VALIDATION OF ONLINE EQUINE-ASSISTED THERAPY TO REDUCE DEPRESSION, ANXIETY, AND STRESS SYMPTOMS

NURSYUHADA BINTI SULAIMAN

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Master of Philosophy

School of Biomedical Engineering and Health Sciences
Faculty of Engineering
Universiti Teknologi Malaysia

MARCH 2022

DEDICATION

This thesis is dedicated to my late father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time.

ACKNOWLEDGEMENT

In the process of preparing this thesis, I was in contact with many people, researchers, academicians, and practitioners in equine field. They have contributed for a better understanding and thoughts. In particular, I want to express my sincere appreciation to my main thesis supervisor, Dr Nurwina Akmal binti Anuar for her invaluable advice, continuous support, encouragement, critics and friendship. My deepest thanks for her also as giving me constant information and invaluable supervision during my hardest time to writing. I am also very thankful to my co-supervisor Dr Wan Mohd Azam bin Wan Mohd Yunus for his guidance, advices and motivation. Without their continued support and interest, this thesis would not have been the same as presented here.

I am also indebted to Universiti Teknologi Malaysia (UTM) for funding my master study. Nadi Equestrian UTM Skudai also deserve special thanks for their permission to run my data collection activities at their place.

Finally, I would like to thank my fellow postgraduate friend, Nur Nadia Asyikin, Nursahida, and Nurshafitrah, for all the help they had given and the outpouring of support over the years of my study. My sincere appreciation also extends to my family and my loved ones who have provided assistance at various occasions, without them I would not have made it through to finish my research study.

ABSTRACT

Traditional equine-assisted therapy has provided service face-to-face due to its experiential approach with horses. However, in order to conduct traditional equine-assisted therapy it gave implication on high costs of therapy and effect of allergies on patients to animal. Hence, the online therapy has great promises on reduce risk of allergies and costs of delivering mental health care like depression, anxiety and stress. This study aims to design an online equine-assisted therapy and evaluate its effect in reducing depression, anxiety and stress symptoms. This study also underpinned theory of functional equivalence through an imagery technique to deliver the online equine-assisted therapy treatment and examined the feasibility of online equine-assisted therapy. Research support the claim that imagery produced same neural action as well as actual physic al approaches and treats the mental health problem. The ADDIE Model was applied in designing the online equine-assisted therapy. In order to evaluate the online equine-assisted therapy in reducing the symptoms, traditional equine-assisted therapy and relaxation therapy were compared based on the participant's DASS-21 score and System Usability Scale (SUS) questionnaire. A sample of fifty participants aged ranging 18 to 54 years old were recruited voluntarily and undergoes all the treatments. The Friedman Test and Wilcoxon Signed Test was selected to analyze the differences within and between groups, respectively. It was found that depression (p = 0.373) and anxiety (p = 0.150) symptoms were no significantly difference among the three treatments. Therefore, compare to the reduction of stress (p = 0.015) symptoms, there are significant different among the three treatments. However, a statistically non-significant result in Wilcoxon Signed Test between online and traditional treatments was found in reducing depression, anxiety and stress. The mean score result for feasibility shows that the online equine-assisted therapy can be accepted and categorized as grade B with good rating. In conclusion, this study shows potential of online equine- assisted therapy in mental health care as it has same effect as traditional equine-assisted therapy. This study suggests to further investigate the effectiveness of online equine therapy in future using the pre and post research method.

ABSTRAK

Terapi bantuan kuda tradisional telah menyediakan perkhidmatan secara fizikal melalui pendekatan pengalaman dengan kuda. Walaubagaimanapun, untuk menjalankan terapi bantuan kuda, ia menyebabkan implikasi kos yang tinggi selain memberi kesan alergi pesakit terhadap haiwan. Justeru, terapi dalam talian dapat mengurangkan risiko alahan dan kos bagi merawat kesihatan mental seperti kemurungan, kebimbangan dan tekanan. Kajian ini bertujuan untuk mereka bentuk terapi bantuan kuda dalam talian dan menilai kesan terapi dalam mengurangka n gejala kemurungan, kebimbangan dan tekanan. Kajian ini juga menyokong teori kesetaraan fungsi melalui teknik imejan untuk menyampaikan rawatan terapi bantuan kuda dalam talian dan mengkaji kebolehlaksanaan terapi bantuan kuda dalam talian. Berdasarkan hasil kajian yang lepas, imejan menghasilkan tindakbalas saraf sama seperti pendekatan fizikal yang sebenar dan dapat merawat masalah kesihatan mental. Terapi bantuan kuda direka bentuk melalui model ADDIE. Kajian ini juga menilai perbezaan antara terapi bantuan kuda dalam talian, terapi bantuan kuda tradisional dan terapi relaksasi berdasarkan skor keputusan DASS-21 responden dan soal selidik System Usability Scale (SUS). Seramai lima puluh orang responden dalam lingkungan umur 18 hingga 54 tahun telah diambil secara sukarela dan menjalani semua jenis rawatan. Ujian Friedman dan Ujian Wilcoxon Signed telah dipilih untuk menganalisis perbezaan simptom dalam dan antara jenis rawatan. Menurut hasil kajian, didapati bahawa simptom kemurungan (p = 0.373) dan kebimbangan (p = 0.150) tidak mempunyai perbezaan yang signifikan antara tiga jenis rawatan. Manakala, jika dibandingkan dengan pengurangan simptom tekanan (p = 0.015), terdapat perbezaan yang ketara antara tiga jenis rawatan. Walau bagaimanapun, keputusan yang tidak signifikan secara statistik dalam Ujian Wilcoxon Signed antara rawatan dalam talian dan tradisional didapati dalam mengurangkan kemurungan, kebimbangan dan tekanan. Keputusan skor min untuk kebolehlaksanaan menunjukkan bahawa terapi bantuan kuda dalam talian bole h diterima dan dikategorikan sebagai gred B dengan penarafan yang baik. Kesimpulannya, kajia n ini menunjukkan potensi terapi bantuan kuda dalam talian dalam penjagaan kesihatan mental kerana ia mempunyai kesan yang sama seperti terapi bantuan kuda tradisional. Kajian akan datang boleh diperluaskan kepada penyelidikan

berkaitan keberkesanan terapi kuda dalam talian pada masa hadapan dengan menggunakan kaedah penyelidikan pra dan pasca.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

UTM	-	Universiti Teknologi Malaysia
DASS	-	Depression Anxiety Stress Scale
SUS	-	System Usability Scale
COVID-19	-	Coronavirus Disease
M	-	Mean
SD	-	Standard Deviation
N	-	Number
p	-	P Value
IQR	-	interquartile range

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Introduction

The first chapter of this thesis opens with the background of the study and further describes the current issues related to self-help intervention in online therapy, gaps on equine-assisted therapy and theory of functional equivalence in imagery techniques. This is followed by research objectives, research questions, hypothesis of the study, scope of study, significance of study, conceptual framework and operational definitions used in the study. The chapter also concludes with the organization of study.

1.2 Research Background

Anxiety, depression, and stress affect many individuals at some point of lives. People suffering from depression, anxiety, and stress would not be open to the society and would remain quiet about their aggravation. Symptom of depression, anxiety and stress could be worst if not curable. It is also related to the brain and emotion significantly. They are also having direct symptoms caused by the chemical changes in the brain. They would showed sign of mood swings, introverted personality, overreacted in some situations and isolate themselves (Horwitz, 2010). Anxiety could be said as feeling of fear or nervousness. It can evoke particular response in the body, for example, fast heartbeat, sweating, and hard to breath. Hence, depression is more than just a low mood. It is a serious condition involved on both physical and psychological. Similarly, stress is the body's way reacting to any kind of demand or threat. When danger is sensed whether real or imagined, the body defenses begin to

work rapidly, automatically known as the fight and flight response or “stress response”.

Depression and anxiety symptoms keep on rising in pandemic situations among Malaysian populations (Marzo et al., 2021). Stress also has been found in high level on university students because current situations has changed dramatically and they cannot attend physical classes (Sundarasen et al., 2020). The student need to face challenges in online classes in terms of poor internet connection. It is particularly shocking to see that some students took 6-8 hours of daily routine lessons on their mobile phone, contributing to unmanageable stress and health concerns (Sundarasen et al., 2020). When individuals had diagnoses having a depression, anxiety, and stress, they could be effectively treated by using medications (Cuijpers et al., 2014). However, after completing the treatment course by taken medication routine, it would cause to high probability of recurrence (Frazier et al., 2016) and some studies has found other psychological therapies are available (Shinohara et al., 2013). Of these, equine-assisted therapy is the most widely researched and equine assisted therapy is recognized in psychological and physical treatment for depression, anxiety, and stress in terms of unprejudiced from the animal (Ernst, 2012).

