy or are otherwise unable to access it (Fetzner & Asmundson, 2014).

Group-based Boulderling Psychotherapy (BPT) increased perceived self-efficacy in depressed patients in clinically useful ways, offering preliminary evidence that BPT's impact on treating depression is equivalent to that of cutting-edge Cognitive Behavioural Therapy, making a compelling case for its expanded use as a complement to current medical treatments, particularly when perceived self-efficacy has to be raised (Kratzer et al., 2021). A subsequent study reported that group-based BPT significantly improved symptoms of patients experiencing anxiety, who reported increases in quality of life, coping, body image, self-efficacy, and overall self-esteem (Luttenberger et al., 2022).

Gard et al. (2014) hypothesize that practising yoga encourages self-regulation through a monitoring and control process that involves initiating and maintaining behavioural change as well as preventing undesirable output by both higher-level and lower-level brain networks in the presence of stress-related physical or emotional challenges. The self-regulatory bottom-up and top-down processes inhabit many body systems, cardiovascular, neuroendocrine, and musculoskeletal systems, and are integrated into yoga practices. Gard et al. (2014) surmise that specific mechanisms from high-level brain networks, such as intention and motivation, goal setting, attentional control, meta-awareness, response inhibition, working memory, and cognitive reappraisal, can all be enhanced through yoga practice. Additionally, mechanisms from low-level brain networks, such as parasympathetic control, increased vagal tone, strengthened diaphragm, extinction learning, and attentional processing, are derived benefits of yoga practice. Combining emotional, cognitive, behavioural, and autonomic processes into a multi-systems framework for adaptive functioning serves to promote short and long-term benefits on well-being and mental and physical health both on and off the yoga mat, giving clients increased cognitive, emotional, and behavioural abilities to cope with day-to-day life and stressors.

Clients with treatment (Rx, Psychotherapy) resistant bipolar disorder experienced many neurocognitive-enhancing benefits from incorporating aerobic activity into their lives as an adjunctive to therapy (Kucyi, 2010). Similarly, clients with Major Depressive Disorder had significantly higher rates of remission when exercise was added to their selective serotonin reuptake inhibitor (SSRI) treatment (Trivedi et al., 2011), as well as improved quality of life and psychosocial functioning (Greer et al., 2016). Using exercise as an adjunct to psychotherapy offers positive outcomes and lessening of symptoms for persons with obsessive-compulsive disorder (Abrantes, 2017), alcohol use disorder (Hallgren et al., 2018) and those with severe mental illness in forensic in-patient settings (Hassan et al., 2022).

Nature deficit disorder refers to the effects of spending less time outside and more time engaging in sedentary pursuits and screen time, something that negatively affects today's youth (Louv, 2008). Obesity, depression, anxiety, ADHD, and other mental health problems are symptoms of nature deficit disorder (Louv, 2008). A review of 25 studies conducted to measure the impact of nature (exposure to natural environments, urban and rural green spaces) on mental wellness during the Covid-19 pandemic shows that exposure to nature was overwhelmingly positive, helping reduce symptoms of anxiety, depression, stress, and other mental disorders (Lanza-Leon et al., 2023).

The academic field of psychology stands to benefit from further research on Walk and Talk therapy as mental health practitioners look for ways to better serve under-represented populations who, for whatever reasons, do not access the mental health support they need. Additionally, if Walk and Talk therapy proves beneficial for specific mental disorders, we stand to help more people, free up hospital beds, and save money. Suppose we, as the psychology profession, strive to find creative ways to offer our services while benefiting our clients' physiology and overall well-being. In that case, we should encourage our overseeing bodies, such as the College of Alberta Psychologists (CAP), to establish standards of practice to keep therapists and clients safe and protected while offering this healing modality.

### **Research Problem**

It is well known that exercise can have positive effects on mental health, including reducing symptoms of anxiety and depression. It can also improve mood and boost self-esteem. Additionally, as the aforementioned studies suggest, we know that spending time in nature has positive benefits for those suffering from mental health disorders. How is this knowledge not translating into more programs and counselling clinics offering a combination of all these benefits alongside or in conjunction with psychotherapy? Are psychologists aware of these findings? Could the field of psychology be helping more people overcome their

mental disorders by incorporating more activity or exercise into treatment plans? Or could psychologists move their therapy sessions to an outdoor setting to increase exposure to nature? Are there underserved populations who stand to benefit from psychotherapy that incorporates these elements? What are the ethical and safety issues around incorporating exercise and nature into the therapy session?

Walk and talk therapy is defined as a form of psychotherapy that involves having therapy sessions while walking outdoors instead of being seated in a traditional office setting (Doucette, 2004). Walking and talk therapy aims to combine the benefits of exercise and nature with the therapeutic benefits of talking with a trained therapist (Revell & McLeod, 2016). During a walk and talk therapy session, the therapist and client walk side by side in an outdoor setting, such as a park or a nature trail, urban streets, or trails in more rural areas (Doucette, 2004; Revell & McLeod, 2016). While walking, the therapist engages the client in conversation, just like in a traditional in-office therapy session, but with the added benefits of physical activity and being surrounded by nature (Doucette, 2004; Revell & McLeod, 2016). Therapists can employ a variety of types of therapy while walking with clients, including CBT, Solution-Focused Brief Therapy (SFBT), Trauma-focused, Attachment-based, Psychodynamic, Somatic, Acceptance and Commitment Therapy, Jungian, Existential, almost any form of therapy that would be done in an office, could be brought outdoors, and many could be done effectively while walking.

Currently, the College of Alberta Psychologists (CAP, 2023) does not have any practice guidelines or recommendations regarding Walk and Talk Therapy, nor is there any specific training they require or recommend psychologists must have to use this modality. CAP recommends that therapists wanting to use this modality ensure they adhere to ethical guidelines around safety and privacy, create consent forms outlining the risks and benefits of

this modality, and ensure insurance policies reflect the additional and inherent risks walking outdoors may pose.

Rather than suggesting exercise only as an adjunct option or as homework between sessions, I am curious why more therapists do not engage in physical activity during the session with clients if it could benefit specific clients and meet their needs best. So much research supports the benefits, so what is holding therapists back from conducting Cognitive Behavioural Therapy, Emotion Focused Therapy, Attachment-based therapy or other forms while walking alongside their clients? By analysing the literature collected reflecting client and therapist experiences with both incorporating nature into sessions and with walk and talk therapy, this study will explore the risks and benefits of incorporating physical activity, specifically walk and talk therapy, into the therapy session. It will also answer the question: Can walk and talk therapy reduce barriers, increase wellness, and improve client outcomes?

### **Rationale/Justification**

The research mentioned above speaks to the benefits of exercise and exposure to nature on both physical and mental health, pointing out the general benefits; however, there have not been many studies on the specific use of walk and talk therapy facilitated specifically by psychologists/therapists/mental health professionals. Additionally, as there are no local practice guidelines or recommendations, it is necessary to look at research conducted in other parts of the world where this modality has been used for many years.

### **Significance of the Study**

When looking at the evidence-based practices that a psychologist may employ to help their clients best, much has been researched and published about the benefits of Cognitive Behavioural Therapy (CBT) for those with depression and anxiety (American Psychologist, 2022; Etzelmueller et al., 2020). Dialectical Behavioural Therapy (DBT) for those with Borderline Personality Disorder (Panos et al., 2014) has empirical support. Somatic

interventions are widely accepted as a best practice for those who have experienced traumatic events or grief (Kuhfuß et al., 2021; Parker et al., 2008). Acceptance and Commitment therapy is an evidence-based treatment for addictions, anxiety, depression and more (A-Tjak et al., 2015).

By applying a bio-psycho-social lens to healing and treatment, therapists find ways to incorporate many different aspects of their client's lives to help them feel better and heal genuinely. This person-centred approach could include changing their living environment or understanding the impact of not having a home, finding community connections or activities that help lower their distress, helping them access medication for untreated medical conditions, etc. (Purdy, 2022; Wade & Halligan, 2017).

As an extension to this model, the research that will be analysed in this study supports offering walk and talk therapy as another modality for psychologists to help their clients best. Readers will understand that walk and talk therapy offers a cost-effective and straightforward way for therapists to engage their clients, especially those who may not respond well to in-office sessions. This could include children and youth, survivors of trauma, underrepresented populations such as BIPOC clients, peri/post-natal parents, emergency responders and many others.

By respecting the dignity of our clients and offering walk and talk therapy as an option, we are adhering to the Canadian Code of Ethics for Psychologists (CPA, 2017), which spells out the ethical principles, values, and standards to guide psychologists in their work. The four ethical principles of (I) Respect for the Dignity of Persons and Peoples, (II) Responsible Caring, (III) Integrity in Relationships, and (IV) Responsibility to Society can not only be upheld but furthered through walk and talk therapy (CPA, 2017).

Respect for the Dignity of Persons and People will be enhanced as walk-and-talk therapy can remove barriers and increase access for many individuals. It can help many

people who might not feel comfortable attending in-office counselling to access help. From a social justice perspective, walk and talk therapy can offer hope and help to many who might otherwise not want to participate in therapy. Responsible Caring is inherent in choosing which client a therapist may offer walk and talk therapy to based on the knowledge and training they have sought out. Considering the client and having active concern for the client's well-being and interests, as well as maximizing their benefits from psychotherapy, are considerations for the therapist. The research revealed that maintaining Integrity in Relationships while performing walk and talk therapy was enhanced as perceived power differentials were lessened by virtue of walking side by side and being outside of the therapy office. Additionally, being open and honest about progress or lack thereof and considering the risks and benefits of walk and talk therapy would all be factored into the therapist's continuing decisions. Responsibility to Society can not only be upheld but furthered through walk and talk therapy as clients can experience increased or more meaningful connections to their community thereby reducing their use of social programs like hospitals and prisons. Additionally, therapists trained in this modality can use their knowledge to advocate for more green spaces and access to nature and lessen the stigma surrounding mental health.

By presenting data supporting the move to look at walk and talk therapy as an enhancing element to what is already established as evidenced-based treatment such as CBT, DBT, or Attachment work, perhaps psychologists will adopt a more accepting view of incorporating this into their practice, should they feel comfortable and should it benefit their clients. It may also lead to standardised training specific to regional colleges and ethics boards. Various related trainings are available in England, the United States, and Canada, some offering Continuing Education (CE) credits.

## **Definition of Key Terms**

**Walk and Talk Therapy or Walking therapy-** psychotherapy conducted outdoors with the client walking alongside a counsellor or psychologist. Sessions can begin or end in an office or indoor setting or be conducted entirely outdoors, where the client and therapist meet at a predetermined location (Doucette, 2004; Revell & McLeod, 2016).

**Eco-therapy, Nature-based psychotherapy, and Green Therapy-** psychotherapy conducted indoors or outdoors which incorporates elements of nature to bring clients closer to the natural world and the healing it can offer (Lanza-Leon et al., 2023; Louv, 2008).

## **Theoretical Framework**

The theoretical framework that will be used to analyse psychological studies on walk and talk therapy is the biopsychosocial model (Engel, 1977). The biopsychosocial model is a broad concept that holds that biological, psychological (including thoughts, emotions, and behaviours), and social (e.g., socioeconomical, socioenvironmental, and cultural) elements all play a role in health and illness (Wade & Halligan, 2017). As a result, rather than being entirely biological, health and sickness are best understood in terms of a mix of biological, psychological, and social elements. This contrasts with the biological paradigm of medicine, which holds that every illness process can be described simply as a deviation from normal function, such as physiological systems, infections, genes, developmental disorders, or accidents. The concept is applied in domains other than behavioural medicine, such as medicine, nursing, health psychology, and sociology, especially in more specialised fields such as psychiatry, family therapy, clinical social work, and clinical psychology (Purdy, 2022).

Applying this model to walk and talk therapy, this research project will explore how physical activity (the "bio" aspect) affects psychological processes and outcomes (the "psycho" aspect) in the context of the social environment (the "social" aspect). The studies

that will be analysed in this research work will investigate how walk and talk therapy can impact physiological measures like heart rate or cortisol levels (biological), emotional states such as anxiety or depression (psychological), and social factors such as social support or relationships (social).

### **Researcher Positionality**

Reflexivity entails critically assessing the researcher's positionality, subjective perspective, values and awareness of the power dynamics and ethical quandaries that may arise throughout the research process (Yilmaz, 2013). As I reviewed the literature on this topic, I endeavoured to remain unbiased and curious. I am cognizant of my experiences incorporating physical activity into my treatment for several ailments over the years and did not want this to cloud my interpretations of the findings. I remained curious about the benefits and risks of each study as they provided personal accounts, different perspectives, backgrounds and reasons for seeking therapy, which provided different responses to those I have witnessed within myself and with the clients I have done this type of therapy with.

I chose this topic for several reasons. Firstly, the work I have been doing for the past many years as a school counsellor in our local public school division has been with children and teenagers who are not always keen to engage in traditional talk therapy in an office setting, so I am always looking for ways to increase engagement. In addition to using toys and games, art-based and crafty psychoeducational activities, I have been taking them outside for many years for what we have always called a "walk and talk" reminding them to bring their outdoor shoes and jackets to my office for our scheduled appointments. Some of these children and youth, as well as some adults, have expressed that they did not benefit from traditional -in-office- talk therapy and effectively stopped attending as they were not experiencing benefits and felt they were wasting their money. Additionally, some clients I

have worked with have expressed how good they feel after working out or doing physical activity, so we attempted to recreate some of those good feelings while going outside.

When the Covid 19 pandemic arrived, and we were encouraged to take our work outdoors, this seemed like a perfect way to meet with my clients in fresh air, lessening the chances of contracting COVID-19 in our small office spaces, which provided no opportunity to distance physically. It worked well for many of my colleagues and myself until a new supervisor requested that we temporarily pause taking our clients outside. She cited insurance reasons, and this prompted me to begin researching the topic to ensure we were adhering to protocols and insurance regulations and find supporting information to explain the benefits of this modality and, hopefully, change her mind. I wanted to know more about the topic, the ethics of potentially working (and walking) outside with clients and the research behind it, not only to continue doing something that I felt my clients were benefiting greatly from but to ensure I was adhering to professional guidelines and ensuring ethical and best care practices for my clients while practising as a psychologist.

In my previous role as a school counsellor, I was considered a teacher. Under school policies and insurance, we were allowed to walk anywhere on school property with a child or our class or within a predetermined radius of the school as outlined in what we call a Neighbourhood Walk Field Trip Form. We are expected to let another staff member know where we are heading, always keep our cell phone on us, and have access to a first aid kit if we are venturing off the property. As my designation changes from teacher to provisionally registered psychologist and beyond, I must ensure I follow CAP guidelines. I am keen to review this research and ensure I practice responsibly and ethically while offering my clients another potential modality to healing.

I inquired recently with CAP, who said that while Registered Psychologists can operate entirely independently and do not need to be in the same building as other health

professionals physically, Provisionally Registered Psychologists do. I asked if the session began and ended in the counselling office if this would suffice, and I am still awaiting a response. I also contacted McFarlan Rowlands Insurance Brokers, who responded and said that the standard Professional Liability and Commercial General Liability coverage would cover light walking. I asked for further clarification to ensure that walking on city streets or in the Edmonton ravine system, with its paved and groomed paths, would be okay. They replied that, while they would not consider running or hiking to fall under the light walking descriptor, walking on paved trails within the city limits would be covered. Admittedly, I am aware of my personal bias as I have benefitted from walking and exercising to work through my own physical and mental distress at different points in my life. To overcome my personal bias and remain objective throughout this research project, I will ensure that I seek out limitations to the studies, refrain from including literature that reports only on positive findings, and have a peer review my analysis. For my future practice, I will seek out supervision for this modality and adhere to any new practice guidelines or recommendations from either CAP or the Psychologists' Association of Alberta (PAA).

Chapter two examined the methodology of this project, explaining how the search process was enacted and how articles for this capstone were chosen.

## **Chapter Two: Methods**

This chapter began with an explanation of the literature search process, the parameters, and the inclusion and exclusion criteria that led to the selection of articles. This was followed by a review of the literature and a critique of the methodology. An in-depth methodological analysis and ethical discussions were conducted in Chapter 3. This chapter explored and critiqued the research methods used in the chosen literature.

### **Literature Search Process**

When researching studies pertaining to walk and talk therapy, various search terms and databases were used. Keywords included: walk and talk therapy, walk and talk psychotherapy, walking therapy, outdoor psychotherapy, nature-based psychotherapy, exercise psychotherapy, psychological benefits of nature, psychological benefits of exercise, and mental health. These search terms were entered into the search engines offered at City University of Seattle libraries and the University of Alberta, accessing articles from databases including SAGE Journals, EBSCOhost, ProQuest (PsycINFO), and Taylor & Francis Online.

As I work with children and youth, I attempted to find some articles related to studies done on this population, searching for keywords such as “walk and talk therapy youth/children.” Though somewhat outdated, one study contained relevant findings and was conducted here in Alberta (Doucette, 2004); ultimately, most of the literature focuses on research involving adults.