Equine-assisted therapy is growing popularity due to its experiential therapy. Several studies have shown equine-assisted therapy can benefit for all people ages. The contribution of horse in therapy can be used in variety of psychological issue including, overcome anxiety, release the depressed feeling (Todd, 2020), develop trust, improve self-confidence (Burgon, 2011) and stress reduction (Earles et al., 2015). However, in some point of animal therapy, safety is the biggest concern. In order to minimize the risk and maximize the benefit of animal therapy like horses, new intervention is created with combine of theory equine-assisted therapy and functional equivalence in imagery techniques. Imagery techniques can be thought of as a form guided meditation. Compare to other form of meditation, imagery could be one of the applicable effect to assist people discover ways to detach themselves from their moments to moments fixation on the contents of minds with various of sensation and

thoughts streaming through mind. The practice of imagery techniques could help the reduction of depression, anxiety and stress symptoms. Hence, intervention using imagery as suggested as effective tools for relief of depression, anxiety (Apóstolo & Kolcaba, 2009), and stress symptoms (Lee et al., 2018).

The idea of combining equine-assisted therapy and functional equivalence theory in imagery techniques were based on the theory achieved by imagery-focused approaches (Blackwell, 2021). Previous study in guided imagery and visualization shown positive effect in treating depression (Weßlau & Steil, 2014). Additionally, there also reported that one week daily guided imagery could reduce depressive symptoms and less anxiety among people with cancer. Self-help online therapy was found to be vary in psychological therapy in terms of cost-effective, reduce time burden with visiting clinic and stigma (Bennett et al., 2019). Delivering the therapy using online could address an effective treatment to people with symptoms. However, it is large degree unclear how online self-help therapy intervention in equine assisted therapy should be applied.

Hence, this study offers an online equine-assisted therapy for people who seek treatment early symptoms of depression, anxiety, and stress. The online equine-assisted therapy is a self-help intervention (Anderson, Annet, Bischoff, & Boulanger, 2010) that used the combination of imagery techniques (McEwan, Elander, & Gilbert, 2018) and equine-assisted therapy as a tool (McConnell, 2010) to deliver the treatment. Anderson et al. (2010) claimed this method has been found to effective in online based on previous studies and for this study used the content of equine-assisted therapy in grounded activity that have been proved effective in physically and psychologically based on several studies (Chakales, Locklear, & Wharton, 2020) and has also has been proved its effect in reducing the depressive, anxious and stressed symptoms.

1.3 Problem Statement

Number of people have diagnosed with depression, anxiety, and stress continue to growth rapidly. Approximately, 2.3 million people in Malaysia have been reported to diagnose with mental illness (Mukhtar & PS Oei, 2011). According to the National Health Morbidity Survey from 2017, one out of every five teens suffers from depression, while two out of every five suffer from anxiety. Thus, current pandemic situation in 2021, the statistics increased of those who suffer from mental health problem. The major barrier for people not seek for early treatment is caused by cost. Some are unable to afford for the early treatment. The high cost of therapy is also the reason that contributes to the late treatment. Lazar (2014) reported that the expense of healthcare was rising, and many individuals were unable to afford treatment.

According to McDonald, Eccles, Fallahkhair and Critchley (2020) stated that psychotherapy treatment is a positively expensive service, so it will take about 6-20 hours in sessions and cause limited access to those who can afford the treatment. The reason people do not afford the high cost of therapy is because of living in low income (Hodgkinson et al., 2017). It has been proved that living on low-income households leads to having poor health and increased mental health problems (Hodgkinson et al., 2017). Studies from Wadsworth and Achenbach (2005) reported that children with high economic status parents have low rates of mental health need compared with children with low economic status parents. It is important to note that the family income and child well-being health were related. However, many children, teenagers, and adolescents experienced the symptoms of poor mental, but does not seek help and result in mental ill-health (Patel, Flisher, Nikapota, & Malhotra, 2008). With current cuts in the healthcare budget, it would be preferable to cut expenses while maintaining or improving the quality of care.

Kirschner, Goetzl, and Curtin (2020) reported that the stigmatization of mental health could have occurred among the young and adolescent generations. Stigmatization refers to negative beliefs that make individuals fear, avoid, reject and discriminate towards people with mental health problems (Corrigan & Watson, 2002). The previous study by Knaak, Mantler, and Szeto (2017) reported that stigma caused a delay in diagnosis and treatment, and resulted in poor treatment prognosis in the worst condition. Another study from Van Brakel (2006) claimed that stigma has indirect but strongly negative implications for public health efforts to fight the disease. Thus, an individual with mental health problems would be experience isolation and had employment discrimination than people without mental health problems.

Some research has found individuals who feel embarrassed to meet the professional could be a barrier in mental health settings (Gulliver, Griffiths, & Christensen, 2010). Depressed, anxious, and stressed people may believe that others will view and respond negatively to them if they seek help, resulting in isolating themselves and feeling shame. Such stigmatizations' view gave an impact on the meet with professionals and help-seeking because individuals do not want to show their weakness to other people (Corrigan & Watson, 2002). Lack of resilience to face to face with psychologists limited to move and the high cost of treatment may cause untreated depression problems have been found the main reason that many of them still untreated lack knowledge and do not have a way where to get professional care (Auerbach, Mortier, Bruffaerts, et al. 2018).

There is various treatment could be used to help decrease depression, anxiety and stress. Interestingly, research suggests include imagery technique in online therapy could give the state of mind and body most conducive to healing (Nguyen & Brymer, 2018). Guided imagery is one of the relaxation techniques and can be facilitated by a variety of health professional or learned via self-help, as well as aid in the reduction of depression, anxiety and stress (Apóstolo & Kolcaba, 2009). Guided imagery has been slowly acknowledged in the world of therapy, however, the fundamental of guided imagery technique could help people acquire a state of psychological and

physical ease through muscular relaxation and positive mental images as well as release the burden feelings that provoked by symptoms (Apóstolo & Kolcaba, 2009). In guided imagery technique, positive images and positive affective experience can prevent the rumination spiral of depression, anxiety, and stress (Jyoti, 2021). The common denominator in imagery is using thought and its effect on body functions. Previous research suggests that guided imagery have powerful psychological strategy that enhance a person's coping skill (Omar-Fauzee et al., 2009). Hence, this present study introduced the method of online self-help therapy in imagery techniques to minimize the cost of therapy by decreasing the number of face-to-face sessions and offer people a better quality of life in reducing the early symptoms of depression, anxiety and stress.

Although online therapy has been found to work for some, other studies show that it is often not the best solution. Online therapy programs have relied on self-help principles and deliver structured therapy content, it is also including intervention that is supported electronically (Barak et al., 2009). Previous study in online counselling, there was found that they had experiencing difficulty on interaction and restricted capacity to receive response from the client (Wong et al., 2018). Thus, this study was using self-help intervention followed by people independently and no access with therapist. Providing a prevention program online allows for a cost effective way to deliver a treatment. This type of therapy could give benefit for people in terms of prevention in mental health problem. Based on previous studies, there was found that, resources for counselling centre are limited and a lack of resources to meet increasing service demands (Levin et al., 2016). It is also found that Asians are commonly not as comfortable and acknowledged with online therapy intervention compared to the Westerns (Haroz et al., 2017; Wong et al., 2018). However, this study would have suggested a variety of solution are likely needed to convey the challenge of mental health problem.

Research has found and still is finding animal-based therapy that treats the mental health problem using equine other than an animal (Dawson, 2014). Equine-assisted therapy and equine activity intervention involving the horse has been used as a therapeutic tool to help people improve their depression, anxiety, and stress symptoms (Todd, 2020) nevertheless, there was a lack of theoretical framework on equine-assisted therapy studies (Geist, 2011). Boyd (2013) noted the psychological problems like depression, anxiety and stress can be expressed in horse-human interaction. The expenditure on equine therapy continues to rise and people cannot afford it (Simmons, 2011). There is strong evidence of animal-human interaction for the treatment (Mueller, Gee, & Bures, 2018), however, there are limited resources to go to equine therapy physically (White-Lewis, 2020). It was found there is still limited evidence of animal-human interaction therapy introduced as online therapy.

This present study is a largely new intervention on online equine-assisted therapy using functional equivalence imagery techniques to reduce depression, anxiety, and stress symptoms. However, the difference between traditional therapy (physical equine-assisted therapy) and online therapy was noted, nevertheless replacing the clinical treatment was not the focus of this study, but instead, emphasized the new intervention of online equine-assisted therapy using imagery techniques have the same effects as experiential physical horse approaches.

1.4 Research Objectives

Followings are the objectives proposed for this study:

a) To design online equine-assisted therapy to reduce depression, anxiety, and stress symptoms.

b) To compare between online equine-assisted therapy, traditional equine-assisted therapy and relaxation therapy.

c) To evaluate the feasibility of online equine-assisted therapy.

1.5 Research Question

To achieve the above research objectives, the following research questions (RQ) are used.

Objective 1: To design online equine-assisted therapy to reduce depression, anxiety, and stress symptoms.

RQ1. What are the components needed to develop online equine-assisted therapy to reduce the symptoms?

Objective 2: To compare between online equine-assisted therapy and traditional equine-assisted therapy.

RQ2. Is there any difference comparing between traditional therapy and online therapy?

Objective 3: To evaluate the feasibility of online equine-assisted therapy.

RQ3. How would the user have perceived and experienced with virtual equine activities?

1.6 Hypothesis

The following are the hypothesis of this research:

1. Alternative hypothesis (Ha): There is significant difference in depression, anxiety, and stress between online therapy, traditional therapy and relaxation therapy.

2. Null hypothesis (Ho): There is no significant difference in depression, anxiety, and stress between online therapy, traditional therapy and relaxation therapy.

1.7 Conceptual Framework

A major concept of this study is focused on design and determine the differences between online and traditional equine-assisted therapy. The online equine assisted therapy would be designed using an instructional model called ADDIE. The conceptual paradigm shows the process of difference of online therapy, traditional equine-assisted therapy and relaxation therapy in regard to reducing depression, anxiety, and stress symptoms. The participants were given a posttest experiment in traditional and online equine-assisted therapy, hence the relaxation therapy would be reacting as control group. The participants were received three different treatments which in traditional and online therapy. From the result of design and test the effect between online and traditional therapy, this study was able to determine the effect of traditional equine-assisted therapy that has same effect as online therapy.

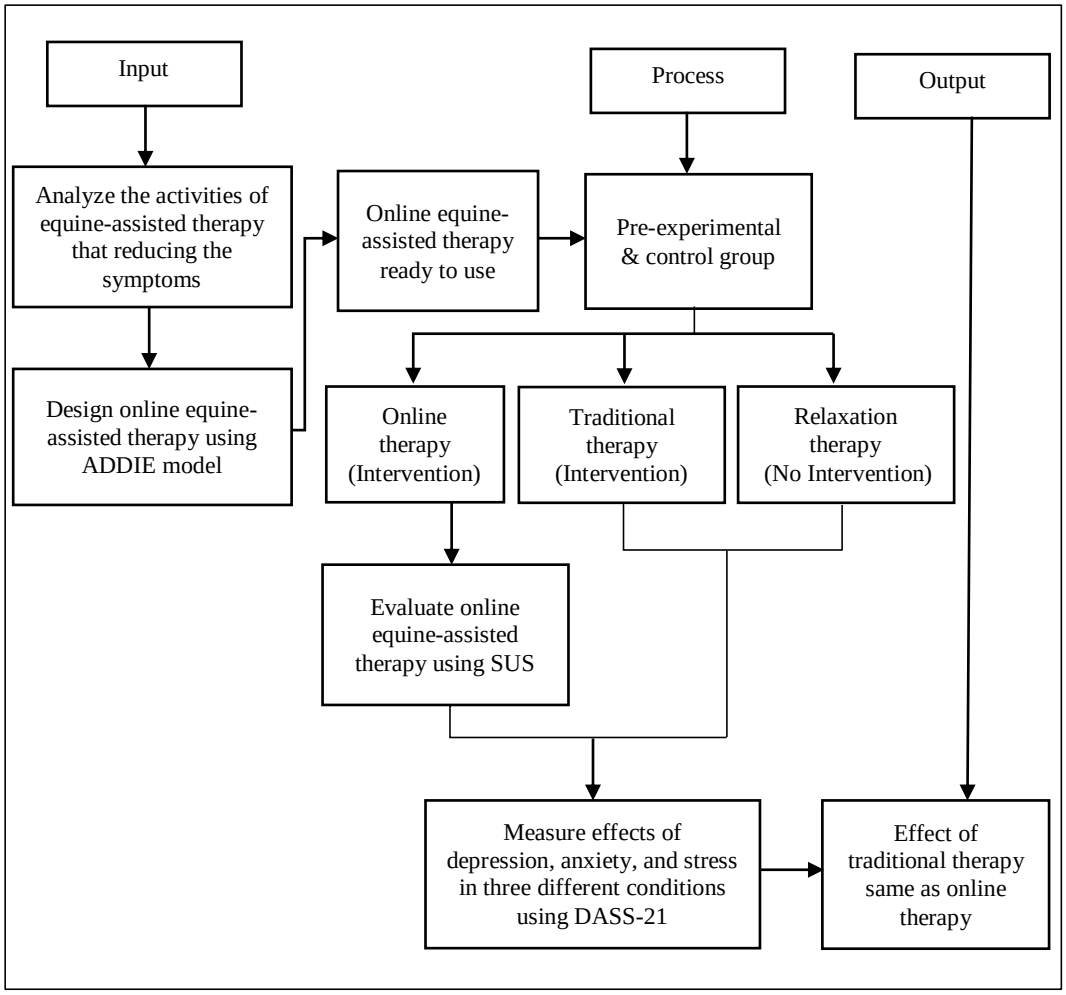

Figure 1.1 Conceptual framework of online equine-assisted therapy.

1.8 Significant of the Study

The outbreak Covid-19 pandemic forced many people to stay-at-home. As social distancing was remaining on our routine live, it is affect various school, universities, even in hospitals. These circumstances make us realize the scenario planning is an urgent to taking care of our mental health. There was various alternative to prevent mental health problem, one of the method is using online medium. This study creates and design the online equine-assisted therapy for people all ages in needs for prevention in mental health problem. The children, a teenager and older can used this medium to treat depression, anxiety, and stress symptoms in cost-effective. Online

equine-assisted therapy is easily accessible and even could be reach to rural and remote area. It is considered to be cheaper mode of therapy in terms of lower of transportation, accommodation and the cost of meeting professional therapy. This new intervention of online equine-assisted therapy required self-help therapy without assist by therapist or professional, hence, the content of the online therapy had been determining by expertise and evidence from previous study in effectiveness of the equine therapy and functional equivalence imagery techniques in reducing depression, anxiety, and stress. This study would be a significant endeavor in engaging people in prevention. The stigma and problem of depression, anxiety, and stress background justify the need for more effective, life-changing approaches to horse activities. It also gives the justification for the study in terms of its contribution to theory and practice in online. Moreover, this study will be helpful to the low-income family in practicing the equine-assisted therapy in their daily lives. And importantly, the online equine-assisted therapy is emphasized to reduce the burden of mental health problems and provide quality life.

1.9 Scope of the Study

The scope of this study was focusing on the use of technology and developing the online therapy related to animal-human intervention to treat depression, anxiety, and stress symptoms by using horse grounded activity. Individuals who had depression, anxiety, and stress symptoms probably did not know they had suffered the symptoms and the intervention of online equine-assisted therapy may help the users who need self-help. The online equine-assisted therapy may visualize the benefits of traditional therapy (physical equine-assisted therapy) and the evidence of the equine activities would be discussed in literature. The online equine-assisted therapy program may be good for conveying ideas, information and learning how to overcome depression, anxiety, and stress in convenient ways. It is thought that the online treatment may improve and provide a good quality of life for the users. Online equine-assisted therapy would be designed for the public without any access to therapist help and only use the internet as a medium to prevent depression, anxiety, and stress

symptoms. This study aimed to determine a better understanding of equine-assisted therapy in the online method to overcome the stigma in mental health settings. The design of online equine-assisted therapy would be based on the functional equivalence theory through the imagery technique following the ADDIE Model and the feasibility of online equine-assisted therapy would be tested in different conditions (i.e.: traditional, online & relaxation) as well to investigate the outcome of the intervention.