During the search process, it became clear that the number of research studies conducted specifically on walk and talk therapy led by mental health professionals could have been more fruitful. Many were peer-led; some involved participants walking alone and reporting on their experience, but I wanted studies which included a therapist walking with one client. I also made the subsequent decision to include research on nature-based therapy,

as this is closely tied to walk and talk therapy and spoke to many of the healing and restorative benefits nature could offer clients while engaging in walk and talk therapy.

### **Inclusion and Exclusion Criteria**

Initial selections were made by limiting to peer-reviewed studies published from 2012 and forward, then reviewing to ensure they contained research studies or randomised controlled trials (RCT) conducted on adults and reported on possible benefits and limitations of nature-based or walk and talk therapy. Articles including the therapist's or client's perspectives on how nature-based therapy or walk and talk therapy was experienced helped refine the selections further. Meta-analyses and dissertations were excluded.

### **Selection of articles**

The reviewed literature made use of published articles and books based on their relation to the topic. I sought out research that included findings related to how the therapeutic alliance was affected, how psychotherapeutic techniques were used before, during or after the walk and talks, and those which spoke to the ethical aspects that a mental health professional would be required to follow.

### **Data Analysis Procedures**

Once I had ensured the literature met the inclusion criteria, I began the analysis process by grouping the nature-based therapy articles and reading them to begin coding for recurring themes. Walk and talk therapy articles were read and coded separately. In both groups, several themes emerged about the psychological and physical benefits, some about client and therapist dynamics, and connections to others or nature. Finally, I compared the similarities and differences among the articles to gather information and assist the analysis process.

Chapter three reviewed the literature related to the topic, presented a thematic look at the comprehensive findings, critiqued the methodologies used, and discussed ethical issues.

### **Chapter Three: Review of Literature and Findings**

Walk and talk therapy has three main components: the physical act of walking, being outdoors in nature and talking with a qualified therapist. The first section reviewed prior literature discussing physical activity's role in well-being and mental health, irrespective of a therapist's presence. Secondly, I presented a thematic look at the findings based on the comprehensive discussion of all the literature related to walk and talk therapy. This section included research focussed on therapeutic experiences in nature, which included both a certified therapist and physical activity, in this case walking.

#### **Role of Exercise in Human Wellbeing**

Numerous books and articles speak to the benefits of exercise on both physical and mental health, so much so that terms like *exercise prescription* and *exercise is medicine* have been bandied about for some time (Kerling et al., 2017; Ratey, 2008; Stanton & Happell, 2013).

Metzl and Heffernan (2013) discussed how exercise can improve overall health and well-being, arguing that exercise can be an effective alternative to medication for various health conditions, including heart disease, diabetes, and depression. They emphasised the importance of finding enjoyable physical activities that we might like to repeat regularly rather than simply focusing on the calorie-burning effects of exercise. Bowman (2017) explored the role of movement in overall health and well-being, claiming that modern life, with its emphasis on sedentary behaviours and lack of variety in movement, can contribute to a range of health problems, including chronic pain and a multitude of diseases, both physical and mental. Bowman outlined the importance of incorporating a variety of movements into daily life, including walking, lifting, and stretching, to promote optimal health, emphasising the importance of considering the environment in which activity occurs, arguing that the design of the built environment can either support or hinder natural movement.

Similarly, Ratey (2008) explored the relationship between physical exercise and brain function, arguing that exercise can improve cognitive function and alleviate symptoms of various mental health conditions such as depression, ADHD, and anxiety. Ratey attributes improved learning and memory and increased resistance to stress and depression to increased brain-derived neurotrophic factor (BDNF) levels. BDNF, a protein that plays a role in the growth and survival of neurons, is increased through exercise. Exercise can also increase the production of endorphins, chemicals that act as natural painkillers and mood elevators. Researchers (Kerling et al., 2017; Metzl & Heffernan, 2013; Ratey, 2008) noted that in addition to the direct effects on the brain, exercise could improve mental health by providing a sense of accomplishment, boosting self-esteem and reducing stress, it can also serve as a social outlet, helping to reduce loneliness and isolation.

Exercise programs for older adults can slow or reverse age-related mental decline because exercise increases hippocampal volume. Researchers reported that a yearlong exercise program increased hippocampal volume in their participants. They found that hippocampal volume equates to higher levels of BDNF, which acts as a mediator in neurogenesis, the growth of new neurons, and is associated with improved memory function (Erickson et al., 2011). Other research shows how daily exercise improves immune system health and lessens stress symptoms by lowering heart rate and circulating cortisol levels (Parra et al., 2020). Further research revealed that the sensation of well-being experienced after physical activity may be related to the activation of cannabinoid receptors and their higher serum levels, together with those of endorphins (Mikkelsen et al., 2017).

People with mobility challenges who may require adaptations or specialised equipment to participate in physical activity can benefit from education, support and community-based physical activity opportunities, all of which contribute to their overall well-being (Williams et al., 2017). Additionally, fitness instructors and providers need ongoing

and updated training on new technology that offers increased opportunities for inclusive environments (Skrastins et al., 2020).

### **Role of Exercise in Mental Health**

In many forms, exercise has been studied for its effect on many mental disorders, testing its efficacy in reducing symptoms and increasing well-being. As some mental disorders result in those affected by them being somewhat sedentary because the range and severity of their symptoms or side effects of medications make it difficult for them to mentally or physically be in a space to participate in exercise, it is essential to know how physical activity may benefit this population (Firth et al., 2016; Szortyka et al., 2023).

Physical exercise has lowered the severity of psychiatric symptoms and decreased positive and negative symptoms while increasing the quality of life and overall global functioning among individuals with schizophrenia (Arnautovska et al., 2022; Dauwan et al., 2016; Szortyka et al., 2023).

Peri-natal and Post-natal mothers with depressive symptoms benefited from adding physical activity to their care program during pregnancy and the months and years after having their children. Participants reported lessened symptoms of anxiety and depression and overall improved well-being (Eustis et al., 2019; He et al., 2023).

Studies examining the therapeutic use of specific forms of exercise, aerobic exercise in patients with PTSD, clients with depression participating in group Boulderling Therapy, and yoga as a treatment for many mental illnesses all show promising results. The benefits of aerobic exercise include short- and long-term improvements in mental and physical health as well as the reduction of physical health conditions with continued activity, suggesting it may be beneficial as a supplement to conventional psychotherapy regimens or even, because of its' simplicity, aerobic exercise may also be a good alternative for people living with PTSD

who are on waiting lists for therapy or are otherwise unable to access it (Fetzner & Asmundson, 2014).

Other studies suggest that the combination of aerobic exercise and other physical activity, known to increase BDNF secretion, is part of the change mechanism for people with PTSD (Peters et al., 2010; Winters et al., 2007). Because BDNF is highly linked to extinction learning, boosting BDNF concentration with short periods of exercise following exposure therapy may result in better PTSD reduction maintenance (Bryant et al., 2023). They cite how BDNF enhances neural plasticity, which improves long-term potentiation and learning, as the probable reason for the decreased distress levels and better long-term outcomes in participants (Bryant et al., 2023; Peters et al., 2010; Winters et al., 2007).

Scioli-Salter et al. (2016) hypothesised that neurobiological variables such as neuropeptide-Y (NPY) and allopregnanolone and pregnanolone (ALLO), which both reduce amygdala reactivity and directly reduce pain transmission in the spinal cord, may lessen both pain sensitivity and PTSD symptoms. They claimed that when amygdala hyperreactivity is reduced, frontal lobe function and amygdala inhibition in the frontal lobe improve, which may improve pain tolerance, allow for higher-order cognitive processes, and promote recovery from traumatic stress. A subsequent randomised trial recruited 90 veterans with varying symptoms of Major Depressive Disorder or PTSD, studying how exercise increased the production of NPY, which in turn provides antistress, pro-reward, and antinociceptive, or pain-relieving properties for those affected by MDD, PTSD or chronic pain (Scioli et al., 2020).

Combining the sport of bouldering, which is different from rock climbing in that it is done without harnesses or ropes, with psychotherapeutic interventions like CBT or Mindfulness, some practitioners have been using Bouldering Psychotherapy (BPT) with clients. Group-based Bouldering Psychotherapy (BPT) increased perceived self-efficacy in

depressed patients in clinically useful ways, offering preliminary evidence that BPT's impact on treating depression is equivalent to that of cutting-edge Cognitive Behavioural Therapy, making a compelling case for its expanded use as a complement to current medical treatments, particularly when perceived self-efficacy has to be raised (Kratzer et al., 2021). A subsequent study reported that group-based BPT significantly improved symptoms of patients experiencing anxiety, who reported increases in quality of life, coping, body image, self-efficacy, and overall self-esteem (Luttenberger et al., 2022).

Gard et al. (2014) hypothesised that practising yoga encourages self-regulation through a monitoring and control process that involves initiating and maintaining behavioural change and preventing undesirable output by both higher-level and lower-level brain networks in the presence of stress-related physical or emotional challenges. The self-regulatory bottom-up and top-down processes inhabit many body systems, cardiovascular, neuroendocrine, and musculoskeletal systems, and are integrated into yoga practices. Specific mechanisms from high-level brain networks, such as intention and motivation, goal setting, attentional control, meta-awareness, response inhibition, working memory, and cognitive reappraisal, can all be enhanced through yoga practice. Additionally, mechanisms from low-level brain networks, such as parasympathetic control, increased vagal tone, strengthened diaphragm, extinction learning, and attentional processing, are derived from yoga practice (Gard et al., 2014). Combining emotional, cognitive, behavioural, and autonomic processes into a multi-systems framework for adaptive functioning served to promote short and long-term benefits on well-being and mental and physical health both on and off the yoga mat, giving clients increased cognitive, emotional, and behavioural abilities to cope with day-to-day life and stressors (Acevedo et al., 2016; Gard et al., 2014). Additionally, yoga and other mind-body practices link to structural changes in many brain regions, including the prefrontal

cortex, insula, striatum, and amygdala, which may improve well-being via neural networks that regulate cognitive activities (Acevedo et al., 2016; Bhattacharyya et al., 2021).

Daily exercise improves immune system health and lessens the symptoms of stress, especially by lowering heart rate and circulating cortisol levels (Parra et al., 2020). Research revealed that the sensation of well-being experienced after physical activity may be related to the activation of cannabinoid receptors and their higher serum levels, together with those of endorphins (Mikkelsen et al., 2017). Physical activity, alone or in combination with nature, produces short- and long-term effects on mood and emotional states. Several studies indicate that exercise may also be beneficial for a variety of neuropsychiatric illnesses, including anxiety disorders (Ernst et al., 2006; Kerling et al., 2017; Luttenberger et al., 2022) and depression (Kratzer et al., 2021).

Clients with treatment (Rx, Psychotherapy) resistant bipolar disorder experienced many neurocognitive-enhancing benefits from incorporating aerobic activity into their lives as an adjunctive to therapy (Kucyi, 2010). Similarly, clients with Major Depressive Disorder had significantly higher rates of remission when exercise was added to their selective serotonin reuptake inhibitor (SSRI) treatment (Trivedi et al., 2011), as well as improved quality of life and psychosocial functioning (Greer et al., 2016). Using exercise as an adjunct to psychotherapy offers increases in positive mood, as well as significant reductions in anxiety and compulsions for persons with obsessive-compulsive disorder (Abrantes, 2017), alcohol use disorder (Hallgren et al., 2018) and those with severe mental illness in forensic in-patient settings (Hassan et al., 2022).

### **Walk and Talk Therapy Research**

Several themes and subthemes emerged from the literature focussed on walk and talk therapy specifically, highlighting the benefits of offering it. Applying a Bio-Psycho-Social lens to these findings aided the researcher in grouping them into themes and subthemes.

**Table 1***Themes and Subthemes Related to the Literature*

Theme	Subtheme
A: Biological Responses	Connection to the natural world. Bodily responses Neurobiological changes
\B: Psychological Responses	Improved mood, energy, and focus Improved outcomes for many mental disorders Lessened stigma
C: Social Responses	Roles and connections Boundaries Transfer of knowledge Underutilised resource

**A: Biological Responses**

From a biological perspective, many themes emerged during the literature synthesis, which speaks to the benefits of the different elements of walk and talk therapy.

***Subtheme A1: Connection to the natural world***

Ecotherapy in the counselling office could include objects from nature, such as pinecones and rocks, to guided meditation, visualising natural landscapes or activating other senses (Kamitsis & Simmonds, 2017). In contrast, outdoor nature-based therapy might include gardening, sitting on a park bench while noticing sensory stimulation around them or creating some form of art in nature (Meuwese et al., 2021; Shrestha et al., 2021). Many

people enjoy spending time in nature, citing how combining sensory stimulation, connecting to the natural world and sights, fresh air, and vitamin D combine to invigorate and rejuvenate our souls.

Time in nature promotes a connection to the natural world that enhances well-being, suggesting the attachment we have with nature can act as a healing agent (Kamitsis & Simmonds, 2017), which can help soothe and relieve stressors (Lanza-Leon et al., 2023; Louv, 2008; Meuwese et al., 2021). Spending time in nature is conducive to being more present and, in the moment, even self-aware, helping to put one's problems into perspective and realise we are a part of something bigger (Dybvik et al., 2018; Meuwese et al., 2021; Shrestha et al., 2021). Participants in some studies reported a preference for natural outdoor settings over artificial indoor environments, claiming the feeling of revitalisation from the natural setting could not be duplicated indoors (Shrestha et al., 2021). Others reported that incorporating nature's natural elements, visualisations, and sensory (sound, smell) aspects were valuable and assisted the therapeutic process even in an indoor setting (Kamitsis & Simmonds, 2017).

Connections to nature, landscape and wildlife had a calming effect and were a restorative reprieve from the chaos and stimulating lives many clients lead (Cooley et al., 2021; Kamitsis & Simmonds, 2017; Muir & McGrath, 2018; Newman & Gabriel, 2022). Berger's (2010) research on nature therapy, resulted in a display of youthful joy in an elderly client, which then aided the therapeutic process by offering a chance to notice wildlife and talk about locations they remembered from their past and what it meant to them.

Many participants found the walks in nature or green spaces to be refreshing and peaceful (Gidlow et al., 2015; Shrestha et al., 2021; van den Berg & Beute, 2021), citing the sights and smells of flora and fauna as providing inspiration. Other clients reported that urban walks were highly beneficial and offered new viewpoints and an opportunity to build

confidence walking in unfamiliar, busy urban areas that they may have avoided if not for the walk and talk experience (Cooley et al., 2021; Muir & McGrath, 2018). That nature is naturally multisensory; it adds authenticity and freedom, enhancing creativity and connection between the clients and nature (Kamitsis & Simmonds, 2017; Revell & McLeod, 2016; van den Berg & Beute, 2021).

Additionally, nature-based therapy could open the door for integrating Indigenous healing practices into Western applied psychology, as its inclusion of the natural world is also a principle of Indigenous teaching (Kamitsis & Simmonds, 2017).

Contrasting the positive connections as mentioned above, some clients reported how the vastness of nature proved to be a stressful or adverse event as it reminded them how insignificant they are; others, some of whom had negative or traumatic experiences in natural settings, found the time outside to be a negative reminder of something from their past (Dybvik et al., 2018). Similarly, some participants in the urban walking condition reported feeling distracted and preoccupied, noting the volume of traffic and construction zones, suggesting that the urban environment is more cognitively demanding than the green spaces and did not provide the same level of restoration (Shrestha et al., 2021).

### ***Subtheme A2: Bodily responses***

Aware of the benefits of walking on body and mind, many clients felt the addition of walking and talking to their therapy appointment was akin to killing two birds with one stone, getting exercise along with feeling better mentally after the session (Muir & McGrath, 2018; Newman & Gabriel, 2022). Others noted improved endurance, mobility, increased exercise, and healthier lifestyle choices (Bowman, 2017; Cooley et al., 2021; Muir & McGrath, 2018). Exercise also reduces the risk of chronic diseases such as heart disease, stroke, and diabetes and can improve overall physical health and fitness, benefiting our clients in many meaningful ways (Metzl & Heffernan, 2013; Parra et al., 2020).

Gidlow et al. (2015) reported how their participants benefited physically from the activity and responded positively in all three natural environments. Some studies, such as Beute & de Kort (2018), Dybvik et al. (2018), and van den Berg & Beute (2021), reported how the combination of exposure to sunlight and fresh air improved outcomes for those with depression and stress-related disorders.

Researchers cited how walking and moving their bodies enabled participants to be calm while allowing their minds to process big emotions and thoughts, even supporting those who felt anxious or stuck to allow themselves to open up (Cooley et al., 2021; Doucette, 2004; Muir & McGrath, 2018; Newman & Gabriel, 2022; van den Berg & Beute, 2021). Researchers reviewing therapists' perspectives reported that some clients who initially presented with low mood or flat affect were often jovial and relaxed after the walk and talk sessions, suggesting the action of walking helped them get out of their heads and into their bodies (Acevedo et al., 2016; Cooley et al., 2021; Doucette, 2004; Gard et al., 2014; Ratey, 2008; Revell & McLeod, 2016).

While some found the physical movement distracting, preferring to be still so they could focus wholeheartedly (Newman & Gabriel, 2022), others found the physical release from the aerobic activity allowed solutions to their problems to become clear (Gard et al., 2014; Revell & McLeod, 2016; van den Berg & Beute, 2021).

The unpredictability of the weather proved to be a worthy challenge for many clients and therapists, sometimes encouraging them to pressure on with a walk even if the weather was less than lovely (Doucette, 2004; Newman & Gabriel, 2022), while other clients opted to stay indoors on inclement weather days, preferring not to get cold and wet (Newman & Gabriel, 2022; Revell & McLeod, 2016).

### ***Subtheme A3: Neurobiological changes***

Significantly lowered cortisol rates, the primary stress hormone, was found between 30-60 minutes after the walk and talk sessions in all environments, suggesting that cortisol released during the physical activity resulted in less stress afterwards (Gidlow et al., 2015; Olafsdottir et al., 2018; Parra et al., 2020). The blood-brain barrier-crossing adrenal hormone associated with stress, cortisol, regulates brain function, particularly in the prefrontal cortex, amygdala, and hippocampus (Patel et al., 2000). Additional studies show that bio-available cortisol, circulated through the body by physical activity, improves hippocampal connectivity in depressive patients, producing positive outcomes such as enhanced emotion processing and lessened depressive symptoms (Beserra et al., 2018; Rivera-Bonet et al., 2021).

As higher cortisol levels and decreased Brain-Derived Neurotrophic Factor (BDNF) link closely to the pathophysiology of depression, anxiety, trauma-related disorders and some psychotic disorders, it is possible that adding physical activity or walk and talk therapy to a treatment plan could result in many positive outcomes for clients (Arnautovska et al., 2022; Dziurkowska & Wesolowski, 2021). Increased production of BDNF, a result of physical activity, is known to enhance neural plasticity, which can improve long-term potentiation and learning, as well as decrease distress levels (Bryant et al., 2023; Peters et al., 2010; Winters et al., 2007). Exercise can increase hippocampal volume and BDNF production, which offers many benefits to a wide variety of potential clients (Erickson et al., 2011; Ernst et al., 2006; Kerling et al., 2017).

Additionally, as physical activity or exercise increases BDNF production, there is neurogenesis and a subsequent reduction of depression and anxiety symptoms (Ernst et al., 2006; Kerling et al., 2017; Ratey, 2008). Increased endocannabinoid levels, higher BDNF serum levels, and endorphins, the body's natural painkillers and mood elevators, released

through physical activity all demonstrate significant potential to reduce mental disorder symptoms and improve client outcomes (Mikkelsen et al., 2017; Ratey, 2008).

## **B: Psychological Responses**

Many psychological benefits of walk and talk therapy became clear upon synthesis of the literature. This section summarises the benefits and risks.

### ***Subtheme B1: Improved mood, energy, and focus***

Spending time in nature acts as a mood-enhancing experience, helping shift heavy/stressful emotions to lighter/more manageable ones or helping to sort out thoughts and develop clarity of what was happening in the body and mind for some clients (Abrantes, 2017; Cooley et al., 2021; Dybvik et al., 2018; Hallgren et al., 2018; Hassan et al., 2022; Kamitsis & Simmonds, 2017; Lanza-Leon et al., 2023; Shrestha et al., 2021). Nature can restore energy levels (Shrestha et al., 2021) and help clients feel more vital and awake (Dybvik et al., 2018). The ability to hold longer sustained attention to tasks, school, work, and life after spending time in nature, as well as increased focus on essential matters, was reported by many clients (Doucette, 2004; Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Shrestha et al., 2021). Exercise can also improve cognitive function, memory, and attention span and has a positive effect on mood, reducing symptoms of depression and anxiety and improving overall mental health (Abrantes, 2017; Hallgren et al., 2018; Hassan et al., 2022; Lanza-Leon et al., 2023).

Walk and talk studies overwhelmingly reported many improvements in mood, energy and focus for the majority of participants (Cooley et al., 2021; Doucette, 2014; Dybvik et al., 2018; Gidlow et al., 2015; Muir & McGrath, 2018; Newman & Gabriel, 2022; Shrestha et al., 2021; van den Berg & Beute, 2021). Dench's (2002) research showed promising results, including improved mood, vigour and outlook for her clients. However, this portion of the walk and talk therapy study was not conducted over a long enough period nor isolated

enough from the other components of the program to hypothesise or report on its efficacy fully.

One study reported negative experiences related to the control group, whose distress intensified and work conditions deteriorated further, which makes sense given the lack of intervention this group received. Comparatively, the experimental group in this study who received the walk and talk intervention, spoke of a heightened awareness, which for some was uncomfortable, was a result of the therapeutic process of working through one's emotions and responses to stress rather than anything related to nature (Shrestha et al., 2021). Mood and cognitive improvements were reported in all three environments studied but endured the longest when clients walked in natural or greener environments over the more urban option; however, all settings in the chosen studies produced positive results for the participants (Gidlow et al., 2015).

### ***Subtheme B2: Improved outcomes for many Mental disorders***

Many people affected by mental disorders experience psychological benefits from incorporating walk and talk therapy, physical activity, or nature into their therapeutic experiences. While not every study reviewed in this project mentioned the particular DSM5 diagnoses their participants were experiencing, many did speak to the diagnoses and the specific benefits gained from the addition of physical activity or walk and talk therapy.

Symptoms of anxiety were lessened, and overall well-being increased with the incorporation of either walk and talk or physical activity in many studies (Abedi et al., 2015; Asmundson et al., 2013; Cooley et al., 2021; Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Merom et al., 2008; Shrestha et al., 2021; Thaller et al., 2022; van den Berg & Beute, 2021). Abedi et al. (2015) reported the benefits post-menopausal women experienced from incorporating walking and tracking their steps with a pedometer into their lives, as it reduced insomnia and lessened feelings of anxiety and depression. Merom et al. (2008) concluded

that Group Cognitive Behavioural Therapy (gCBT) combined with adjunct exercise (gCBT+Ex) was significantly more effective at lowering symptoms of anxiety than gCBT with added educational sessions (gCBT+Ed), with the most profound improvements coming from the group consisting of those with Social Phobia, or Social Anxiety Disorder.

Asmundson et al. (2013) reviewed the many benefits of incorporating physical activity into the healing program for various mental disorders. Specifically, they noted improved measures of anxiety symptoms for participants with Generalized Anxiety Disorder (GAD), Social Anxiety Disorder (SAD), and Panic Disorder diagnoses. Exercise can also provide a sense of accomplishment and proficiency, improving self-esteem and confidence (Kratzer et al., 2021; Luttenberger et al., 2022). Sports and exercise practises have proven to distract from distressing thoughts and ruminations and boost self-esteem through self-efficacy or competence in the chosen activity (Eyre et al., 2013).

Researchers noted that clients with symptoms of anxiety reported how walking side by side contributed to feeling more at ease and was a factor that quickly facilitated the therapeutic alliance, allowing them to get to the heart of why they were seeking counselling services. Many of their participants also reported how walk and talk helped them feel less fidgety, more able to talk about difficult things, be more honest and introspective because their bodies were doing something other than just sitting in an office (Newman & Gabriel, 2022). The body and brain connections, namely the resulting increased vagal tone and self-regulatory skills, assist a person in overcoming many different stressors (Acevedo et al., 2016; Bhattacharyya et al., 2021; Gard et al., 2014; Mikkelsen et al., 2017; Ratey, 2008).

Numerous studies have been conducted on the benefits of nature or spending time outdoors, whether walking, meditating or simply in nature. Green or Eco-therapy has been shown to lower levels of sadness, stress, and anxiety, suggesting that higher percentages of green space surrounding a person's home can also help buffer the effects of stressful life

events (Lanza-Leon et al., 2023; Louv, 2008; Meuwese et al., 2021; Shrestha et al., 2021; Vitagliano et al., 2023). Researchers in many studies reported how connections to nature helped calm anxious thoughts and naturally seemed to encourage mindfulness, which could be a beneficial skill and even shorten treatment time for some clients. (Dybvik et al., 2018; Kamitsis & Simmonds, 2017).

The phrase nature deficit disorder refers to the effects of spending less time outside and more time engaging in sedentary pursuits and screen time, something that negatively affects many populations. Obesity, depression, anxiety, ADHD, and other mental health problems can be symptoms of nature deficit disorder (Louv, 2008). A review conducted to measure the impact of nature (exposure to natural environments, urban and rural green spaces) on mental wellness during the Covid-19 pandemic shows that exposure to nature was overwhelmingly positive, helping reduce symptoms of anxiety, depression, stress, and other mental disorders (Lanza-Leon et al., 2023). Similar findings were reported from their studies incorporating nature-based psychoeducational groups teaching mindful practices and clients' experiences of individual psychotherapy in nature (Vitagliano et al., 2023). Likewise, the benefits of spending time in nature helped veterans experiencing symptoms of PTSD, leading to significantly improved quality of life and overall well-being (Poulsen et al., 2016). A memorable moment describing how walk and talk therapy helped a client with PTSD to venture out of their room at the inpatient treatment centre, which provided a different lens to their life upon seeing an almond tree. This reminded him not only of a tree from his childhood home but brought on a painful conversation and memories about his strained relationship with his son, thereby facilitating some meaningful healing for this client (Berg, 2010). Comparing nature-based walk and talk therapy to experiences with indoor treatment, several aspects of psychotherapy while walking in nature are perceived as increasing value to treatment (Dybvik et al., 2018; Kamitsis & Simmonds, 2017).

Participants experienced fewer depressive episodes and increased well-being as a result of walk and talk therapy or the inclusion of physical activity into their treatment plan (Dybvik et al., 2018; Ernst et al., 2006; Eyre et al., 2013; Hanson & Jones, 2015; Kamitsis & Simmonds, 2017; Kerling et al., 2017; Thaller et al., 2022; van den Berg & Beute, 2021). That walk and talk can help both therapist and client alike to find metaphors while walking outdoors in nature, like the changing of seasons marking how depressive states can come and go or how dark clouds do not last forever, which can be meaningful for some clients suffering from depression (Kamitsis & Simmonds, 2017). Exposure to natural environments helps clients gather insights into their inner world, which is often necessary for meaningful change of cognitions and modification of behaviours that will allow them to heal from depression (Dybvik et al., 2018; Meuwese et al., 2021; Thoma & McKay, 2014).

Symptoms related to having experienced childhood trauma or Post Traumatic Stress Disorder (PTSD) were lessened with the incorporation of physical activity or walking (Dybvik et al., 2018; Fetzner & Asmundson, 2014; Kamitsis & Simmonds, 2017; Mikkelsen et al., 2017). Similarly, mood improvements lessened anger and distress, resulting in better outcomes for clients with PTSD (Kerling et al., 2017). Many clients being treated for PTSD reported fewer symptoms, less rumination, and overall better quality of life due to their participation in walk and talk or physical activity (Dybvik et al., 2018; Thaller et al., 2022). The connection to the natural world and their bodies reduced stress-related symptoms and forged participants' healing (Kamitsis & Simmonds, 2017).

Symptoms of burnout and stress decreased, while employment satisfaction, mental health and overall well-being increased after participating in walk and talk therapy (van den Berg & Beute, 2021).

Studies reviewing the benefits of time in nature offering post-partum mothers' connection to their child and other mothers help remove cultural and socio-demographic

barriers, reduce stress by providing a natural escape, and facilitate improved outcomes (Hall et al., 2023). Similar research suggests that time in nature helps lessen symptoms of depression and correct disruptions in the circadian rhythm brought on by the lack of sleep, changes in energy levels and lessened physical activity that many new mothers experience (Hall et al., 2022).

### ***Subtheme B3: Lessened stigma***

Clients in many studies reported that nature helped them feel less stigmatised and less like a patient because of the natural and neutral setting the outdoors provided (Cooley et al., 2021; Doucette, 2004; Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Meuwese et al., 2021). Many clients reported feeling more like themselves in the natural surroundings and that awkward silences, which were occasionally felt in the therapy office, did not feel uncomfortable when there was something beautiful in nature to focus on (Berger, 2010; Cooley et al., 2021; Dybvik et al., 2018; Trivedi et al., 2011). Using nature as a substitute for antidepressants or an adjunct to other interventions, even naming it their “daily dose,” helped some clients feel much better than any previous attempts at treatment (Dybvik et al., 2018, p.443).

### ***Subtheme B4: Roles and connection***

Clients reported how walking and talking with their therapist helped them feel more at ease than in the traditional office setting, which can occasionally impose a hierarchy (Muir & McGrath, 2018; Newman & Gabriel, 2022). They also noted how the power differential seemed lessened, feeling a sense of equality with their therapist while outdoors, enjoying nature and scenery, allowing them to open up more easily about their feelings and thoughts (Berger, 2010; Doucette, 2004; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022).

Participating in walk and talk helped clients develop more comfort in silence as the terrain changes, like walking up a hill might use up their breath and force them to concentrate on breathing; it was a natural silence that did not feel awkward like some in-office moments had felt (Newman & Gabriel, 2022). Both therapists and clients found the walk and talk sessions enhanced the therapeutic alliance as the shared experiences of choosing the pace, the route, whether to walk some days and navigating rugged terrain or traffic warnings, promoted equality (Doucette, 2004; Muir & McGrath, 2018; Newman & Gabriel, 2022; Revell & McLeod, 2016). While increased informality was mentioned, it was not seen as a detriment; instead, it helped clients feel as though they were out for a casual walk with a friend while achieving therapeutic benefits (Doucette, 2004; Newman & Gabriel, 2022; Revell & McLeod, 2016).

In one study, the therapist and some clients even took their dogs along for the walk and talk, noting it normalised the experience even further so that to a passerby, they might have simply looked like friends taking their dogs out for a walk (Newman & Gabriel, 2022).

The ethical implications of lessened formality do have the potential to blur the lines between professional ethics and boundaries by being confused with simply walking with a friend. It is the presence of a qualified therapist that distinguishes walk and talk therapy from recreation. As psychologists, we know how to help our clients develop therapeutic goals and perform a variety of interventions to help them achieve these. As a psychologist using walk and talk therapy, we can encourage healthy interactions with the natural environment and our clients' bodies as we work toward said goals, perhaps even enhancing or speeding up healing processes.

Following CPA (2017) and CAP (2023) guidelines, it is vital that the psychologist discusses the risks, benefits, and differences to traditional in-office therapy during the informed consent process and continue to contract the inclusion of this modality to ensure the

client not only understands but is finding benefit from the clinical component as well as the physical component of walk and talk therapy, hopefully promoting change, growth and healing in the client. As eco-therapeutic offerings become more popular, licensing bodies and insurance companies are beginning to include more language around modalities such as walk and talk therapy, indicating their acceptance of this modality as offering benefits.

Walking side by side and not being face to face with sustained eye contact required therapists to pay attention to different cues (Muir & McGrath, 2018; Revell & McLeod, 2016). Making clients feel like they were being tracked less by the therapist, easing the tension needed to share difficult and painful emotions, benefited clients (Newman & Gabriel, 2022; Revell & McLeod, 2016). Some therapists noted that they needed to learn different ways to track clients' emotions and responses since they were not looking directly at them; however, they stressed this was not a direct downfall but rather required them to focus on different cues or ask additional questions (Revell & McLeod, 2016).

While the safety of a counselling office can offer clients a space to discuss their fears, worries and emotions, this is the therapist's realm. Being outdoors proved to be more of a neutral space, and it encouraged more shared responsibility for creating emotional safety, increasing the client's responsibility for keeping themselves emotionally safe (Meuwese et al., 2021; Newman & Gabriel, 2022). Knowing the therapist knew the routes well and that they would not end up lost was reassuring, as was being given choices by the therapist regarding which path they wanted to take on different days (Doucette, 2004; Newman & Gabriel, 2022). Occasionally, when the route was unfamiliar to the therapist, it affected the timing of the session and was seen as a hindering factor (Revell & McLeod, 2016). Additionally, using nature and inanimate things as metaphors, i.e., Gate on a fence as an opening to a new chapter of their life or walking forward on the path as we move forward through life, was

beneficial to many (Berger, 2010; Doucette, 2004; Newman & Gabriel, 2022; Revell & McLeod, 2016).

### **C: Social Responses**

Walk and talk therapy research revealed many social benefits with great potential to help our clients, as well as a few limitations and risks we must consider.