1.10 Definition of terms

1.10.1 Equine-Assisted Therapy

Experiential mental health treatment that involves a person in therapy interacting with horse. Equine-assisted therapy modules was designed to make horse accessible for people with disabilities.

1.10.2 Symptoms

A physical or mental feature that thought to indicate a condition of disease, particularly such a feature that is apparent to the patient.

1.10.3 Depression

Depression is a mental disorder marked by continuous sensation of sadness and a lack of interest. It effects how people think, feel, and act, as well as causing emotional and physical issues.

1.10.4 Anxiety

Anxiety is a tense feeling, worried thoughts and bodily changes such as increased blood pressure.

1.10.5 Stress

Stress is the feeling of being overwhelmed or unable to deal with mental or emotional pressure. In medicine, the body's reaction to physical, mental, or emotional pressure. It is also causes of chemical changes in the body such as blood pressure, heart rate, and blood sugar levels.

1.10.6 Imagery

Cognitive generation of sensory input from the five senses, individually or collectively, which is recalled from experience or self-generated in a nonexperience form.

1.10.7 Functional Equivalence

Functional equivalence is the process, when the translator grasps a notion in the source language and discover a technique to express the same concept in the target language in a way that conveys the same meaning and purpose as the original.

1.10.8 Self-help Online Therapy

Self-help online therapy are psychological therapies that can do with own time to help people using internet medium, such as website, and application in smartphone.

1.10.9 ADDIE Model

ADDIE is a learning model used by instructional designers and training developers to create effective learning experiences

1.11 Organization of the Thesis

This thesis shows how online therapy could help individual to reduce symptoms of depression, anxiety and stress underlying functional equivalence in imagery. The organization of this thesis as follows. Chapter 2 introduces online equine therapy in detail. Firstly, describe and built online equine-assisted therapy based on evidence from previous study. Then list out the activity of traditional equine-assisted therapy in grounded which could be as parameter in online equine-assisted therapy program. In the last section in Chapter 2 is focusing on reviewing how functional equivalence imagery techniques could react as tools to deliver in online therapy.

Chapter 3 provides a flow design to build online equine assisted therapy based on ADDIE Model. Through ADDIE Model framework in online equine-assisted therapy, it would easily to manage and create the online module. Hence when online equine-assisted therapy was ready to use, it would be implemented to the participant in the study. The primary of online therapy feature in this study is functional equivalence. We conduct the study in experimental on three different conditions and investigate on how these conditions impact on reducing the symptoms. In Chapter 4, would be explained the findings of the data. The data was collected through validated and established questionnaires.

Chapter 5 highlighted the outcome of the study. We discussed an efficient how online equine-assisted therapy works on the symptoms. We show how our new intervention could be optional in a therapy program based on theoretical functional equivalence. Chapter 6 gives a summary of this thesis as well as discuss on the directions for future work. On the next page, would be contained the full description of all benchmark methodologies in the study.

1.12 Summary

The contextual of this study has been identified and scope of study also indicates how the research was conducted. This study was focused on designing online equine-assisted therapy program effect on depression, anxiety, and stress symptoms. Furthermore, this study extends the existing literature on the theory of experiential equine assisted therapy and functional equivalence imagery treating depression, anxiety, and stress in online.

REFERENCES

Ackerman, C. J., & Turkoski, B. (2000). Using guided imagery to reduce pain and anxiety. *Home Healthcare Now*, *18*(8), 524–530.

Adams, N. E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association: JMLA*, *103*(3), 152.

Akin, A., & Çetın, B. (2007). The Depression Anxiety and Stress Scale (DASS): The study of Validity and Reliability. *Educational Sciences: Theory & Practice*, *7*(1).

Alexander, R., Aragón, O. R., Bookwala, J., Cherbuin, N., Gatt, J. M., Kahrilas, I. J., Kästner, N., Lawrence, A., Lowe, L., Morrison, R. G., Mueller, S. C., Nusslock, R., Papadelis, C., Polnaszek, K. L., Helene Richter, S., Silton, R. L., & Styliadis, C. (2021). The neuroscience of positive emotions and affect: Implications for cultivating happiness and wellbeing. *Neuroscience and Biobehavioral Reviews*, *121*, 220–249. https://doi.org/10.1016/j.neubiorev.2020.12.002

Althobaiti, T., Katsigiannis, S., West, D., & Ramzan, N. (2019). Examining Human-Horse Interaction by Means of Affect Recognition via Physiological Signals. *IEEE Access*, *7*, 77857–77867. https://doi.org/10.1109/ACCESS.2019.2922037

Alwan, M., Zakaria, A., Rahim, M. A., Hamid, N. A., & Fuad, M. (2013). Comparison between two relaxation methods on competitive state anxiety among college soccer teams during pre-competition stage. *International Journal of Advanced Sport Sciences Research*, *1*(1), 90–104.

Ambrosi, C., Zaiontz, C., Peragine, G., Sarchi, S., & Bona, F. (2019). Randomized controlled study on the effectiveness of animal-assisted therapy on depression, anxiety, and illness perception in institutionalized elderly. *Psychogeriatrics*, *19*(1), 55–64. https://doi.org/10.1111/psyg.12367

American Psychiatric Associatio. (2013). *Diagnostic and Statistical Manual of Mental Disorders (5th ed.)*.

American Psychological Assocation. (2020). *Mental Health 2020: A Presidential Initiative for Mental Health*. file:///C:/Users/user/Downloads/Mental-Health-2020-A-Presidential-Initiative-for-Mental-Health.pdf

Anderson, F., Annett, M., Bischof, W. F., & Boulanger, P. (2010). Virtual equine assisted therapy. *Proceedings - IEEE Virtual Reality*, *May 2014*, 255–256.

https://doi.org/10.1109/VR.2010.5444776

Anderson, P. (2018). *Usability evaluation and redesign recommendations for MyNet portal thesis guidelines*.

Andrade, J., May, J., Deeprose, C., Baugh, S. J., & Ganis, G. (2014). Assessing vividness of mental imagery: The plymouth sensory imagery questionnaire. *British Journal of Psychology*, *105*(4), 547–563. https://doi.org/10.1111/bjop.12050

Angst, J., Autenrieth, V., Brem, F., Koukkou, M., Meyer, H., Stassen, H. H., & Storck, U. (2016). Preliminary results of treatment with β-endorphin in depression. *Endorphins in Mental Health Research*, 518–528. https://doi.org/10.1007/978-1-349-04015-5

Apóstolo, J. L. A., & Kolcaba, K. (2009). The Effects of Guided Imagery on Comfort, Depression, Anxiety, and Stress of Psychiatric Inpatients with Depressive Disorders. *Archives of Psychiatric Nursing*, *23*(6), 403–411. https://doi.org/10.1016/j.apnu.2008.12.003

Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., Demyttenaere, K., Ebert, D. D., Green, J. G., Hasking, P., Murray, E., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Stein, D. J., Vilagut, G., Zaslavsky, A. M., & Kessler, R. C. (2018). WHO world mental health surveys international college student project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, *127*(7), 623–638. https://doi.org/10.1037/abn0000362

Babatunde, F. O., MacDermid, J., Grewal, R., Macedo, L., & Szekeres, M. (2020). Development and usability testing of a web-based and therapist-assisted coping skills program for managing psychosocial problems in individuals with hand and upper limb injuries: mixed methods study. *JMIR Human Factors*, *7*(2), e17088.

Bachi, K. (2013). Application of attachment theory to equine-facilitated psychotherapy. *Journal of Contemporary Psychotherapy*, *43*(3), 187–196. https://doi.org/10.1007/s10879-013-9232-1

Bachi, K., & Parish-Plass, N. (2017). Animal-assisted psychotherapy: A unique relational therapy for children and adolescents. *Clinical Child Psychology and Psychiatry*, *22*(1), 3–8. https://doi.org/10.1177/1359104516672549

Bachi, K., Terkel, J., & Teichman, M. (2012). Equine-facilitated psychotherapy for at-risk adolescents: The influence on self-image, self-control and trust. *Clinical Child Psychology and Psychiatry*, *17*(2), 298–312.

https://doi.org/10.1177/1359104511404177

Balchin, R., Linde, J., Blackhurst, D., Rauch, H. L., & Schönbächler, G. (2016). Sweating away depression? the impact of intensive exercise on depression. *Journal of Affective Disorders*, *200*, 218–221. https://doi.org/10.1016/j.jad.2016.04.030

Bangor, A., Kortum, P., & Miller, J. (2009). Determining what individual SUS scores mean: Adding an adjective rating scale. *Journal of Usability Studies*, *4*(3), 114–123.