#### ***Subtheme C:1 Connections and Boundaries***

Feelings of social connectedness, whether to other participants in similar nature-based intervention programs, therapists or staff leading the activities, or to others that participate in the same type of nature-based activities whether participating in therapy, proved to be positive for many (Cooley et al., 2021; Dybvik et al., 2018; Greer et al., 2016; Fetzner & Asmundson, 2014; Metzl & Heffernan, 2013; Muir & McGrath, 2018; Ratey, 2008). Providing opportunities for social interaction and promoting feelings of social connectedness and belonging, both individual and group exercise programs, can provide a sense of community and support (Eyre et al., 2013; Greer et al., 2016; Fetzner & Asmundson, 2014). Exercise can also be a way to engage in shared activities with friends or family members and the greater community at large, strengthening relationships and promoting social bonding (Metzl & Heffernan, 2013; Ratey, 2008; Vitagliano et al., 2023).

Being out in public, whether in rural or urban surroundings, walk and talk therapy opens up both clients and therapists to seeing people they know, encountering strangers, or even seeing wildlife. The College of Alberta Psychologists Standards of Practice of 2023 states that psychologists shall “inform a client of the limits to confidentiality” and “safeguard the confidential information about the client obtained in the course of providing a professional service” (CAP, 2023, p.28). It is vital that any psychologist planning to include walk and talk therapy in their professional work follow guidelines, obtain informed consent

for this modality, and discuss possible risks and ways to maintain privacy and confidentiality while outdoors.

The research reported that most clients did not feel overheard and believed that confidentiality was maintained (Doucette, 2004; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022). Some clients stated that seeing other people helped them stay connected to the outside world, feeling that those they encounter might be going through something similar, thereby normalising their emotions and reducing feelings of self-absorption (Cooley et al., 2021; Doucette, 2004; Metzl & Heffernan, 2013; Muir & McGrath, 2018; Newman & Gabriel, 2022). Further, some clients who participated in the walk and talk sessions gained critical social skills such as making conversation, using public transit, interacting with shop owners, and navigating unfamiliar routes, as well as giving them something to look forward to and a sense of purpose (Cooley et al., 2021; Muir & McGrath, 2018).

Some clients, walking predominantly in rural areas where they did not encounter many others, felt that showing emotions outdoors was acceptable. Because they were walking, they not only used the naturally occurring deep breaths to help them move through different emotional states but added that the weather and being outdoors likely contributed to emotional states, even when difficult, being less of a problem (Newman & Gabriel, 2022). Some clients in two studies commented that they preferred discussing sensitive topics in the counselling office and would have felt uncomfortable doing so outdoors or in public (Meuwese et al., 2021; Newman & Gabriel, 2022).

Maintaining professional boundaries around confidentiality was seen as a hindrance for some therapists, who noted they had to stop clients from speaking for short periods while they were near others to ensure their conversation was not overheard (Revell & McLeod, 2016). Contrastingly, many therapists reported that uttering a quick hello to a passerby or

remaining silent as others passed was not a bother; instead, it offered a moment of pause to the therapeutic discussion that offered the client a moment for introspection (Cooley et al., 2021; Dybvik et al., 2018; Muir & McGrath, 2018).

Additionally, ensuring clients came adequately dressed and with appropriate footwear was listed as a hindering factor (Revell & McLeod, 2016).

### ***Subtheme C2: Transfer of skills and knowledge***

Transfer of skills and knowledge-of-self gained from the walk and talk experience, as noted, include increased confidence and independence, enhanced emotional resilience, as well as increased social engagement and participation in other activities or volunteer work (Cooley et al., 2021; Doucette, 2004; Muir & McGrath, 2018). Clients who participated in walk and talk therapy expressed higher levels of self-efficacy and self-esteem, many transferable skills and improved overall well-being (Kratzer et al., 2021; Luttenberger et al., 2022; Parra et al., 2020). Additionally, as a result of participating in walk and talk or other exercise-based therapeutic programs, almost all participants reported feeling more able to deal with daily stressors, overcome grief and loss, and feel increased work-life satisfaction and balance, which contributed to better overall physical and mental health (Acevedo et al., 2016; Gard et al., 2014; Kratzer et al., 2021; Luttenberger et al., 2022; Meuwese et al., 2021; Parra et al., 2020; Ratey, 2008).

The fact that intense emotions are perceived as being easier to control in nature and that clients feel as though they reach the essence of the matter more quickly while receiving psychotherapy there, has value because it suggests that clients are less inhibited by intense emotions while also being able to talk about the subjects that are most important to them. It is conceivable that these procedures lead to shorter treatment times, more significant changes during treatment and a greater ability to generalise to situations outside of therapy, increasing

the client's coping mechanisms and enabling them to live life with less distress (Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Meuwese et al., 2021; Shrestha et al., 2021).

There were some participants who, despite frequent participation in the group walk and talk study, did not feel they were able to transfer outcomes to their personal lives and reported feeling stuck (Cooley et al., 2021). Additionally, therapists in that study noted resistance and fixed behaviour patterns in some clients with cognitive delays. They could not apply the skills they worked on to a broader context as that is a higher-level processing skill they may have yet to be capable of; this would be an essential consideration when choosing which client a therapist may offer this modality to. Cooley et al. (2021) provided suggestions such as including more intentional focus, motivational interviewing techniques, SMART goal setting and self-monitoring of behaviours to increase the transferability of skills. Individual walk and talk therapy, as opposed to the group style this study conducted, should lend itself better to more discussion and examples of ways the client could transfer skills learned in session to the outside world.

### ***Subtheme C3: Underutilized Resource***

Therapists noted that the diversity and scale of programs should expand to benefit a more significant population (Cooley et al., 2021; Doucette, 2004; Gidlow et al., 2015; Muir & McGrath, 2018; Newman & Gabriel, 2022; Revell & McLeod, 2016). Several researchers noted that other health professionals need to be reminded of the benefits of walk and talk therapy and other activity-based therapeutic programs, which could improve health outcomes for their clients, even if they are seen as outside of the medical models they work within, because they cannot deny the benefits (Cooley et al., 2021; Muir & McGrath, 2018; Ratey, 2008). Some researchers noted that walk and talk therapy can be a genuine multi-disciplinary approach, but that may have to challenge some engrained ways of thinking in our mental health and medical system to benefit as many clients as possible (Cooley et al., 2021;

Newman & Gabriel, 2022; Ratey, 2008; Revell & McLeod, 2016). Walking in nature is simple and accessible; almost everyone can do it within short distances from home, whether in urban parks or rural settings. It does not require special equipment and is a cost-effective way to improve client outcomes (Shrestha et al., 2021).

The bio-psycho-social theory views exercise as a mechanism of change that can positively affect an individual's physical, psychological, and social well-being. This theory suggests that biological, psychological, and social factors influence human behaviour and functioning, which interact to affect a person's overall health and well-being (Engel, 1977). When we combine the theory with the findings, walk and talk therapy appears to have great potential to help many people.

### **Methodological Critique**

The following section examined the methodological strengths and weaknesses of the reviewed literature.

Pragmatic, Positivist, and Constructivist paradigms can each offer advantages and disadvantages to psychological research. Viewing our clients as unique individuals and looking at many facets of their lives as these paradigms frame provides us with a holistic and person-centred viewpoint from which to guide our work, so should it apply to research which may prove beneficial (Arcidiacono et al., 2009; Eriksson et al., 2018). With its focus on democracy, the processes of participatory democracy and creating democratic communities, pragmatism and social justice research are quite naturally linked. They could provide insight into issues such as freedom, equity, and equality (Collins, 2017). According to Cooley et al. (2021), the pragmatic research approach emphasises the practical application of research findings and aims to create solutions to problems that exist in the real world. Research problems or questions like whether or not walk and talk therapy can reduce barriers and

increase positive outcomes for our clients offer the field of psychology, the broader health systems and even urban planning, much to consider.

As the constructivist approach emphasises individuals' uniqueness and experiences, some findings may prove challenging to generalise to larger populations (Adom et al., 2016). The same could be said for the pragmatic approach, as its specific experiences and contexts may not necessarily be replicable to the general population (Creswell, 2014). Additionally, as the pragmatic approach relies on the experiences and perspectives of the researchers and participants and the constructivist relies on the individual's subjected experience, the findings could be seen as subjective and biased (Adom et al., 2016; Creswell, 2014). Many researchers mentioned specific efforts to promote objectivity to prevent this from affecting their studies, including bracketing and blind or independent second reads (Cooley et al., 2021; Gidlow et al., 2015; Revell & McLeod, 2016; Shrestha et al., 2021; van den Berg & Beute, 2021).

The ecological theory posits that individuals exist within a series of nested systems, ranging from the microsystem (immediate family, peers) to the macrosystem (culture, society). Each system influences and is influenced by the others, creating a dynamic and interconnected web of relationships that shape individual development and behaviour (Eriksson et al., 2018). Employing an ecological perspective for psychology research considers the multiple levels of influence on individuals and their interactions with their environment; this includes examining the social, cultural, and historical contexts in which individuals live, as well as their individual experiences and characteristics (Arcidiacono et al., 2009; Eriksson et al., 2018). Additionally, it is appealing from the perspective of public health because it encompasses many contexts in a broad sense, including trends like globalisation, urbanisation, and environmental change (McLaren & Hawe, 2005).

Through the lens of an ecological paradigm, Muir & McGrath (2018) examined the complex social, personal, and spatial relationships that affect participants' experiences of

group walk and talk therapy within an urban environment. This method provides a holistic view of the participants as they engage in a process while moving through space and time. As the theory helps researchers capture the diversity, complexity, and particular nature of one's suffering, as highlighted in their participants' narratives linking them to lost loved ones, physical spaces in the community that provided them peace and others in the group with whom they bonded over mutual experiences. Thinking about distress through an ecological paradigm encourages us to focus on people as unique individuals and their experiences as a whole rather than just their symptoms in isolation. This type of research offers many layers of insight to the field of psychology.

Research produced meaningful, relevant data showing how participating in the nature-based walk and talk therapy benefitted almost all participants (Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Meuwese et al., 2021; Newman & Gabriel, 2022). The lived experiences of the participants, collected under the constructivist and ecological paradigms, tell psychologists and researchers alike that there are a great variety of benefits to incorporating walk and talk therapy into sessions for all kinds of clients. As the constructivist approach emphasises the uniqueness of individuals and their lived experiences, a limitation to these findings could be that the results prove challenging to generalise to larger populations (Adom et al., 2016). This could also be true for the ecological approach as it looks at the interplay between the unique individual and their environment (Arcidiacono et al., 2009).

The studies that had participants participate in walk and talk therapy with a mental health therapist all established rapport quickly and reported that both client and therapist felt at ease and comfortable with the research process (Cooley et al., 2021; Revell & McLeod, 2016; van den Berg & Beute, 2021). While researchers in quantitative studies are less directly involved in the data collection process, there is still a potential that their interpretations of data may be influenced by their experiences, biases, and values (Creswell, 2014). One study

in this review indicated it was part of a more extensive, international study. While at first glance, the published report seems simply to be reporting on the restorative benefits each of three different environments might provide on stress, some further research into the project they reference tells of human ecology, urban planning, and health policy advocates with potentially far-reaching impact (Gidlow et al., 2015). These researchers and those within the larger project have conducted numerous studies on various interconnected topics. While I find their research exciting and valuable, I wondered if being transparent about this affiliation would benefit not only the field of psychology, but also policy makers and various levels of government.

Additionally, both *Gidlow et al. (2015)* and *Shrestha et al. (2021)* followed their participants just a short distance behind, ensuring the participants could establish the pace. This may not only have affected the results because the participants may have performed and responded more favourably because they felt they were being watched, but it also could have made them uncomfortable. I appreciate how they disclosed this and understand it was to establish the pace and interactions of their participants, but think perhaps digital step-counters or mapping applications could have provided them the same information and been less intrusive.

The proximity between participants and researchers during the data collection process could potentially be seen as an opportunity for not only the researcher's interpretations to cloud what was taking place but for the participant to respond differently than they may have if the relationship was not formed or if they were not simply mirroring the researcher or responding to demand characteristics (*Corneille & Lush, 2022*). Researcher *Jessica Muir of Muir & McGrath (2018)* immersed themselves in the data collection and participated in the walking group for one year to witness and understand their experiences. With time, the researcher formed a trusting relationship with many participants, but ultimately, not all of

them chose to participate in the formal research portion of the study, resulting in this data not being included in the analysis nor reporting to respect those participants' confidentiality. The researchers stated how they attempted to capture multiple data sources, anecdotal observations, personal accounts, photo production and walk-along interviews to remove traces of power differential and demand characteristics and allow the participants' authentic narratives to shine through.

Generalizability is important for quantitative research because it allows researchers to draw broader conclusions and make meaningful contributions to knowledge. It is crucial to acknowledge the importance of generalizability in research and emphasise the need for researchers to carefully consider the limitations and applicability of their findings (Creswell & Creswell, 2018). Snowball sampling has benefits in that it can be a helpful approach for researching sensitive subjects and communities that are hard to find, stigmatised, or rare. However, because the sample depends on the connections and referrals established by the initial participants, it is subject to bias and may result in an overrepresentation of particular traits or viewpoints in the sample.

Many researchers commented on their small sample size as a potential limitation (Cooley et al., 2021; Gidlow et al., 2015; Kamitsis & Simmonds, 2017; Meuwese et al., 2021; Newman & Gabriel, 2022; Shrestha et al., 2021). When researching on university campuses, researchers risk having younger samples, which could affect generalizability to more aged populations (Shrestha et al., 2021). Likewise, with demographics, when sampling predominantly Caucasian, Western European, or North American populations, as many of the researchers reported, we must consider whether our findings will generalise to populations outside these geographic areas and with more diverse populations (Cooley et al., 2021; Gidlow et al., 2015; Muir & McGrath, 2018). Likewise, as some cultures hold a negative stigma around mental health, they may prefer to seek out a spiritual leader or family member

or not talk about it all; we will not know if the findings in these studies would generalise to all populations until a greater diversity of participants are included in future research (Ahmad & Koncsol, 2022; Shameran et al., 2022).

Another limitation possibly increasing the risk for social desirability could be using participants who volunteered or were either recommended to the research study by their therapists or self-selected to participate in the studies (Vesely & Klöckner, 2020). While researchers mentioned this possibility, they felt the open-ended questions and opportunities to member-check mitigated influence, resulting in honest and accurate reporting of their participants' experiences (Shrestha et al., 2021; van den Berg & Beute, 2021). Similarly, as participants either volunteered or were recommended to participate in the research by their therapist, the social desirability risk exists in some research (Dybvik et al., 2018; Meuwese et al., 2021; Newman & Gabriel, 2022). Two studies looking at the effect of the environment on the walking experience reported that the closeness of the researcher observing the walk but not directly engaging with the participants might have felt strange and possibly affected findings because of social facilitation (Gidlow et al., 2015; Shrestha et al., 2021). Social facilitation, wherein enhanced performance on tasks can occur because the presence of others increases arousal (van Meurs et al., 2022).

Regarding reliability, Creswell & Creswell (2018) recommend that researchers strive for consistency and stability in their measurements. They recommend using established metrics and instruments demonstrated to be reliable in prior research, utilising randomisation to account for variation, and performing reliability tests to confirm that measurements are consistent across time and raters or observers. It appears that all of the studies reviewed herein used accurate and established measurements. One limitation of this method might be the time necessary to complete the various measures, tests and interviews to establish reliable

and valid results. This could have been costly or potentially caused some participants to drop out of the studies; however, this did not seem to be a concern for the reviewed studies.

Muir & McGrath (2018) used two complementary forms of data collection, photo production and a walk-along interview, the latter guided in part by the first. To minimise the power differential, researchers included participants in guiding the discussion of their experiences by inviting them to take photos of people, places, and things they either felt or did not feel a connection to or felt differently about since joining the walk and talk program. These photos served as a visual and spatial reminder, which helped participants articulate their experiences with the walk and talk program during a walk-along interview with the lead researcher, wherein the participant chose the route.

Creswell (2014) emphasises that data analysis in mixed methods research is a dynamic and fluid process that combines qualitative and quantitative data to develop new insights and understanding. He states how combining data from many sources can offer a more thorough and nuanced view of a research subject or problem than using only one method. Considering, it seems appropriate that the following research used Thematic Analysis, Interpretive Phenomenological Analysis, or other methods to analyse their data (Cooley et al., 2021; Gidlow et al., 2015; Revell & McLeod, 2016; Shrestha et al., 2021; van den Berg & Beute, 2021).

Some of the research generated large amounts of data, collecting information from interviews, diaries, and photo productions, which can be time-consuming to transcribe and analyse (Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022). Furthermore, qualitative data analysis frequently entails repeating cycles of coding and analysis, as reported by many researchers; this can be laborious and costly. Additionally, though generalizability to the more significant population was listed as a limitation above, we know that a smaller sample size's rich and comprehensive

data analysis does not always represent the larger community. Many researchers seemed very concerned with understanding the complexities and nuances of the phenomena they were studying and were, therefore, chose their data collection and analysis methods accordingly (Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022).