Baragli, P., Vitale, V., Banti, L., & Sighieri, C. (2014). Effect of aging on behavioural and physiological responses to a stressful stimulus in horses (Equus caballus). *Behaviour*, *151*(11), 1513–1533.

Barak, A., Klein, B., & Proudfoot, J. G. (2009). Defining internet-supported therapeutic interventions. *Annals of Behavioral Medicine*, *38*(1), 4–17.

Barker, S. B., & Dawson, K. S. (1998). The effects of animal-assisted therapy on anxiety ratings of hospitalized psychiatric patients. *Psychiatric Services*, *49*(6), 797–801. https://doi.org/10.1176/ps.49.6.797

Beesdo, K., Knappe, S., & Pine, D. S. (2009). Anxiety and anxiety disorders in children and adolescents: developmental issues and implications for DSM-V. *Psychiatric Clinics*, *32*(3), 483–524.

Beizaee, Y., Rejeh, N., Heravi-Karimooi, M., Tadrisi, S. D., Griffiths, P., & Vaismoradi, M. (2018). The effect of guided imagery on anxiety, depression and vital signs in patients on hemodialysis. *Complementary Therapies in Clinical Practice*, *33*, 184–190. https://doi.org/10.1016/j.ctcp.2018.10.008

Bennett, S. D., Cuijpers, P., Ebert, D. D., McKenzie Smith, M., Coughtrey, A. E., Heyman, I., Manzotti, G., & Shafran, R. (2019). Practitioner review: Unguided and guided self-help interventions for common mental health disorders in children and adolescents: A systematic review and meta-analysis. *Journal of Child Psychology and Psychiatry*, *60*(8), 828–847.

Berget, B., Ekeberg, *Ø.*, Pedersen, I., & Braastad, B. O. (2011). Animal-assisted therapy with farm animals for persons with psychiatric disorders: Effects on anxiety and depression, a randomized controlled trial. *Occupational Therapy in Mental Health*, *27*(1), 50–64. https://doi.org/10.1080/0164212X.2011.543641

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*, 360–368.

Bhasin, M. K., Dusek, J. A., Chang, B.-H., Joseph, M. G., Denninger, J. W., Fricchione, G. L., Benson, H., & Libermann, T. A. (2013). Relaxation response induces temporal transcriptome changes in energy metabolism, insulin secretion and inflammatory pathways. *PloS One*, *8*(5), e62817.

Bigham, E., McDannel, L., Luciano, I., & Salgado-Lopez, G. (2014). Effect of a brief guided imagery on stress. *Biofeedback*, *42*(1), 28–35.

Blackwell, S. E. (2021). Mental imagery in the science and practice of cognitive behaviour therapy: Past, present, and future perspectives. *International Journal of Cognitive Therapy*, *14*(1), 160–181.

Boyd, K. J. (2013). *Exploring Equine Assisted Psychotherapy using Equine Assisted Growth and Learning Association (EAGALA) Model*. 1–58.

Branch, R. M. (2009). *Instructional design: The ADDIE approach* (Vol. 722). Springer Science & Business Media.

Brandt, A. (2019). *The Impact of Equine-Assisted Activities and Therapy (EAAT) on The Impact of Equine-Assisted Activities and Therapy (EAAT) on Depression*. https://lib.dr.iastate.edu/creativecomponents

Branson, R. K., Rayner, G. T., Cox, J. L., Furman, J. P., & King, F. J. (1975). *Interservice procedures for instructional systems development. executive summary and model*. Florida State Univ Tallahassee Center For Educational Technology.

Brisson, S., & Dekker, A. H. (2017). Staff Attitudes Regarding the Impact of a Therapy Dog Program on Military Behavioral Health Patients. *Journal of Special Operations Medicine : A Peer Reviewed Journal for SOF Medical Professionals*, *17*(4), 49–51.

Brooke, J. (1996). SUS-A quick and dirty usability scale. *Usability Evaluation in Industry*, *189*(194), 4–7.

Brooke, J. (2013). SUS: a retrospective. *Journal of Usability Studies*, *8*(2), 29–40.

Brown, S.-E. (2007). Companion Animals as Selfobjects. *Anthrozoös*, *20*(4), 329–343. https://doi.org/10.2752/089279307X245654

Burgon, H. L. (2011). "Queen of the World": Experiences of "At-risk" young people participating in equine-assisted learning/therapy. *Journal of Social Work Practice*, *25*(2), 165–183. https://doi.org/10.1080/02650533.2011.561304

Burton, L. E., Qeadan, F., & Burge, M. R. (2019). Efficacy of equine-assisted psychotherapy in veterans with posttraumatic stress disorder. *Journal of Integrative Medicine*, *17*(1), 14–19. https://doi.org/10.1016/j.joim.2018.11.001

Bywaters, M., Andrade, J., & Turpin, G. (2004). Determinants of the vividness of visual imagery: The effects of delayed recall, stimulus affect and individual differences. *Memory*, *12*(4), 479–488. https://doi.org/10.1080/09658210444000160

Cabello, M., Borges, G., Lara, E., Olaya, B., Martín-Maria, N., Moreno-Agostino, D., Miret, M., Caballero, F. F., Haro, J. M. M., & Ayuso-Mateos, J. L. (2020). The relationship between all-cause mortality and depression in different gender and age groups of the Spanish population. *Journal of Affective Disorders*, *266*(December 2019), 424–428. https://doi.org/10.1016/j.jad.2020.01.162

Cengiz, B., Vurallı, D., Zinnuroğlu, M., Bayer, G., Golmohammadzadeh, H., Günendi, Z., Turgut, A. E., İrfanoğlu, B., & Arıkan, K. B. (2018). Analysis of mirror neuron system activation during action observation alone and action observation with motor imagery tasks. *Experimental Brain Research*, *236*(2), 497–503. https://doi.org/10.1007/s00221-017-5147-5

Chakales, P. A., Locklear, J., & Wharton, T. (2020). Medicine and Horsemanship: The Effects of Equine-assisted Activities and Therapies on Stress and Depression in Medical Students. *Cureus*, *12*(2), 2–7. https://doi.org/10.7759/cureus.6896

Charry-Sánchez, J. D., Pradilla, I., & Talero-Gutiérrez, C. (2018). Animal-assisted therapy in adults: A systematic review. *Complementary Therapies in Clinical Practice*, *32*(June), 169–180. https://doi.org/10.1016/j.ctcp.2018.06.011

Chaudhury, P., & Banerjee, D. (2020). "Recovering With Nature": A Review of Ecotherapy and Implications for the COVID-19 Pandemic. *Frontiers in Public Health*, *8*(December). https://doi.org/10.3389/fpubh.2020.604440

Cherniack, E. P., & Cherniack, A. R. (2014). The benefit of pets and animal-assisted therapy to the health of older individuals. *Current Gerontology and Geriatrics Research*, *2014*. https://doi.org/10.1155/2014/623203

Chih-Pei, H. U., & Chang, Y.-Y. (2017). John W. Creswell, research design: Qualitative, quantitative, and mixed methods approaches. *Journal of Social and Administrative Sciences*, *4*(2), 205–207.

Churches, R., & McAleavy, T. (2015). Evidence That Counts--What Happens When Teachers Apply Scientific Methods to Their Practice: Twelve Teacher-Led

Randomised Controlled Trials and Other Styles of Experimental Research. *CfBT Education Trust*.

Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review*, *3*(3), 149–210. https://doi.org/10.1007/BF01320076

Coakley, A. B., & Mahoney, E. K. (2009). Creating a therapeutic and healing environment with a pet therapy program. *Complementary Therapies in Clinical Practice*, *15*(3), 141–146. https://doi.org/10.1016/j.ctcp.2009.05.004

Coker, A. O., Coker, O. O., & Sanni, D. (2018). Psychometric properties of the 21-item depression anxiety stress scale (DASS-21). *African Research Review*, *12*(2), 135–142.

Cole, K. M., & Gawlinski, A. (2000). Animal-assisted therapy: the human-animal bond. *AACN Advanced Critical Care*, *11*(1), 139–149.

Cole, M. L. (2009). *Literature review and manual: animal-assisted therapy* [Doctoral dissertation, Lethbridge, Alta.: University of Lethbridge, Faculty of Education]. http://www.uleth.ca/dspace/handle/10133/758

Corrigan, P. W., & Watson, A. C. (2002). Understanding the impact of stigma on people with mental illness. *World Psychiatry*, *1*(1), 16.

Craft, L. L., & Perna, F. M. (2004). The benefits of exercise for the clinically depressed. *Primary Care Companion to the Journal of Clinical Psychiatry*, *6*(3), 104.

Cuijpers, P., Donker, T., van Straten, A., Li, J., & Andersson, G. (2010). Is guided self-help as effective as face-to-face psychotherapy for depression and anxiety disorders? A systematic review and meta-analysis of comparative outcome studies. *Psychological Medicine*, *40*(12), 1943–1957.

Cuijpers, P., Sijbrandij, M., Koole, S. L., Andersson, G., Beekman, A. T., & Reynolds III, C. F. (2014). Adding psychotherapy to antidepressant medication in depression and anxiety disorders: a meta-analysis. *Focus*, *12*(3), 347–358.

Dawson, B. T. (2014). *An Exploratory Mixed Methodology Study Into the Theoretical Foundation of Equine-Assisted Psychotherapy*.

Dayton, T. (1994). *The drama within: Psychodrama and experiential therapy*. (F. Deerfield Beach & I. Health Communications (eds.)).

Decety, J. (1996). Do imagined and executed actions share the same neural substrate? *Cognitive Brain Research*, *3*, 87–93.

Devendorf, A., Bender, A., & Rottenberg, J. (2020). Depression presentations, stigma,

and mental health literacy: A critical review and YouTube content analysis. *Clinical Psychology Review*, *78*, 101843.

Dienes, K. A., Hazel, N. A., & Hammen, C. L. (2013). Cortisol secretion in depressed, and at-risk adults. *Psychoneuroendocrinology*, *38*(6), 927–940.

Dominguez-Romero, J. G., Molina-Aroca, A., Moral-Munoz, J. A., Luque-Moreno, C., & Lucena-Anton, D. (2020). Effectiveness of mechanical horse-riding simulators on postural balance in neurological rehabilitation: Systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, *17*(1), 165.

Drljača, D., Latinović, B., Stanković, Ž., & Cvetković, D. (2017). ADDIE model for development of e-courses. *Documento Procedente de La International Scientific Conference on Information Technology and Data Related Research SINTEZA [Internet]*, 242–247.

Dyrbye, L. N., Thomas, M. R., & Shanafelt, T. D. (2006). Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Academic Medicine*, *81*(4), 354–373. https://doi.org/10.1097/00001888-200604000-00009

Earles, J. L., Vernon, L. L., & Yetz, J. P. (2015). Equine-assisted therapy for anxiety and posttraumatic stress symptoms. *Journal of Traumatic Stress*, *28*(2), 149–152. https://doi.org/doi:10.1002/jts.21990

Ekienabor, E. (2019). Impact of Job Stress on Employee's Productivity and Commitment. *International Journal for Research in Business, Management and Accounting* , *2*(5), 124–133. https://www.researchgate.net/publication/334559841

Elder, R. S., & Krishna, A. (2010). The effects of advertising copy on sensory thoughts and perceived taste. *Journal of Consumer Research*, *36*(5), 748–756. https://doi.org/10.1086/605327

Elder, R. S., Schlosser, A. E., Poor, M., & Xu, L. (2017). So close i can almost sense it: The interplay between sensory imagery and psychological distance. *Journal of Consumer Research*, *44*(4), 877–894. https://doi.org/10.1093/jcr/ucx070

Elfil, M., & Negida, A. (2017). Sampling methods in clinical research; an educational review. *Emergency*, *5*(1).

Elovanio, M., Hakulinen, C., Pulkki-Råback, L., Aalto, A.-M., Virtanen, M., Partonen, T., & Suvisaari, J. (2020). General Health Questionnaire (GHQ-12), Beck

Depression Inventory (BDI-6), and Mental Health Index (MHI-5): psychometric and predictive properties in a Finnish population-based sample. *Psychiatry Research*, *289*, 112973.

Ernst, L. S. (2012). Animal-assisted therapy: using animals to promote healing. *Nursing2020*, *42*(10), 54–58.

Fadzil, N. A. H. N. M., & Mustafa, N. H. (2018). EXPLORING ENGLISH TEACHERS'NEED OF E-PORTFOLIO VIA WIX. COM. *ORGANISED BY: CENTRE FOR LANGUAGE STUDIES AND GENERIC DEVELOPMENT*, 325.

Farrer, L. M., Gulliver, A., Katruss, N., Fassnacht, D. B., Kyrios, M., & Batterham, P. J. (2019). A novel multi-component online intervention to improve the mental health of university students: Randomised controlled trial of the Uni Virtual Clinic. *Internet Interventions*, *18*(March), 100276. https://doi.org/10.1016/j.invent.2019.100276

Fine, A. H. (2010). Incorporating animal-assisted therapy into psychotherapy: Guidelines and suggestions for therapists. In *Handbook on animal-assisted therapy* (pp. 169–191). Elsevier.

Fine, A. H. (2019). *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions*. Academic press.

Finke, R. A. (1980). Levels of equivalence in imagery and perception. *Psychological Review*, *87*(2), 113–132. https://doi.org/10.1037//0033-295x.87.2.113

Fox, C. W., & Reed, D. H. (2011). Inbreeding depression increases with environmental stress: An experimental study and meta-analysis. *Evolution*, *65*(1), 246–258. https://doi.org/10.1111/j.1558-5646.2010.01108.x

Frazier, P., Richards, D., Mooney, J., Hofmann, S. G., Beidel, D., Palmieri, P. A., & Bonner, C. (2016). Acceptability and proof of concept of internet-delivered treatment for depression, anxiety, and stress in university students: protocol for an open feasibility trial. *Pilot and Feasibility Studies*, *2*(1), 1–9.

Frederick, K. E., Ivey Hatz, J., & Lanning, B. (2015). Not Just Horsing Around: The Impact of Equine-Assisted Learning on Levels of Hope and Depression in At-Risk Adolescents. *Community Mental Health Journal*, *51*(7), 809–817. https://doi.org/10.1007/s10597-015-9836-x

Fulford, J., Milton, F., Salas, D., Smith, A., Simler, A., Winlove, C., & Zeman, A. (2018). The neural correlates of visual imagery vividness – An fMRI study and literature review. *Cortex*, *105*(October), 26–40.

https://doi.org/10.1016/j.cortex.2017.09.014

Geist, T. S. (2011). Conceptual Framework for Animal Assisted Therapy. *Child and Adolescent Social Work Journal*, *28*(3), 243–256. https://doi.org/10.1007/s10560-011-0231-3

Gentilucci, M., Benuzzi, F., Gangitano, M., & Grimaldi, S. (2001). Grasp with hand and mouth: a kinematic study on healthy subjects. *Journal of Neurophysiology*, *86*(4), 1685–1699.

Geraghty, A. W. A., Muñoz, R. F., Yardley, L., Mc Sharry, J., Little, P., & Moore, M. (2016). Developing an unguided Internet-delivered intervention for emotional distress in primary care patients: Applying common factor and person-based approaches. *JMIR Mental Health*, *3*(4), e5845.

Giuliani, F., & Jacquemettaz, M. (2017). Animal-assisted therapy used for anxiety disorders in patients with learning disabilities: An observational study. *European Journal of Integrative Medicine*, *14*(August), 13–19. https://doi.org/10.1016/j.eujim.2017.08.004

Goertzen, M. J. (2017). Applying quantitative methods to research and data. *Library Technology Reports*, *53*(4), 12–18. https://journals.ala.org/index.php/ltr/article/view/6325

Goldstein, E. D. (2006). *Cultivating sacred moments: Implications on well-being and stress*. Institute of Transpersonal Psychology.

Goodwin, D. (1999). The importance of ethology in understanding the behaviour of the horse. *Equine Veterinary Journal*, *31*(S28), 15–19.