The reviewed literature implemented a variety of methodologies to gather, synthesise, and analyse their data. There was an array of paradigms, sampling and recruitment strategies, participant demographics, data collection methods, and data analysis instruments among the qualitative, mixed methods, and quantitative investigations. This provided me with a variety of sources of information about the risks and benefits of introducing walk and talk therapy into counselling sessions, and it required a critical lens to arrive at suitable findings and conclusions. The verbatim accounts of participant experiences, coding processes and data synthesis to report on themes were undoubtedly time-consuming and costly, but the results were worthwhile.

Creswell (2014) notes that the ecological paradigm is often used in interdisciplinary research, which brings together scholars from different fields to address complex social and environmental issues. In such research, the ecological paradigm provides a valuable framework for integrating multiple perspectives and understanding the interconnections between social, cultural, economic, and environmental factors. Like bio-psycho-social theory, the Ecological paradigm is a valuable theoretical framework for understanding and addressing complex social and environmental problems and promoting interdisciplinary research and collaboration. Muir & McGrath's (2018) decision to frame their research from this lens is both exciting and refreshing as it has great potential to influence urban planning that includes more green spaces, developing policy, and, in this case, the adoption of walk and talk therapy as a valid and successful mental health support. It would be interesting to see

how the application of this paradigm might have altered or shifted focus on some of the other studies.

When looking at the collective body of research, the participants' collective experiences paint a rich picture of their experiences. From them, we have gleaned many key common themes regarding the risks and many benefits of walk and talk therapy.

### **Ethical Considerations**

In this section, I examined the ethical considerations in the reviewed literature. The Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS, 2018) is a comprehensive ethical framework for research involving human participants in Canada. It sets out the ethical principles, guidelines, and procedures researchers must follow when conducting research involving human participants. These principles include respect for persons, concern for welfare, and justice. It also establishes specific requirements for obtaining informed consent, protecting privacy and confidentiality, and managing conflicts of interest. The TCPS (2018) and the Canadian Code of Ethics for Psychologists (CPA, 2017) provide ethical guidance for professionals working in research or applied psychology in Canada. CPA (2017) includes guidance on issues such as informed consent, confidentiality, competence, and professional boundaries, which are also relevant to research involving human participants.

According to Creswell (2018), the primary ethical considerations to consider when conducting research are as follows: a) informed consent, b) beneficence, c) respect for anonymity and confidentiality, and d) respect for privacy. These ethical concerns must be addressed from the beginning of the research design process to the publication of findings. Protecting participants from uncomfortable revelations uncovered during the study, maintaining integrity, and coping with emergent concerns revealed by the research are all possibilities that must be considered.

Much of the research reviewed for this project was conducted in different countries: Ireland, the Netherlands, Norway, Australia and the UK. The majority of the research noted having either approval from the educational institution Ethics Board where they conducted their research, their appropriate regional governing body, or health authority (Cooley et al., 2021; Dybvik et al., 2018; Gidlow et al., 2015; Kamitsis & Simmonds, 2017; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022; Revell & McLeod, 2016; Shrestha et al., 2021). One study that mentioned neither a university ethics board nor national guidelines guiding their research did include a note about receiving grant funding. Their grant funding seems to be sponsored by either the National Health Institute or the Ministry of Health, Welfare and Sport in the Netherlands, so perhaps we can assume those organisations would have stringent ethical guidelines required by grant recipients (van den Berg & Beute, 2021).

### **Informed Consent and Withdrawal**

CPA (2017) provides guidance on obtaining informed consent in Section 3.0: Respect for Persons and Privacy. Specifically, Section 3.7 of the CPA (2017) states that psychologists must obtain informed consent from clients or research participants before beginning any psychological assessment, intervention, or research study. Informed consent is a process in which the psychologist provides the client or research participant with relevant information about the assessment, intervention, or research study, including its purpose, procedures, potential risks and benefits, as well as an opportunity to ask questions and make an informed decision about whether to participate. TCPS (2018) outlines that “Respect for Persons” must be ensured, with researchers respecting the autonomy, privacy, and dignity of individuals participating in research. They should obtain informed consent from participants, ensure voluntary participation, and provide clear and understandable information about the research.

Many articles clearly stated that informed consent was obtained from all participants (Cooley et al., 2021; Dybvik et al., 2018; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022; Revell & McLeod, 2016; Shrestha et al., 2021; van den Berg & Beute, 2021), while others did not mention it explicitly we might be safe to assume they collected it also, as they had approval from their educational institution's ethics board (Gidlow et al., 2015; Kamitsis & Simmonds, 2017). Many studies specifically stated that participants were all informed they could withdraw their participation at any time without consequence (Cooley et al., 2021; Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Newman & Gabriel, 2022; Revell & McLeod, 2016).

Some studies included interesting comments related to consent. Though the lead researcher in Muir & McGrath's (2018) study participated as a group member for approximately one year, the observations from that period were not used, as no consent had been given. Once participants were given the information about the study, they could sign the consent forms to participate in the formal data collection and include themselves in the study.

Mental health practitioners facilitating the walk and talk therapy in Cooley et al.'s (2021) study remarked that a participant with cognitive delays struggled to express their experiences and could not easily transfer the learning from the walk and talks into other parts of their lives. CPA (2017) outlines that psychologists must obtain informed consent in a manner that is culturally sensitive and appropriate to the individual's level of understanding, considering any language, cognitive, or developmental barriers that may affect the individual's ability to give informed consent. Cooley et al. (2021) did not describe if the informed consent process provided accommodations for this participant or not; however, their study had the most prolonged duration at one year long, and I would hope that over that year,

the researchers did their moral and ethical best to ensure the appropriateness of not only their inclusion but also their insights.

### **Debrief**

CPA (2017) requires psychologists to obtain ongoing informed consent throughout the assessment, intervention, or research process, meaning that participants should be informed of any new information or changes to the study and allowed to member check to ensure their responses were accurately captured and reported on, as this may affect their decision to continue participating. According to the TCPS (2018), researchers have an ethical obligation to provide debriefing to participants as part of the research process.

Debriefing allows researchers to provide participants with a clear explanation of the study's purpose, procedures, and any relevant findings. It also offers an opportunity to address any potential psychological or emotional effects that may have resulted from their participation. The debriefing process should be conducted sensitively and respectfully, ensuring that participants can ask questions, seek clarification, and express concerns.

The debriefing process was mentioned explicitly in some studies (Kamitsis & Simmonds, 2017; Meuwese et al., 2021). One offered the opportunity to debrief the study to their participants, however, it would have required supplying an email as their research was conducted entirely online and anonymously, so it is not mentioned how many, if any, chose to forego complete confidentiality to take part (Revell & McLeod, 2016).

Though some of the studies do not mention allowing participants to debrief the findings of the study, we can likely assume that the mixed methods and qualitative nature of the studies, which involved frequent interaction with the researchers while participating in walk and talks, as well as semi-structured interviews and open-ended questions, allowed participants to feel heard and confident their experiences were appropriately captured. It is likely these studies did include a debrief even though it was not explicitly mentioned (Cooley

et al., 2021; Dybvik et al., 2018; Muir & McGrath, 2018; Newman & Gabriel, 2022; Shrestha et al., 2021; van den Berg & Beute, 2021).

According to Creswell & Creswell (2018), in quantitative studies, where the goal is to gather numerical data that can be analysed statistically, it is less common to provide participants with a debriefing session at the end of the study, as the results are often presented in aggregate form and may not reveal any individual-level information. This could explain why Gidlow et al. (2015) do not mention this taking place.

### **Protection of Participants**

Both the TCPS (2018) and CPA (2017) mandate that psychologists take all necessary measures to safeguard study subjects' rights and welfare. Psychologist researchers must ensure that any potential risks associated with the study are minimal and that its advantages are maximised.

To ensure the protection of their participants, all facilitators of the walk and talk therapy specific studies had a background and training in psychology and were certified mental health practitioners according to the local standards (Cooley et al., 2021; Dybvik et al., 2018; Muir & McGrath, 2018; van den Berg & Beute, 2021).

All the studies involving either walk and talk experiences or spending time in nature had the “ability to walk” as part of their inclusion criteria to minimise the risk of getting physically hurt while walking or out in nature, however, it was not mentioned if facilitators had first aid training or cell phones to respond to emergencies or safety concerns (Cooley et al., 2021; Dybvik et al., 2018; Gidlow et al., 2015; Muir & McGrath, 2018; Shrestha et al., 2021; van den Berg & Beute, 2021).

Additionally, the TCPS (2018) and the WMA (2013) emphasise that researchers must ensure that participants with mental illness are not excluded from research solely based on their diagnosis and are not subject to coercion or undue influence in their decision to

participate. As the very nature of walk and talk therapy is to assist those who are mentally unwell, it seems necessary that the researchers adhere to these guidelines by including participants with various mental disorders, save perhaps those for whom it would not be safe for them to either be outdoors or alone with a therapist because of the nature or severity of their illness.

### **Confidentiality**

Except in situations when there is a legal requirement to do so, psychologists must ensure that the participant's personal information is kept private and not revealed without the participant's explicit consent (CPA, 2017; TCPS, 2018). All of the related literature spoke to the researchers efforts to ensure confidentiality. From anonymising records by using randomly assigned codes or numbers to using pseudonyms, secure storage of recordings or transcripts, and deletion of all documents at the end of the study. One study mentioned using a third-party surveying website (surveymonkey.com), and I queried how that site handled data when used for sensitive research topics such as this as it was not addressed in their report, nor could it be easily found through a Google search (Kamitsis & Simmonds, 2017).

Additionally, the very nature of walk and talk therapy involves being out in public spaces, so the risk of confidentiality being breached is possible. All the walk and talk researchers outlined this risk to their participants before embarking outdoors. The fact that none of the researchers went into detail about how participants communicated to their therapists that they wanted to pause the conversation because of the sensitive nature of the topic, or if they were about to encounter someone they knew, could be telling us this was either not a big problem, or that the researchers paid no attention to the ethics of this (Cooley et al., 2021; Gidlow et al., 2015; Newman & Gabriel, 2022; Meuwese et al., 2021; Shrestha et al., 2021; van den Berg & Beute, 2021).

Regarding the inclusion of demographics in research, CPA (2017) states that psychologists should collect only the minimum amount of personal information necessary to achieve the research objectives and that this information should be collected and used in a manner that respects the privacy and confidentiality of participants. Psychologists should also be aware of potential biases that may arise from collecting and using demographic information and take steps to address them. Some of the studies collected this data and showed a lack of diversity in participants, which, in addition to affecting generalizability, could limit the barriers I was hoping this research would show to lessen.

### **Deception**

TCPS (2018) suggests that if the research involved any deception or incomplete disclosure, the debriefing should include a full explanation of the reasons for the deception and the true nature of the study. Furthermore, the TCPS encourages researchers to offer appropriate support or referrals to participants who may require additional assistance, such as counselling services, if their participation has caused distress or emotional discomfort.

Although the CPA (2017) acknowledges that deception may be used in research under certain conditions, psychologists must ensure that participants are fully informed about the nature of the research and any potential risks before agreeing to participate.

There was no evidence of deception in any of the studies. At first glance, van den Berg & Beute's (2021) "Discover Your Talent" program participants were invited to join the program, which consisted of four sessions of walk and talk therapy wherein many therapeutic interventions were used to help clients uncover their talents, seemed that the moniker at least might be deceptive. However, as they explained the process of using nature as a backdrop and metaphor, walking and the physical release it gives to help inspire the joy that may have been lost in their workplace, it was clear there was no deception involved.

Overall, it appears that all of the reviewed literature adhered to ethical standards for conducting research with humans as outlined by CPA (2017), TCPS (2018) and WMA (2013).

## **Chapter Four: Application to Clinical Practice**

This section reviewed the information gathered in the literature review and research findings and how this information translates into potential clinical and therapeutic applications. Contributions to scientific knowledge, societal well-being, diversity, and cultural implications were included.

### **Why Walk and Talk?**

Psychologists considering incorporating any new or different modality should reflect on the aspects of clinical work they value as vital to successful therapy for them and their clients. This could include many variables: strong therapeutic relationship, maintaining confidentiality, performing therapy in an office space filled with resources and, prior to implementing a new modality, not only seeking out professional development or training and supervision around this but also thinking about the application and implications this new type of therapy can offer their clients, as well as the challenges it may present for them personally.

Although many of the researchers studied in this project reported their affinity for physical activity and believed in the restorative properties of natural environments, this alone may not make walk and talk the best choice for them. Psychologists who believe in and appreciate these two basic tenets of walk and talk therapy must be comfortable performing therapy outdoors while walking and be aware of the changing nature of therapeutic dynamics and roles. Additionally, the lessened formality discussed in earlier chapters may feel and be appropriate for some psychologists and clients, but only some (Doucette, 2004; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022

It is important to note that the College of Alberta Psychologists (CAP) set out its basic Standards of Practice, outlining expected professional behaviour and conduct for all members. Additionally, CAP adheres to the Canadian Code of Ethics for Psychologists, which provides values and principles to guide ethical decision-making (CPA, 2017).

Psychologists must abide by both sets of guiding documents and ensure they practice within them, as there could be ethical and professional ramifications should a claim of unprofessional conduct be levied against them.

CAP's Standards of Practice 4.1 regarding Competence states that "a psychologist shall not provide a professional service or supervision of a professional service unless the psychologist is competent through education, training and experience to provide that professional service." Standard 4.2 adds that when adding and developing competence around a new area of practice "the psychologist shall engage in ongoing consultation with a psychologist or other professional who has expertise in that area, and shall seek appropriate education, training and supervision in the new area" (CAP, 2023, p.12). Adhering to these standards and those that speak to informed consent and protecting clients' confidentiality should aid practitioner reflexivity before adopting walk and talk into their practice.

Subsequently, the four principles of decision-making and additional considerations outlined in the Canadian Code of Ethics for Psychologists offer multiple opportunities for self-reflective, creative and deliberate processes to protect clients and psychologists when determining which clients could be offered walk and talk as a possible modality or if a practitioner should consider incorporating this into their practice (CPA, 2017).

### **Clinical or Therapeutic Applications**

The findings indicate that walk and talk is an innovative psychotherapy strategy confirmed by a high level of researcher and practitioner agreement on including this intervention because of the benefits it offers many clients. An aspiring practitioner wishing to include walk and talk therapy as an offering in their practice will want to consider many aspects and possible applications prior to beginning.

While a holistic, multi-dimensional clinic may support the inclusion of walk and talk therapy, other organisational models may not be able to provide it. Obtaining appropriate

insurance, providing training and supervision, as well as the logistics of navigating the moving parts of clients and practitioners moving in and out of the building, may not be for every organisation, practitioner, or client (Cooley & Robertson, 2020; Dybvik et al., 2018; Muir & McGrath, 2018; van den Berg & Beute, 2021).

The literature reviewed in this project overwhelmingly reported how being outdoors and participating in walk and talk therapy is helpful for various clientele and presenting issues. Most of the research required participants to have some diagnosed mental disorder. However, they did not study nor set standards for client appropriateness or specific presentations that might preclude someone from participating or benefiting from walk and talk therapy (Cooley et al., 2021; Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022; Shrestha et al., 2021; van den Berg & Beute, 2021). Thus, practitioners need to evaluate client suitability individually, utilising person-centred factors to determine which clients and which presenting problems this modality may suit best, and consider if performing therapy outside risks making existing psychological issues worse or even potentially dangerous, as we strive to do no harm (Cooley et al., 2021; Dybvik et al., 2018; Meuwese et al., 2021; Muir & McGrath, 2018).

### ***Following Ethical Guidelines***

Maintaining ethical guidelines is paramount, specifically regarding safety and confidentiality, which is mentioned as a potential risk in the research (Doucette, 2004; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022). Finding walking trails that offer distance to protect the client's privacy while engaged in conversation with their therapist and maintaining safety might not be possible in every office. A therapy practice near a natural area or park with safe and accessible walking paths might be ideal; however, in a rural or small-town setting, where the patient and the therapist may be known

to many in the community, would not likely offer the client appropriate confidentiality or emotional safety. Establishing informed consent around this risk is vital, as is establishing a code word or some way of immediately ending the conversation or topic should the client or therapist encounter someone they know or walk too close to another person who might overhear (Cooley & Robertson, 2020; Lanza-Leon et al., 2023; Meuwese et al., 2021; Newman & Gabriel, 2022). Likewise, allowing the client to choose when they would like to cease participating in walk and talk, whether mid-session or at any point during their treatment, should they feel it was not benefiting them, upholds their autonomy and respects their dignity (Cooley et al., 2021; Cooley & Robertson, 2020; Dybvik et al., 2018; Muir & McGrath, 2018).

Changing weather possibilities, client or practitioner illness or physical limitation, wanting to discuss sensitive topics, utilising some in-office manipulatives or other factors as they are revealed, would require the flexibility of all parties and likely need to be written into the consent form to ensure understanding (Cooley & Robertson, 2020; Doucette, 2004; Dybvik et al., 2018; Muir & McGrath, 2018; Newman & Gabriel, 2022; Revell & McLeod, 2016).