Görgen, S. M., Joormann, J., Hiller, W., & Witthöft, M. (2015). The role of mental imagery in depression: Negative mental imagery induces strong implicit and explicit affect in depression. *Frontiers in Psychiatry*, *6*(JUL), 1–12. https://doi.org/10.3389/fpsyt.2015.00094

Grezes, J., & Decety, J. (2001). Functional anatomy of execution, mental simulation, observation, and verb generation of actions: A meta-analysis. *Human Brain Mapping*, *12*(1), 1–19. https://doi.org/doi:10.1002/1097-0193

Gruzelier, J. H. (2002). A review of the impact of hypnosis, relaxation, guided imagery and individual differences on aspects of immunity and health. *Stress*, *5*(2), 147–163.

Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: A systematic review.

BMC Psychiatry, *10*(1), 113. https://doi.org/10.1186/1471-244X-10-113

Haggerty, J. M., & Mueller, M. K. (2017). Animal-assisted Stress Reduction Programs in Higher Education. *Innovative Higher Education*, *42*(5–6), 379–389. https://doi.org/10.1007/s10755-017-9392-0

Hallberg, L. (2017). *The clinical practice of equine-assisted therapy: Including horses in human healthcare.* Routledge.

Hannibal, K. E., & Bishop, M. D. (2014). Chronic stress, cortisol dysfunction, and pain: a psychoneuroendocrine rationale for stress management in pain rehabilitation. *Physical Therapy*, *94*(12), 1816–1825.

Haroz, E. E., Ritchey, M., Bass, J. K., Kohrt, B. A., Augustinavicius, J., Michalopoulos, L., Burkey, M. D., & Bolton, P. (2017). How is depression experienced around the world? A systematic review of qualitative literature. *Social Science & Medicine*, *183*, 151–162.

Hauge, H., Kvalem, I. L., Berget, B., Enders-Slegers, M. J., & Braastad, B. O. (2014). Equine-assisted activities and the impact on perceived social support, self-esteem and self-efficacy among adolescents - An intervention study. *International Journal of Adolescence and Youth*, *19*(1), 1–21. https://doi.org/10.1080/02673843.2013.779587

Hausberger, M., Roche, H., Henry, S., & Visser, E. K. (2008). A review of the human-horse relationship. *Applied Animal Behaviour Science*, *109*(1), 1–24. https://doi.org/10.1016/j.applanim.2007.04.015

Hess, A. K. N., & Greer, K. (2016). Designing for engagement: Using the ADDIE model to integrate high-impact practices into an online information literacy course. *Communications in Information Literacy*, *10*(2), 264–282. https://doi.org/10.15760/comminfolit.2016.10.2.27

Hidayati, R., Hidayah, N., Ramli, M., Hambali, I. M., Nor, M. M. D., & Lestari, I. (2021). Cyber counseling: Counseling in the digital age under the Covid 19 pandemic. *Turkish Journal of Physiotherapy and Rehabilitation*, *32*, 3.

Hoagwood, K. E., Acri, M., Morrissey, M., & Peth-Pierce, R. (2017). Animal-assisted therapies for youth with or at risk for mental health problems: A systematic review. *Applied Developmental Science*, *21*(1), 1–13. https://doi.org/10.1080/10888691.2015.1134267

Hodgkinson, S., Godoy, L., Beers, S., & Lewin, A. (2017). *Improving Mental Health Access for Low-Income Children and Families in the Primary Care Setting*.

139(1), 1–9. https://doi.org/10.1542/peds.2015-1175

Holmes, C. M. P., Goodwin, D., Redhead, E. S., & Goymour, K. L. (2012). The Benefits of Equine-Assisted Activities: An Exploratory Study. *Child and Adolescent Social Work Journal*, *29*(2), 111–122. https://doi.org/10.1007/s10560-011-0251-z

Holmes, E. A., Blackwell, S. E., Burnett Heyes, S., Renner, F., & Raes, F. (2016). Mental Imagery in Depression: Phenomenology, Potential Mechanisms, and Treatment Implications. *Annual Review of Clinical Psychology*, *12*, 249–280. https://doi.org/10.1146/annurev-clinpsy-021815-092925

Holmes, E. A., & Mathews, A. (2005). Mental imagery and emotion: A special relationship? *Emotion*, *5*(4), 489–497. https://doi.org/10.1037/1528-3542.5.4.489

Holmes, E. A., Mathews, A., Mackintosh, B., & Dalgleish, T. (2008). The Causal Effect of Mental Imagery on Emotion Assessed Using Picture-Word Cues. *Emotion*, *8*(3), 395–409. https://doi.org/10.1037/1528-3542.8.3.395

Holmes, P. S., & Collins, D. J. (2001). The PETTLEP approach to motor imagery: A functional equivalence model for sport psychologists. *Journal of Applied Sport Psychology*, *13*(1), 60–83.

Horwitz, A. V. (2010). How an age of anxiety became an age of depression. *The Milbank Quarterly*, *88*(1), 112–138.

Hsu, T. C., Lee-Hsieh, J., Turton, M. A., & Cheng, S. F. (2014). Using the ADDIE model to develop online continuing education courses on caring for nurses in Taiwan. *Journal of Continuing Education in Nursing*, *45*(3), 124–131. https://doi.org/10.3928/00220124-20140219-04

Iacoboni, M., Molnar-Szakacs, I., Gallese, V., Buccino, G., Mazziotta, J. C., & Rizzolatti, G. (2005). Grasping the intentions of others with one's own mirror neuron system. *PLoS Biology*, *3*(3), e79.

Ibrahim, N., Amit, N., & Suen, M. W. Y. (2014). Psychological factors as predictors of suicidal ideation among adolescents in Malaysia. *PLoS ONE*, *9*(10). https://doi.org/10.1371/journal.pone.0110670

Institute for Public Health. (2020). *National Health and Morbidity Survey 2019 Non-communicable diseases, healthcare demand, and health literacy- Key findings*. https://doi.org/10.18356/be4d1601-en

Institute for Public Health (IPH). (2018). National Health and Morbidity Survey (NHMS) 2017 : Key Findings from the Adolescent Health and Nutrition Surveys;

Infographic Booklet. In *National Institutes of Health, The Ministry of Health, Malaysia* (Issue April).

Jeannerod, M. (2001). Neural simulation of action: A unifying mechanism for motor cognition. *NeuroImage*, *14*(1 II), 103–109. https://doi.org/10.1006/nimg.2001.0832

Jerath, R., Beveridge, C., Jensen, M., & Paladiya, R. (2019). The Therapeutic Role of Guided Mental Imagery in Treating Stress and Insomnia: A Neuropsychological Perspective. *Open Journal of Medical Psychology*, *9*(01), 21.

Johnson, P. (1982). The functional equivalence of imagery and movement. *The Quarterly Journal of Experimental Psychology Section A*, *34*(3), 349–365. https://doi.org/10.1080/14640748208400848

Jones, M. G., Rice, S. M., & Cotton, S. M. (2019). Incorporating animal-assisted therapy in mental health treatments for adolescents: A systematic review of canine assisted psychotherapy. *PloS One*, *14*(1), e0210761.

Jyoti, J. T. P. (2021). Impact of Guided Imagery on Depression, Stress and Anxiety among Wives of Patients with Alcohol Use Disorder. *International Journal of Nursing Education*, *13*(2), 127.

Kamarulzaman, W., & Jodi, K. H. M. (2018). A Review of Mental Illness Among Adolescent in Malaysia. *International Journal of Education, Psychology and Counseling*, *3*(20), 72–81. www.ijepc.com

Keller, J., & Suzuki, K. (2004). Learner motivation and e-learning design: A multinationally validated process. *Journal of Educational Media*, *29*(3), 229–239.

Kendall, E., Maujean, A., Pepping, C. A., Downes, M., Lakhani, A., Byrne, J., & Macfarlane, K. (2015). A systematic review of the efficacy of equine-assisted interventions on psychological outcomes. *European Journal of Psychotherapy and Counselling*, *17*(1), 57–79. https://doi.org/10.1080/13642537.2014.996169

Kilner, J. M., & Lemon, R. N. (2013). What we know currently about mirror neurons. *Current Biology*, *23*(23), R1057–R1062. https://doi.org/10.1016/j.cub.2013.10.051

Kim, D., & Downey, S. (2016). Examining the Use of the ASSURE Model by K–12 Teachers. *Computers in the Schools*, *33*(3), 153–168.