### ***Contributions to Scientific Knowledge***

The findings discussed in previous chapters offered much understanding and explanation of the physical, psychological and social benefits derived from incorporating physical activity into the therapy process as walk and talk does. These benefits are undeniable and offer much to the scientific world. Biological processes that take place during walk and talk, the combined effect of increased BDNF, endorphins and dopamine, with lowered cortisol levels, improved mood, focus and overall well-being for walk and talk participants and stand to enhance scientific knowledge with deepened understanding of the mechanisms of change (Arnautovska et al., 2022; Kerling et al., 2017; Ratey, 2008). Psychological

benefits derived from the offerings like walk and talk therapy, lessening symptomology and improving overall well-being for people living with various mental disorders could be implemented into treatment facilities all over the world, with the potential to improve outcomes and offer different models for healing (Cooley et al., 2021; Doucette, 2014; Dybvik et al., 2018; Gidlow et al., 2015; Muir & McGrath, 2018; Newman & Gabriel, 2022; Shrestha et al., 2021; van den Berg & Beute, 2021). The findings enhance social aspects and quality of life for people experiencing isolation, grief and loneliness, assist with the creation of more green spaces while engineering communities for optimal living, and can contribute to scientific knowledge, improving well-being alike (Metzl & Heffernan, 2013; Muir & McGrath, 2018; Ratey, 2008; van den Berg & Beute, 2021).

Walk and Talk Therapy is considered an evidence-based therapeutic intervention by the British Psychological Association, whose members conducted a meta-synthesis of walk and talk therapy research. Specifically, they studied therapists who incorporated evidence-based therapy models such as CBT, Psychodynamic, Play Therapy, ACT, DBT, Family Therapy and Mindfulness-based interventions with their walk and talk practice (Cooley et al., 2021). As most insurance companies and organisations, as well as CAP and CPA, require therapists to use evidence-based models in our practice, walk and talk therapy will meet these requirements as therapists have the opportunity to use any acceptable therapy model while adding the evidence-based benefits of incorporating both physical activity and the natural environment to their practice.

### ***Contributions to the Well-Being of Society and Removing Barriers***

The findings from this project show that incorporating physical activity like walk and talk into therapeutic practice offers many excellent benefits and very few risks, which, if treated properly, can be mitigated. The research supports walk and talk therapy as a viable alternative for some clients who may be stuck and others who may feel stigmatised or

uncomfortable in traditional office-based therapy practices (Cooley et al., 2021; Dybvik et al., 2018). Findings report that with the combination of less formality and the inclusion of nature, the therapeutic alliance forms more quickly and allows clients to delve quickly into the essential therapeutic work (Doucette, 2004; Meuwese et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022). Additional research suggests that walk and talk therapy promotes access and equity for clients who may otherwise not attend therapy (Cooley & Robertson, 2020; Merom et al., 2008). The residual benefit of transferring what is learned in session and having a deeper connection to the natural world around them, many clients reported feeling that nature was restorative and assisted them in connecting with their inner world, which in turn led to therapeutic goal achievement (Doucette, 2004; Dybvik et al., 2018; Meuwese et al., 2021; Thoma & McKay, 2014).

Additionally, as the physical activity component of walk and talk therapy gets people out of the office and moving their bodies, this has the potential to improve the overall physical well-being of both client and practitioner but may also act as a mitigating force to prevent burnout (Cooley et al., 2021; Muir & McGrath, 2018; Newman & Gabriel, 2022; van den Berg & Beute, 2021).

As mental illness continues to be a global issue affecting many, and access to support is often met with stigma and barriers, wherever we as psychologists can help remove barriers for those who would otherwise not receive help, we must advocate and try to effectuate change and new ways of helping. Walk and talk sessions for peri- and postnatal mothers who, once medically cleared to engage in light physical activity, could benefit from being outdoors with their child sleeping in a stroller while they are engaged in therapy is supported by research (Eustis et al., 2019; Hall et al., 2022; Hall et al., 2023; He et al., 2023). Research supports that veterans with somatisation and PTSD symptoms could benefit from a brisk walk while discussing their experiences (Poulsen et al., 2016; Scioli et al., 2020). The

research reports participants' feeling less stigmatised and pathologised, less like a patient, as a result of walk and talk therapy and that nature was accepting and did not judge (Cooley et al., 2021; Doucette, 2004; Dybvik et al., 2018; Kamitsis & Simmonds, 2017; Meuwese et al., 2021). We could reach more clients who otherwise would not choose to participate in traditional in-office therapy by offering walk and talk.

### **Cultural and Diversity Considerations**

Walking is not an engendered activity, nor has it been claimed by any group or culture; it can be done by almost everyone everywhere. Some of the reviewed research needed more diversity in its participants; however, the potential benefits remain clear for those who can participate.

As many people experiencing distress from a mental disorder struggle with symptoms and possible side-effects of medications affecting mood and energy, the ability and will to participate in physical activity may be impaired (Firth et al., 2016; Szortyka et al., 2023). Similarly, members of the LGBTQ2S+ community often face barriers to attending gyms and participating in physical activity, and face increased mental health issues (Frederick et al., 2022; Ubeda-Colomer et al., 2020). Several cultural groups hold stigmas around accessing mental health services, so much so that many will not attend therapy (Ahmad & Koncsol, 2022; Shameran et al., 2022). The variety of intersectional barriers these populations face makes participating in psychotherapy difficult (Siantz et al., 2023). The inclusion of walk and talk reduces stigma by normalising the experience, lessens the feelings of being pathologised, and, for many, enhances the therapeutic experience; in effect, it kills two birds with one stone and stands to lessen barriers for these populations.

Inclusivity of varying physical limitations could be addressed by removing the walking component and conducting therapy in nature, benefitting from its healing and restorative properties. Alternatively, adaptations to movement, whether through technology,

adaptive devices or assistance from caregivers or nature guides, that allow the participant to move their body differently, indoors or out, may elicit some of the same responses as the research (Jakubec et al., 2016; Skrastins et al., 2020).

The counsellor's role with their differently abled or culturally diverse clients would include understanding their abilities, limitations and barriers and finding ways to support them through the therapeutic process. Adding walk and talk therapy or other therapeutic nature-based experiences for anyone with pre-existing medical conditions would need to be cleared by a medical doctor first, as we must always strive to do no harm. Additionally, booking longer sessions, as the effort required to either bring a caregiver along or arrange transportation, may prove to be a significant challenge, so to reduce that additional barrier, we could consider booking longer sessions less often to minimise the additional work to organise and any costs that accompany this (Jakubec et al., 2016). Encouraging diverse therapists to incorporate walk and talk to reduce linguistic barriers for different cultural groups could increase their participation and benefit them by offering services in their language (Siantz et al., 2023).

Additionally, perhaps as a profession, we could advocate for more inclusion of walk and talk or nature-based therapy for people with disabilities as they stand to experience many biological, psychological and social benefits just as their able-bodied counterparts do. Walk and talk therapy could be incorporated into the existing framework of a hospital or community-based rehabilitative programs or in private practice settings (Madsen et al., 2021).

## Chapter Five: Conclusions & Recommendations

This section presented the conclusions drawn from the findings to help answer the question of whether walk and talk therapy can reduce barriers, increase wellness, and improve client outcomes. It also provided recommendations for clinical and professional practice, policymakers, and future research based on those conclusions.

### *Conclusions From Literature Analysis*

Through critical analysis of the reviewed studies, the findings suggest that there is a vast array of benefits as well as some risks of incorporating nature and physical activity, namely walk and talk therapy, into traditional therapeutic practice. The following section summarizes this information by highlighting first the comprehensive benefits organised in a Bio-Psycho-Social format, followed by the risks.

#### A. Biological Benefits:

Individuals who undergo psychotherapy with a physical activity component, such as walk and talk therapy, may benefit from a deepened connection to nature, leaving clients more present, relieved and revitalised. Participating in walk and talk therapy may enhance mobility and endurance for both the client and the therapist. Those who undergo walk and talk therapy may notice increased calmness and clarity, allowing for emotional understanding and an increased ability to open up to the therapist. Many people who participated in walk and talk therapy noted improved affect and greater awareness of the body as a result of the walk and talk session. Increased BDNF, dopamine, and endorphins equated to improved mood, memory, and learning in many participants. Individuals who participated in walk and talk therapy showed decreased cortisol levels, indicating lessened stress in the minutes and hours after the experience. All environments, urban, rural, green/natural, or blue/natural with water nearby, benefited clients in many ways.

#### B. Psychological benefits:

Most of those who participated in walk and talk therapy reported improved mood, energy and focus, resulting in better life outcomes. Individuals whose therapy included aspects of physical activity noticed decreased symptoms of Anxiety, OCD, Depression, PTSD and trauma-related symptoms, translating into better overall client well-being. Walk and talk therapy significantly lowered both feelings of stigma and of being pathologised, normalising the therapeutic experience and resulting in better outcomes for clients. Many clients and therapists who experienced walk and talk therapy noted deepened and more easily established therapeutic alliance; they felt that it lessened the power differential sometimes present between psychologist and client, resulting in more equality with the therapist. Collaboratively choosing the route, discussing nature-inspired metaphors while walking and sharing the responsibility of preparing for the weather helped to forge the alliance. Many clients expressed feeling more at ease and able to open up in neutral and natural surroundings. Participants in walk and talk therapy noted how the spaces visited during therapy helped create safe outdoor spaces, they could return to with or without the therapist.

#### C. Social benefits:

Clients who participated in outdoor physical activity like walk and talk therapy reported feeling connected to others, which lessened feelings of isolation and led to better overall outcomes. The combination of nature and physical activity helped normalise the client's experiences and reduced feelings of self-absorption, allowing them to live a more satisfying life. Many participants reported increased confidence, independence and resilience due to their walk and talk therapy experiences. Overcoming stressors and having better overall work-life satisfaction were reported by many participants. Individuals who experienced physical activity incorporated into psychotherapy commented how the experience increased their ability to venture outdoors for social outings, work, and

volunteering opportunities. Many participants noted that walk and talk therapy helped them create support networks between other walkers, community members and nature.

Some of the potential risks or drawbacks of walk and talk therapy mentioned in the reviewed literature included:

Walking, traffic and elements of nature proved to be a distraction for some clients, preventing them from remaining on topic. The unpredictability of the weather made it challenging to schedule or complete a walk and talk for some clients and practitioners. Some clients chose not to walk in pouring rain or freezing cold temperatures. Estimating the time to complete a walk or deviating from a set path occasionally affected the timing of the session, causing the therapist to run over the allotted time. For a few participants, being outdoors made clients aware of their relative insignificance in the world, or sometimes sensory reminders of a past traumatic event proved difficult. The risk of confidentiality being broken because some clients and therapists reported the proximity of others they encountered during a walk and talk session. Some clients felt discussing disturbing or highly emotional therapeutic discussions would be better kept in a more private setting, as an indoor office setting would provide. Adequate footwear was a challenge for some clients; it is essential in rain or snow conditions and uneven terrain to keep both therapist and client safe. Some clients could not transfer the skills learned during the walk and talk sessions into other aspects of their life.

As the research reviewed in this project confirms, walk and talk therapy can indeed reduce barriers, increase wellness, and improve client outcomes. As summarized, nearly twenty direct benefits from walk and talk therapy show its potential. The holy grail of psychology might give clients an outlet to move their bodies and get dopamine and endorphins flowing while engaging them in therapeutic conversation to assist their growth. Though it may challenge the traditional model of in-office psychotherapy as it forces the

psychologist to walk alongside their client, literally and figuratively, it has excellent potential to help many.

While there are a few risks, most can be prevented or mitigated with careful and appropriate client selection, awareness of their specific therapeutic history and goals, and some excellent planning. This would include a consent form specific to walk and talk, training, supervision and reflection on the therapist's part.

A comprehensive and well-thought-out informed consent for walk and talk therapy form, which includes clear guidelines, would be necessary. As Cooley & Robertson (2020) outline for the British Psychological Association guidelines, first discuss the potential risks, then establish ways to mitigate and prepare for possible risks, and finally perform process contracting or mini assessments at the beginning, end or during the session that would allow the client full autonomy to end or relocate the session. There could also be a clause about a 24-hour injury cancellation, wherein if either the client or therapist needed to cancel a walk and talk session due to injury, the client could cancel with no penalty, regardless of which party requested the cancellation.

Neither the APA, CPA, nor CAP have any official guidelines or standards of practice on walk and talk therapy. The APA mentions Eco-Therapy's benefits and the need for more research in the field on their website and in some articles. However, no specific recommendations or guidelines have been developed. CAP recommended ensuring the informed consent process and forms included specific language to protect both the client and therapist's confidentiality and safety. They also suggested seeking out supervision and training for this type of therapy, however, they did not know of any institutes offering this specific training. Additionally, they suggested that psychologists ensure their insurance policy includes walk and talk therapy.

### ***Conclusions From Methodological Analysis***

The methodological analysis resulted in a few conclusions about the research conducted. The inclusion of various quantitative measures and the in-depth, comprehensive personal accounts from the qualitative data offer rich and conclusive evidence of the wide range of benefits offered by walk and talk therapy. While some studies reported small numbers and a lack of diversity in their participants, the cumulative data, combined with all the other reviewed literature, includes data from more significant and diverse populations and should allow for greater generalisation to mainstream populations.

Several reviewed studies have taken place in recent years. They were impacted, whether in gathering an adequate number of participants or the data collection stage, by the COVID-19 pandemic and its associated restrictions. While some of the restrictions made research difficult, they resulted in some positive changes to our practice as psychologists, such as the changed parameters around online counselling offerings and more outdoor offerings like walk and talk therapy.

## **Recommendations**

As a result of this project, clinical and future research recommendations can help improve our knowledge of this topic.

### ***Clinical and Therapeutic Level Recommendations***

Despite a shortage of guidelines for best practices by our governing bodies, a growing number of practitioners are offering walk and talk. Considering the range of variables involved in walk and talk that can be perceived as helpful or hindering, the therapist must assess how these factors can be addressed before stepping out with a client. Creating research-based practice guidelines and training opportunities to encourage safe and effective practice for this modality would be beneficial and is something that practitioners, as well as the College of Alberta Psychologists (CAP) and the Canadian Psychological Association (CPA), should consider. There exist guidelines from some international professional bodies,

including the British Psychological Association (BPA, 2020) and the British Association for Counselling and Psychotherapy (BACP, 2021), which, while similar, may not conform to CAP or CPA standards perfectly.

Additionally, there are a variety of courses available online through PESI, the BPA, and some private clinics in various countries, which seem to offer valuable insight into the practical application of walk and talk therapy, operating within the ethical guidelines of their governing bodies; they may or may not consider all factors applicable to psychologists in Alberta.

In addition to standardised guidelines, other recommendations gathered from the research include:

Therapists should conduct a risk assessment or safety plan that includes first aid training and a cell phone, as a minimum, should an emergency occur while on a walk and talk. Additionally, walking on known routes, mapped out and provided to colleagues or administrative staff should a problem occur. Therapists should consider how confidential notetaking, scheduling and billing work when most of the session occurs outdoors. Whether this means a therapist returns to the office with the client at the 50-minute mark, then records their notes there, or whether some mobile device can capture notes while outside of the office. Therapists should always practice within their limits and training. Walk and talk therapy is not Adventure Therapy or Bouldering Therapy. Instead, it is light to moderate walking on groomed and paved paths where most people without physical limitations should be able to participate. Traditional supervision plans would have a senior psychologist supervising the walk and talk practitioner; however, not all would have knowledge or experience to lend to this specific modality, so finding supervision may be complex. Once fully registered and able to practice independently, seeking advice or training from other nature-based practitioners, even from different fields, i.e. as horticulturists, indigenous elders,

or outdoor guides, could be beneficial. Therapists should follow best practices for the evidence-based therapies they are trained to conduct, such as CBT, DBT, or ACT. These therapies have many components that could easily be employed while walking outdoors with their clients.

### ***Future Research***

From the critical review, the following section offered recommendations for future research to assist growth, understanding and scientific knowledge in this field.

As some of the studies lacked diversity in their participants, future research may want to include studies on the effectiveness of walk and talk therapy in reducing symptoms of specific mental illnesses in specific cultural or ethnic groups. Additionally, as some of the studies had smaller sample sizes, increasing the number of participants to include more extensive, more randomised samples would increase the generalizability to overall populations.

Several studies commented that as walk and talk is often integrated into a variety of office-based therapy models, it is crucial that future research and training take into account specific aspects of walk and talk and the possibilities of combining it with other therapeutic work models such as CBT, DBT, ACT or EMDR (Kamitsis & Simmonds, 2017; Newman & Gabriel, 2022; Revell & McLeod, 2016). Further, as van den Berg & Beute (2021) suggested, non-inferiority trials examine if Cognitive Behavioural Therapy (CBT) and walk and talk therapy offer comparable results for clients presenting with similar diagnoses or symptomologies. It would be interesting to see how clients experience nature or physical activity-inspired references that come out naturally during a walk and talk session, compared to in-office sessions and which prove to be more beneficial for them. Likewise, could the bilateral stimulation that walking provides act similarly to EMDR for those that have symptoms of trauma? Could walk and talk therapy be successful with first responders or

military personnel who work in a physically demanding field that requires them to be relatively fit and who may not feel comfortable participating in therapy in an office setting?

Other research may want to investigate how incorporating specific and directive approaches from within whichever model is used to maximise skill transferability. (Cooley et al., 2021). Future research on how walk and talk therapy might use post-session journals or applications on a device, to record and measure skills learned in session and track their individual progress between sessions could be beneficial.

Meuwese et al. (2021) and Shrestha et al. (2021) suggested that all areas of environmental psychology (eco-therapy, bouldering therapy, walk and talk) may benefit from more in-depth research and clarity about the link between human-nature relationship and how these may affect the responses to nature. Further research investigating if varying demonstrations of psychopathology have the potential to block the restorative effects of nature or play a role in the human-nature connection, as suggested by Dybvik et al. (2018), would be interesting. I would propose research that establishes baseline scores of an individuals affinity to walking and spending time in nature as well as their presenting symptoms, then implement a walk and talk therapy program specific to those with similar data. For example, city-dwelling teens with similar *low/no positive connection to nature* scores and presenting with symptoms of depression could participate in a ten-week trial that has them exploring natural walking spaces in their city while undergoing walk and talk sessions with trained therapists. Would some of these teens report that walk and talk therapy not only helped alleviate some of the symptoms of depression but also discover some excellent walking trails to help them be active and connected to others? Could a similar study be conducted on new mothers experiencing symptoms of postpartum depression or isolation who bring their babies in strollers for their own walk and talk sessions?

Several studies wondered if the potential positive effects from the biological responses from exposure to sunlight, fresh air, or inhaling negative ions from specific flora and fauna, or seasonal changes could be isolated from the activity-derived benefits by incorporating neuro- or psycho-biological measures (Shrestha et al., 2021; van den Berg & Beute, 2021). Could a walk and talk trial be conducted that measures exposure to sunlight and ACT-trained therapists conducting walk and talk sessions in a river valley, compared to ACT-trained therapists conducting walk and talk therapy on an indoor walking track? Would the exposure to sunlight produce significantly different results?

Additionally, as proposed by Gidlow et al. (2015), the research could inform public health and civic design by diving deeper into the beneficial effects of green spaces, tree canopies, and a variety of urban and natural spaces that encourage physical activity and time in nature, looking specifically at the duration of cognitive benefit, which was measured up to the 60-minute mark in the present study, but could extend beyond. I would propose a joint study by researchers at the U of A and the River Valley Alliance group who advise on developing our city's River Valley parks system. Together, they could research the benefits to those with either physical or mental illness by offering tours of nearby trails, access to bikes, and simply knowledge of what is available to them, then encouraging and monitoring the use of the spaces and any subsequent changes to symptoms.

Researchers could recruit psychologists who practice exclusively indoors in traditional office settings and who also identify as experiencing burnout symptoms. Therapists could learn about the benefits of walk and talk therapy, train on how to incorporate this into their practice, develop an informed consent document, and find clients who want to participate. Evaluating their experiences with walk and talk therapy and reporting on their own burnout symptoms might make for exciting research!

The findings of this research inspire me and would love to conduct my own research on walk and talk therapy and its' many possible presentations. Additionally, I would be reassured if CAP offered some practice guidelines on how best to incorporate this modality in our work. I have already completed some walk and talk therapy training, and cannot wait until I am fully registered to begin offering this to my future clients.

## References

- Abedi, P., Nikkhah, P., & Najar, S. (2015). Effect of pedometer-based walking on depression, anxiety and insomnia among postmenopausal women. *Climacteric*, *18*(6), 841-845–845. <https://doi-org.login.ezproxy.library.ualberta.ca/10.3109/13697137.2015.1065246>
- Abrantes, A. M., Farris, S. G., Brown, R. A., Greenberg, B. D., Strong, D. R., McLaughlin, N. C., & Riebe, D. (2019). Acute effects of aerobic exercise on negative affect and obsessions and compulsions in individuals with obsessive-compulsive disorder. *Journal of Affective Disorders*, *245*, 991–997. <https://doi.org/10.1016/j.jad.2018.11.074>
- Acevedo, B.P., Pospos, S. & Lavretsky, H. (2016). The Neural Mechanisms of Meditative Practices: Novel Approaches for Healthy Aging. *Current Behavioral Neuroscience Reports*, *3*, 328–339. <https://doi.org/10.1007/s40473-016-0098-x>
- Ahmad, S. S., & Koncsol, S. W. (2022). Cultural Factors Influencing Mental Health Stigma: Perceptions of Mental Illness (POMI) in Pakistani Emerging Adults. *Religions*, *13*(5), 1–21. <https://doi-org.login.ezproxy.library.ualberta.ca/10.3390/rel13050401>
- American Psychological Association, Committee on Women in Psychology. (2017). *The changing gender composition of psychology: Update and expansion of the 1995 task force report*. Retrieved from <http://www.apa.org/women/programs/gender-composition/index.aspx>
- Arnautovska, U., Kesby, J. P., Korman, N., Rebar, A. L., Chapman, J., Warren, N., Rossell, S. L., Dark, F. L., & Siskind, D. (2022). Biopsychology of Physical Activity in People with Schizophrenia: An Integrative Perspective on Barriers and Intervention Strategies. *Neuropsychiatric disease and treatment*, *18*, 2917–2926. <https://doi.org/10.2147/NDT.S393775>

- Asmundson, G. J., Fetzner, M. G., Deboer, L. B., Powers, M. B., Otto, M. W., & Smits, J. A. (2013). Let's get physical: a contemporary review of the anxiolytic effects of exercise for anxiety and its disorders. *Depression and anxiety, 30*(4), 362–373.  
<https://doi.org/10.1002/da.22043>
- A-Tjak, J. G., Davis, M. L., Morina, N., Powers, M. B., Smits, J. A., & Emmelkamp, P. M. (2015). A meta-analysis of the efficacy of acceptance and commitment therapy for clinically relevant mental and physical health problems. *Psychotherapy and psychosomatics, 84*(1), 30–36. <https://doi.org/10.1159/000365764>
- Bhattacharyya, K. K., Hueluer, G., Meng, H., & Hyer, K. (2021). Movement-based mind-body practices and cognitive function in middle-aged and older adults: Findings from the Midlife in the United States (MIDUS) study. *Complementary Therapies in Medicine, 60*, 102751. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.ctim.2021.102751>
- Berger, R. (2010). Nature Therapy: Thoughts About the Limitations of Practice. *Journal of Humanistic Psychology, 50*(1), 1. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/0022167809333999>
- Beute, F., & de Kort, Y. A. W. (2018). The natural context of wellbeing: Ecological momentary assessment of the influence of nature and daylight on affect and stress for individuals with depression levels varying from none to clinical. *Health & place, 49*, 7–18. <https://doi.org/10.1016/j.healthplace.2017.11.005>
- Beserra, A. H. N., Kameda, P., Deslandes, A. C., Schuch, F. B., Laks, J., & Moraes, H. S. de. (2018). Can physical exercise modulate cortisol level in subjects with depression? A systematic review and meta-analysis. *Trends in Psychiatry and Psychotherapy, 40*(4). <https://doi-org.login.ezproxy.library.ualberta.ca/10.1590/2237-6089-2017-0155>

Bowman, K. (2017). *Move Your DNA: restore your health through natural movement*.

(Second edition.). Propriometrics Press.

British Association for Counselling and Psychotherapy. (2019a, February).

*Ethical guidelines for research in the counselling professions*. (bacp.co.uk).

Bryant, R. A., Dawson, K. S., Azevedo, S., Yadav, S., Cahill, C., Kenny, L., Tran, J.,

Rawson, N., Tockar, J., Garber, B., Keyan, D., & Maccallum, F. (2023). Augmenting

trauma-focused psychotherapy for post-traumatic stress disorder with brief aerobic

exercise in Australia: a randomised clinical trial. *The Lancet Psychiatry*, *10*(1), 21–

29–29. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/S2215->

0366(22)00368-6

Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council

of Canada, and Social Sciences and Humanities Research Council of Canada, *Tri-*

*Council Policy Statement: Ethical Conduct for Research Involving Humans*,

December 2018. Canadian Psychological Association (CPA). (2017). Retrieved June

1, 2023 from: <https://ethics.gc.ca/eng/documents/tcps2-2018-en-interactive-final.pdf>

Canadian Psychological Association. (2023). *Canadian code of ethics for psychologists*

(Fourth). Canadian Psychological Association. Retrieved March 6, 2023, from:

[http://www.cpa.ca/docs/File/Ethics/CPA\\_Code\\_2017\\_4thEd.pdf](http://www.cpa.ca/docs/File/Ethics/CPA_Code_2017_4thEd.pdf).

Chaudhry, M. M., Banta, J. E., McCleary, K., Mataya, R., & Banta, J. M. (2022).

Psychological distress, structural barriers, and health services utilisation among U.S.

adults: National Health interview survey, 2011–2017. *International Journal of Mental*

*Health*. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/00207411.>

[2022.2123694](https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/00207411.2022.2123694)

College of Alberta Psychologists (CAP). (2023). *Standards of Practice*. Retrieved from:

<https://www.cap.ab.ca/resources-regulatory-information>

- Collins, P. H. (2017). Social inequality, power, and politics: Intersectionality in Dialogue with American Pragmatism. *Pragmatism and Justice*, 147-62.
- Cooley, S. J., & Robertson, N. (2020). *The use of talking therapy outdoors*. Guidance document from the British Psychological Society. Leicester, UK: British Psychological Society. Retrieved from: <https://www.bps.org.uk/sites/www.bps.org.uk/files/Policy/Policy%20-%20Files/Use%20of%20talking%20therapy%20outdoors.pdf>
- Cooley, S. J., Robertson, N., Jones, C. R., Scordellis, J. (2021). "Walk to Well-being" in Community Mental Health: Urban and Green Space Walks Provide Transferable Biopsychosocial Benefits. *Ecopsychology*, 13(2), 84–95.  
<http://doi.org/10.1089/eco.2020.0050>
- Cooley, S. J., Jones, C. R., Moss, D., & Robertson, N. (2022). Organizational perspectives on outdoor talking therapy: Towards a position of ‘environmental safe uncertainty.’ *The British journal of clinical psychology*, 61(1), 132–156.  
<https://doi.org/10.1111/bjc.12315>
- Corneille, O., & Lush, P. (2022). Sixty Years After Orne’s American Psychologist Article: A Conceptual Framework for Subjective Experiences Elicited by Demand Characteristics. *Personality and Social Psychology Review*. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/10888683221104368>
- Corscadden, L., Callander, E. J., & Topp, S. M. (2019). Who experiences unmet need for mental health services and what other barriers to accessing health care do they face? Findings from Australia and Canada. *International Journal of Health Planning and Management*, 34(2), 761-772–772. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1002/hpm.2733>

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE.
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design* (5th ed.). SAGE Publications.
- Dailey, S. F., Parker, M. M., Emmanuel, A. D., & Campbell, A. (2022). Mental Health and COVID-19: Symptom Prevalence, Sociodemographic Associations, and Implications for Practice. *Journal of Mental Health Counseling, 44*(4), 343–361.
- Dauwan, M., Begemann, M. J., Heringa, S. M., & Sommer, I. E. (2016). Exercise Improves Clinical Symptoms, Quality of Life, Global Functioning, and Depression in Schizophrenia: A Systematic Review and Meta-analysis. *Schizophrenia Bulletin, 42*(3), 588–599. <https://doi.org/10.1093/schbul/sbv164>
- Dench, L. (2002). Exercise and movement as an adjunct to group therapy for women with chronic mental illness. *Women & Therapy, 25*(2), 39–55. Retrieved from <https://eurekamag.com/research/063/076/063076070.php>
- Doucette P. A. (2004). Walk and Talk: An intervention for behaviorally challenged youths. *Adolescence, 39*(154), 373–388.
- Dybvik, J. B., Sundsford, S., Wang, C. E. A., & Nivison, M. (2018). Significance of nature in a clinical setting and its perceived therapeutic value from patients' perspective. *European Journal of Psychotherapy and Counselling, 20*(4), 429-449–449.
- Dziurkowska, E., & Wesolowski, M. (2021). Cortisol as a Biomarker of Mental Disorder Severity. *Journal of Clinical Medicine, 10*(21), 5204. <https://doi.org/10.3390/jcm10215204>
- Engel G. L. (1977). The need for a new medical model: A challenge for medicine. *Science, 196*(4286), 129–36. <https://10.1126/science.847460>

- Eriksson, M., Ghazinour, M., & Hammarström, A. (2018). Different uses of Bronfenbrenner's ecological theory in public mental health research: What is their value for guiding public mental health policy and practice? *Social Theory & Health*, 16(4), 414–433. <https://doi.org/10.1057/s41285-018-0065-6>
- Ernst, C., Olson, A. K., Pineda, J. P., Lam, R. W., & Christie, B. R. (2006). Antidepressant effects of exercise: evidence for an adult-neurogenesis hypothesis? *Journal of Psychiatry & Neuroscience*, 31(2), 84–92.
- Etzelmueller, A., Vis, C., Karyotaki, E., Baumeister, H., Titov, N., Berking, M., Cuijpers, P., Riper, H., & Ebert, D. D. (2020). Effects of Internet-Based Cognitive Behavioral Therapy in Routine Care for Adults in Treatment for Depression and Anxiety: Systematic Review and Meta-Analysis. *Journal of Medical Internet Research*, 22(8), N.PAG. <https://doi-org.login.ezproxy.library.ualberta.ca/10.2196/18100>
- Eustis, E. H., Ernst, S., Sutton, K., & Battle, C. L. (2019). Innovations in the treatment of perinatal depression: the role of yoga and physical activity interventions during pregnancy and postpartum. *Current Psychiatry Reports*, 21, 1-9.
- Eyre, H. A., Papps, E., & Baune, B. T. (2013). Treating depression and depression-like behavior with physical activity: an immune perspective. *Frontiers in psychiatry*, 4, 3.
- Fetzner, M. G., & Asmundson, G. J. G. (2015). Aerobic Exercise Reduces Symptoms of Posttraumatic Stress Disorder: A Randomized Controlled Trial. *Cognitive Behaviour Therapy*, 44(4), 301-313–313. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/16506073.2014.916745>
- Firth, J., Rosenbaum, S., Stubbs, B., Gorczynski, P., Yung, A. R., & Vancampfort, D. (2016). Motivating factors and barriers towards exercise in severe mental illness: a systematic review and meta-analysis. *Psychological Medicine*, 46(14), 2869–2881. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1017/S0033291716001732>

- Frederick, G. M., Castillo-Hernández, I. M., Williams, E. R., Singh, A. A., & Evans, E. M. (2022). Differences in physical activity and perceived benefits and barriers to physical activity between LGBTQ + and non-LGBTQ + college students. *Journal of American College Health, 70*(7), 2085–2090. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/07448481.2020.1842426>
- Gard, T., Noggle, J. J., Park, C. L., Vago, D. R., & Wilson, A. (2014). Potential self-regulatory mechanisms of yoga for psychological health. *Frontiers in human neuroscience, 8*, 770. <https://doi.org/10.3389/fnhum.2014.00770>
- Gidlow, C. J., Jones, M. V., Hurst, G., Masterson, D., Clark-Carter, D., Smith, G., Tarvainen, M. P., & Nieuwenhuijsen, M. (2016). Where to put your best foot forward: Psychophysiological responses to walking in natural and urban environments. *Journal of Environmental Psychology, 45*, 22-29–29. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.jenvp.2015.11.003>
- Global Burden of Disease Collaborative Network. (2020). Global Burden of Disease Study 2019. Results. <http://ghdx.healthdata.org/gbd-results-tool>, accessed March 12, 2023.
- Greer, T. L., Trombello, J. M., Rethorst, C. D., Carmody, T. J., Jha, M. K., Liao, A., Grannemann, B. D., Trivedi, M. H., Church, T. S., & Chambliss, H. O. (2016). Improvements in Psychosocial Functioning and Health-Related Quality of Life Following Exercise Augmentation in Patients with Treatment Response but Nonremitted Major Depressive Disorder: Results from the Tread Study. *Depression and Anxiety, 33*(9), 870–881–881. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1002/da.22521>
- Hall, K., Patel, R., Evans, J., Greenwood, R., & Hicks, J. (2022). The relationship between perinatal circadian rhythm and postnatal depression: an overview, hypothesis, and

recommendations for practice. *Sleep Science and Practice*, 6(1), 12.

<https://doi.org/10.1186/s41606-022-00081-x>

Hall, K., Evans, J., Roberts, R., Brown, R., Barnes, C., & Turner, K. (2023). Mothers' accounts of the impact of being in nature on postnatal wellbeing: a focus group study. *BMC Women's Health*, 23(1), 1–12. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1186/s12905-023-02165-x>

Hallgren, M., Andersson, V., Ekblom, Ö., & Andréasson, S. (2018). Physical activity as treatment for alcohol use disorders (FitForChange): study protocol for a randomized controlled trial. *Trials*, 19(1), 106. <https://doi.org/10.1186/s13063-017-2435-0>

Hanson, S., & Jones, A. (2015). Is there evidence that walking groups have health benefits? A systematic review and meta-analysis. *British journal of sports medicine*, 49(11), 710–715. <https://doi.org/10.1136/bjsports-2014-094157>

Hassan, J., Shannon, S., Tully, M. A., McCartan, C., Davidson, G., Bunn, R., & Breslin, G. (2022). Systematic review of physical activity interventions assessing physical and mental health outcomes on patients with severe mental illness (SMI) within secure forensic settings. *Journal of Psychiatric & Mental Health Nursing* (John Wiley & Sons, Inc.), 29(5), 630–646.

He, L., Soh, K. L., Huang, F., Khaza'ai, H., Geok, S. K., Vorasiha, P., Chen, A., & Ma, J. (2023). The impact of physical activity intervention on perinatal depression: A systematic review and meta-analysis. *Journal of Affective Disorders*, 321, 304–319. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.jad.2022.10.026>

Jakubec, S. L., Carruthers Den Hoed, D., Ray, H., & Krishnamurthy, A. (2016). Mental well-being and quality-of-life benefits of inclusion in nature for adults with disabilities and their caregivers. *Landscape Research*, 41(6), 616–627. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/01426397.2016.1197190>

- Kamitsis, I., & Simmonds, J. G. (2017). Using Resources of Nature in the Counselling Room: Qualitative Research into Eco-therapy Practice. *International Journal for the Advancement of Counselling*, 39(3), 229–248. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1007/s10447-017-9294-y>
- Kapp, J. M., Micheas, L., Holmes, S., Stormont, M., & Reinke, W. M. (2022). Prevalence of Poor Mental Health Days and Adverse Childhood Experience Reporting in U.S. Adults Before and After COVID-19. *Community Mental Health Journal*, 1–10. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1007/s10597-022-01001-0>
- Kerling, A., Kück, M., Tegtbur, U., Grams, L., Weber-Spickschen, S., Hanke, A., Stubbs, B., & Kahl, K. G. (2017). Exercise increases serum brain-derived neurotrophic factor in patients with major depressive disorder. *Journal of Affective Disorders*, 215, 152–155. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.jad.2017.03.034>
- Kratzer, A., Luttenberger, K., Karg-Hefner, N., Weiss, M., & Dorscht, L. (2021). Boulderling psychotherapy is effective in enhancing perceived self-efficacy in people with depression: results from a multicenter randomized controlled trial. *BMC Psychology*, 9(1). <https://doi-org.login.ezproxy.library.ualberta.ca/10.1186/s40359-021-00627-1>
- Kucyi, A., Alsuwaidan, M.T., Liauw, S.S., & McIntyre, R.S. (2010). Aerobic physical exercise as a possible treatment for neurocognitive dysfunction in bipolar disorder. *Postgraduate Medicine*, 122(6), 107–116. <https://doi-org.login.ezproxy.library.ualberta.ca/10.3810/pgm.2010.11.2228>
- Kuhfuß, M., Maldei, T., Hetmanek, A. & Baumann, N. (2021). Somatic experiencing – effectiveness and key factors of a body-oriented trauma therapy: a scoping literature review, *European Journal of Psychotraumatology*, 12(1), DOI: 10.1080/20008198.2021.1929023

- Lanza-León, P., Pascual-Sáez, M., & Cantarero-Prieto, D. (2023). Alleviating mental health disorders through doses of green spaces: an updated review in times of the COVID-19 pandemic. *International Journal of Environmental Health Research*, 33(1), 98–115.
- Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder*. Algonquin Books.
- Luttenberger, K., Karg-Hefner, N., Kind, L., Dorscht, L., Berking, M., Weiss, M., & Kornhuber, J. (2022). Boulderling psychotherapy is not inferior to cognitive behavioural therapy in the group treatment of depression: A randomized controlled trial. *British Journal of Clinical Psychology*, 61(2), 465–493–493. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1111/bjc.12347>
- Madsen, L. S., Handberg, C., Jensen, C. M., & Nielsen, C. V. (2021). Community-based rehabilitation approaches in outdoor settings: a systematic review of people with disabilities' and professionals' experiences and perceptions. *Disability & Society*, 36(7), 1073–1098. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/09687599.2020.1783206>
- Mason D. (2022). Healthcare barriers, what about older age? A comment on Malik-Soni et al. *Pediatric Research*, 91(5), 1025–1027. <https://doi.org/10.1038/s41390-021-01596-2>
- McLaren, L., & Hawe, P. (2005). Ecological perspectives in health research. *Journal of Epidemiology and Community Health*, 59(1), 6–14. <https://doi.org/10.1136/jech.2003.018044>
- Metzl, J.D., Heffernan, A. *The exercise cure: a doctor's all-natural, no pill prescription for better health & longer life*. Emmaus, PA: Rodale; 2013.
- Meuwese, D., Krabbendam, L., Maas, J., van der Voort, N., & Dijkstra, K. (2021). The Value of Nature During Psychotherapy: A Qualitative Study of Client Experiences.

- Frontiers in Psychology*, 12. <https://doi-org.login.ezproxy.library.ualberta.ca/10.3389/fpsyg.2021.765177>
- Mikkelsen, K., Stojanovska, L., Polenakovic, M., Bosevski, M., & Apostolopoulos, V. (2017). Exercise and mental health. *Maturitas*, 106, 48–56. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.maturitas.2017.09.003>
- Muir, J., & McGrath, L. (2018). Life lines: Loss, loneliness and expanding meshworks with an urban Walk and Talk group. *Health and Place*, 53, 164–172. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.healthplace.2018.08.007>  
<https://www.hra.nhs.uk/about-us/committees-and-services/res-and-recs/>
- Newman, E., & Gabriel, L. (2022). Investigating clients' experiences of walk and talk counselling. *Counselling and Psychotherapy Research*. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1002/capr.12567>
- Olafsdottir, G., Cloke, P., Schulz, A., Van Dyck, Z., Eysteinnsson, T., Thorleifsdottir, B. et al. (2018). Health benefits of walking in nature: a randomized controlled study under conditions of real-life stress. *Environment and Behavior*, 52(3), 248–274. doi:10.1177/0013916518800798
- Panos, P. T., Jackson, J. W., Hasan, O., & Panos, A. (2014). Meta-Analysis and Systematic Review Assessing the Efficacy of Dialectical Behavior Therapy (DBT). *Research on Social Work Practice*, 24(2), 213–223. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/1049731513503047>
- Parker, C., Doctor, R. M., & Selvam, R. (2008). Somatic therapy treatment effects with tsunami survivors. *Traumatology*, 14(3), 103-109–109. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/1534765608319080>
- Patel, P. D., Lopez, J. F., Burke, S., Lyons, D. M., Wallace, M., & Schatzberg, A. F. (2000). Glucocorticoid and mineralocorticoid receptor mRNA expression in squirrel monkey

- brain. *Journal of Psychiatric Research*, 34(6), 383–392. [https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/S0022-3956\(00\)00035-2](https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/S0022-3956(00)00035-2)
- Pfeiffer, S., & In-Albon, T. (2022). Barriers to Seeking Psychotherapy for Mental Health Problems in Adolescents: A Mixed Method Study. *Journal of Child and Family Studies*, 1–11. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1007/s10826-022-02364-4>
- Peters, J., Dieppa-Perea, L. M., Melendez, L. M., & Quirk, G. J. (2010). Induction of Fear Extinction with Hippocampal-Infralimbic BDNF. *Science*, 328(5983), 1288–1290.
- PHENOTYPE - <http://www.phenotype.eu/en/workpackages/implications-health-impact-assessment-and-planning>
- Poulsen, D. V., Stigsdotter, U. K., Djernis, D., & Sidenius, U. (2016). 'Everything just seems much more right in nature': How veterans with post-traumatic stress disorder experience nature-based activities in a forest therapy garden. *Health Psychology Open*, 3(1), 2055102916637090. <https://doi.org/10.1177/2055102916637090>
- Purdy, E. R., Ph.D. (2022). *Biopsychosocial model*. Salem Press Encyclopedia.
- QSR International Pty Ltd. (2014). NVivo (Version 10), <https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>
- Radez, J., Reardon, T., Creswell, C., Lawrence, P. J., Evdoka-Burton, G., & Waite, P. (2021). Why do children and adolescents (not) seek and access professional help for their mental health problems? A systematic review of quantitative and qualitative studies. *European Child & Adolescent Psychiatry*, 30(2), 183–211. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1007/s00787-019-01469-4>
- Radiological Society of North America. (2011, January 2). Walking slows progression of Alzheimer's, study suggests. *ScienceDaily*.

- Ratey, J. J., & Hagerman, E. (Collaborator). (2008). *Spark: The revolutionary new science of exercise and the brain*. Little, Brown, and Co.
- Revell, S., & McLeod, J. (2017). Therapists' experience of walk and talk therapy: A descriptive phenomenological study, *European Journal of Psychotherapy & Counselling*, 19(3), 267–289, DOI: 10.1080/13642537.2017.1348377
- Rivera-Bonet, C. N., Birn, R. M., Ladd, C. O., Meyerand, M. E., & Abercrombie, H. C. (2021). Cortisol effects on brain functional connectivity during emotion processing in women with depression. *Journal of Affective Disorders*, 287, 247–254. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.jad.2021.03.034>
- Scioli-Salter, E., Forman, D. E., Otis, J. D., Tun, C., Allsup, K., Marx, C. E., Hauger, R. L., Shipherd, J. C., Higgins, D. M., Tyzik, A., & Rasmusson, A. M. (2016). Potential neurobiological benefits of exercise in chronic pain and posttraumatic stress disorder: Pilot study. *Journal of Rehabilitation Research & Development*, 53(1), 95–106. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1682/JRRD.2014.10.0267>
- Scioli-Salter, E. R., Smith, B. N., Whitworth, J. W., Spiro, A., Esterman, M., Dutra, S., Bogdan, K. M., Eld, A. & Rasmusson, A. M. (2020). Moderated Mediation for Exercise Maintenance in Pain and Posttraumatic Stress Disorder. *Health Psychology*, 39(9), 826–840. doi: 10.1037/hea0000876
- Shrestha, T., Blasi, Z. D., & Cassarino, M. (2021). Natural or urban campus walks and vitality in university students: Exploratory qualitative findings from a pilot randomised controlled study. *International Journal of Environmental Research and Public Health*, 18(4), 1–17–17. <https://doi-org.login.ezproxy.library.ualberta.ca/10.3390/ijerph18042003>
- Siantz, E., Hiller, S., Ojeda, V. D., & Gilmer, T. P. (2023). Barriers to Accessing Mental Health Care Under the Mental Health Services Act: A Qualitative Case Study in

- Orange County, California. *Community Mental Health Journal*, 59(2), 381–390–390.
- Skrastins, O., Tsotsos, S., Aqeel, H., Qiang, A., Renton, J., Howe, J.-A., Salbach, N. M., Tee, A., & Moller, J. (2020). Fitness coordinators' and fitness instructors' perspectives on implementing a task-oriented community exercise program within a healthcare-recreation partnership for people with balance and mobility limitations: a qualitative study. *Disability and Rehabilitation*, 42(19), 2687-2695–2695. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/09638288.2019.1570357>
- Smith, M. S., Lawrence, V., Sadler, E., & Easter, A. (2019). Barriers to accessing mental health services for women with perinatal mental illness: systematic review and meta-synthesis of qualitative studies in the U.K. *BMJ OPEN*, 9(1), e024803.
- Stanton, R. & Happell, B.M. (2013). An Exercise Prescription Primer for People with Depression. *Issues in Mental Health Nursing*, 34(8), 626–30.  
doi:10.3109/01612840.2012.758207
- Statistics Canada. (2020). *Impacts of Covid-19 on Canadians: Parenting During the Pandemic*.
- Summary of the clinical practice guideline for the treatment of depression across three age cohorts. (2022). *American Psychologist*, 77(6), 770–780.
- Sweetman, J., Knapp, P., Varley, D., Woodhouse, R., McMillan, D., & Coventry, P. (2021). Barriers to attending initial psychological therapy service appointments for common mental health problems: A mixed-methods systematic review. *Journal of Affective Disorders*, 284, 44–63.
- Szortyka, M. F., Cristiano, V. B., & Belmonte-de-Abreu, P., (2023). Aerobic and Postural Strength Exercise Benefits in People with Schizophrenia. *International Journal of Environmental Research and Public Health*, 20(4).

- Thaller, L., Frühauf, A., Heimbeck, A., Voderholzer, U., & Kopp, M. (2022). *A Comparison of Acute Effects of Climbing Therapy with Nordic Walking for Inpatient Adults with Mental Health Disorder: A Clinical Pilot Trial*. <https://doi-org.login.ezproxy.library.ualberta.ca/10.3390/ijerph19116767>
- Thoma, N. C., and McKay, D. (eds). (2014). *Working With Emotion in Cognitive-Behavioral Therapy: Techniques for Clinical Practice*. New York, NY: Guilford Publications.
- Thomeer, M.B., Moody, M.D. & Yahirun, J. Racial and Ethnic Disparities in Mental Health and Mental Health Care During The COVID-19 Pandemic. *J. Racial and Ethnic Health Disparities* 10, 961–976 (2023). <https://doi-org.login.ezproxy.library.ualberta.ca/10.1007/s40615-022-01284-9>
- Trivedi, M. H., Greer, T. L., Carmody, T. J., Grannemann, B. D., Sunderajan, P., Church, T. S., Earnest, C. P., Galper, D. I., Dunn, A. L., Henley, S. S., & Blair, S. N. (2011). Exercise as an augmentation treatment for nonremitted major depressive disorder: A randomized, parallel dose comparison. *Journal of Clinical Psychiatry*, 72(5), 677–684–684. <https://doi-org.login.ezproxy.library.ualberta.ca/10.4088/JCP.10m06743>
- Úbeda-Colomer, J., Gil-Quintana, J., López-Cañada, E., Pérez-Samaniego, V., Devís-Devís, J., & Pereira-García, S. (2020). Development and validation of the Barriers to Physical Activity and Sport Questionnaire for lesbian, gay, bisexual, transgender and queer/questioning persons. *Public Health*, 185, 202-208–208. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.puhe.2020.05.020>
- van den Berg, A. E., & Beute, F. (2021). Walk it off! The effectiveness of walk and talk coaching in nature for individuals with burnout- and stress-related complaints. *Journal of Environmental Psychology*, 76. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.jenvp.2021.101641>

- van Meurs, E., Greve, J., & Strauss, B. (2022). Moving in the presence of others - a systematic review and meta-analysis on social facilitation. *International Review of Sport and Exercise Psychology*. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/1750984X.2022.2111663>
- Vesely, S. & Klöckner, C.A. (2020). Social Desirability in Environmental Psychology Research: Three Meta-Analyses. *Frontiers in Psychology, 11*. <https://doi-org.login.ezproxy.library.ualberta.ca/10.3389/fpsyg.2020.01395>
- Vitagliano, L. A., Wester, K. L., Jones, C. T., Wyrick, D. L., & Vermeesch, A. L. (2023). Group Nature-Based Mindfulness Interventions: Nature-Based Mindfulness Training for College Students with Anxiety. *International Journal of Environmental Research and Public Health, 20*(2). <https://doi-org.login.ezproxy.library.ualberta.ca/10.3390/ijerph20021451>
- Wade, D. T., & Halligan, P. W. (2017). The biopsychosocial model of illness: a model whose time has come. *Clinical Rehabilitation, 31*(8), 995–1004. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1177/0269215517709890>
- Williams, T. L., Ma, J. K., & Ginis, K. A. M. (2017). Participant experiences and perceptions of physical activity-enhancing interventions for people with physical impairments and mobility limitations: a meta-synthesis of qualitative research evidence. *Health Psychology Review, 11*(2), 179–196. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1080/17437199.2017.1299027>
- Winter, B., Breitenstein, C., Mooren, F. C., Voelker, K., Fobker, M., Lechtermann, A., Krueger, K., Fromme, A., Korsukewitz, C., Floel, A., & Knecht, S. (2007). High impact running improves learning. *Neurobiology of Learning and Memory, 87*(4), 597–609. <https://doi-org.login.ezproxy.library.ualberta.ca/10.1016/j.nlm.2006.11.003>
- World Health Organization. (2022). *Mental disorders*. World Health Organization.

World Medical Association (2013). World Medical Association Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects. *Journal of the American Medical Association*, 310(20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311–325.