Kious, B. M., Kondo, D. G., & Renshaw, P. F. (2018). Living high and feeling low: Altitude, suicide, and depression. *Harvard Review of Psychiatry*, *26*(2), 43–56.

https://doi.org/10.1097/HRP.0000000000000158

Kirschner, B., Goetzl, M., & Curtin, L. (2020). Mental health stigma among college students : Test of an interactive online intervention. *Journal of American College Health*, *0*(0), 1–8. https://doi.org/10.1080/07448481.2020.1826492

Klainin-Yobas, P., Oo, W. N., Suzanne Yew, P. Y., & Lau, Y. (2015). Effects of relaxation interventions on depression and anxiety among older adults: a systematic review. *Aging & Mental Health*, *19*(12), 1043–1055.

Knaak, S., Mantler, E., & Szeto, A. (2017). Mental illness-related stigma in healthcare: Barriers to access and care and evidence-based solutions. *Healthcare Management Forum*, *30*(2), 111–116. https://doi.org/10.1177/0840470416679413

Koca, T. T., & Ataseven, H. (2015). What is hippotherapy? The indications and effectiveness of hippotherapy. *Northern Clinics of Istanbul*, *2*(3), 247.

Kosslyn, S. M., Ganis, G., & Thompson, W. L. (2001). Neural foundations of imagery. *Nature Reviews Neuroscience*, *2*(9), 635–642. https://doi.org/DOI: 10.1038/35090055

Koukourikos, K., Georgopoulou, A., Kourkouta, L., & Tsaloglidou, A. (2019). Benefits of Animal Assisted Therapy in Mental Health. *International Journal of Caring Sciences*, *12*(3), 1898–1905.

Lakens, D. (2021). Sample Size Justification. *Unpublished*, 1–31. https://psyarxiv.com/9d3yf/

Landi, G., Furlani, A., Boccolini, G., Mikulincer, M., Grandi, S., & Tossani, E. (2020). Tolerance for Mental Pain Scale (TMPS): Italian validation and evaluation of its protective role in depression and suicidal ideation. *Psychiatry Research*, *291*(March), 113263. https://doi.org/10.1016/j.psychres.2020.113263

Latiff, Latiffah Abdul, Tajik, E., Ibrahim, N., Bakar, A. S. A., & Shirin, S. S. A. A. (2017). Psychosocial problem and its associated factors among adolescents in the secondary schools in Pasir Gudang, Johor. *Malaysian Journal of Medicine and Health Sciences*, *13*(1), 35–44.

Latiff, Latiffah As, Aszahari, M. A. ., Ab Khalek, N. F., Kon, J. F., & Ibrahim, N. (2014). Prevalence of Mental Health Problems and the Associated Factors Among Undergraduate Students in a Public University, Malaysia. *International Journal of Public Health and Clinical Sciences*, *1*(1), 59–69. http://publichealthmy.org/ejournal/ojs2/index.php/ijphcs/article/view/68

Lazar, S. G. (2014). The cost-effectiveness of psychotherapy for the major psychiatric diagnoses. *Psychodynamic Psychiatry*, *42*(3), 423–457. https://doi.org/10.1521/pdps.2014.42.3.423

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.

Lee, W. J., Choi, S. H., Shin, J. E., Oh, C. Y., Ha, N. H., Lee, U. S., Lee, Y. I., Choi, Y., Lee, S., Jang, J. H., Hong, Y. C., & Kang, D. H. (2018). Effects of an online imagery-based treatment program in patients with workplace-related posttraumatic stress disorder: A pilot study. *Psychiatry Investigation*, *15*(11), 1071–1078. https://doi.org/10.30773/pi.2018.09.28

Levin, M. E., Hayes, S. C., Pistorello, J., & Seeley, J. R. (2016). Web-based self-help for preventing mental health problems in universities: Comparing acceptance and commitment training to mental health education. *Journal of Clinical Psychology*, *72*(3), 207–225.

Lewis, J. R., & Sauro, J. (2018). Item benchmarks for the system usability scale. *Journal of Usability Studies*, *13*(3).

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343.

Ma, X., Yue, Z.-Q., Gong, Z.-Q., Zhang, H., Duan, N.-Y., Shi, Y.-T., Wei, G.-X., & Li, Y.-F. (2017). The effect of diaphragmatic breathing on attention, negative affect and stress in healthy adults. *Frontiers in Psychology*, *8*, 874.

Macauley, B. L., & Gutierrez, K. M. (2004). The effectiveness of hippotherapy for children with language-learning disabilities. *Communication Disorders Quarterly*, *25*(4), 205–217.

Marx, R. G., Menezes, A., Horovitz, L., Jones, E. C., & Warren, R. F. (2003). A comparison of two time intervals for test-retest reliability of health status instruments. *Journal of Clinical Epidemiology*, *56*(8), 730–735. https://doi.org/10.1016/S0895-4356(03)00084-2

Marzo, R. R., Vinay, V., Bahari, R., Chauhan, S., Ming, D. A. F., Fernandez, S., Fernandez, P. N., Johnson, C. C. P., Rahman, M. M., & Goel, S. (2021). Depression and anxiety in Malaysian population during third wave of the COVID-19 pandemic. *Clinical Epidemiology and Global Health*, *12*, 100868.

McCall, R. B., & Appelbaum, M. I. (1973). Bias in the analysis of repeated-measures designs: Some alternative approaches. *Child Development*, 401–415.

McCarty, R. (2016). The fight-or-flight response: A cornerstone of stress research. In *Stress: Concepts, cognition, emotion, and behavior* (pp. 33–37). Elsevier.

McConnell, P. J. (2010). National survey on equine assisted therapy: An exploratory study of current practitioners and programs. *ProQuest Dissertations and Theses*, 168. http://search.proquest.com/docview/756758988?accountid=14553%5Cnhttp://openurl.library.uiuc.edu/sfxlcl3?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre=dissertations+&+theses&sid=ProQ:ProQuest+Dissertations+&+Theses+Full+Text&atitl

McDonald, A., Eccles, J. A., Fallahkhair, S., & Critchley, H. D. (2020). Online psychotherapy: trailblazing digital healthcare. *BJPsych Bulletin*, *44*(2), 60–66. https://doi.org/10.1192/bjb.2019.66

McEwan, K., Elander, J., & Gilbert, P. (2018). Evaluation of a Web-based Self-compassion Intervention to Reduce Student Assessment Anxiety. *Interdisciplinary Education and Psychology*, *2*(1), 0–12. https://doi.org/10.31532/interdiscipeducpsychol.2.1.006

McKinney, C. H., Antoni, M. H., Kumar, M., Tims, F. C., & McCabe, P. M. (1997). Effects of guided imagery and music (GIM) therapy on mood and cortisol in healthy adults. *Health Psychology*, *16*(4), 390.

Meinersmann, K. M., Bradberry, J., & Roberts, F. B. (2008). Equine-facilitated psychotherapy with adult female survivors of abuse. *Journal of Psychosocial Nursing and Mental Health Services*, *46*(12), 36–42.

Menor-Rodríguez, M. J., Sevilla Martín, M., Sánchez-García, J. C., Montiel-Troya, M., Cortés-Martín, J., & Rodríguez-Blanque, R. (2021). Role and Effects of Hippotherapy in the Treatment of Children with Cerebral Palsy: A Systematic Review of the Literature. *Journal of Clinical Medicine*, *10*(12), 2589.

Mol, M., Van Schaik, A., Dozeman, E., Ruwaard, J., Vis, C., Ebert, D. D., Etzelmueller, A., Mathiasen, K., Moles, B., Mora, T., Pedersen, C. D., Skjøth, M. M., Pensado, L. P., Piera-Jimenez, J., Gokcay, D., Ince, B. Ü., Russi, A., Sacco, Y., Zanalda, E., … Smit, J. H. (2020). Dimensionality of the system usability scale among professionals using internet-based interventions for depression: A confirmatory factor analysis. *BMC Psychiatry*, *20*(1), 1–10.

https://doi.org/10.1186/s12888-020-02627-8

Molenberghs, P., Cunnington, R., & Mattingley, J. B. (2009). Is the mirror neuron system involved in imitation? A short review and meta-analysis. *Neuroscience and Biobehavioral Reviews*, *33*(7), 975–980. https://doi.org/10.1016/j.neubiorev.2009.03.010

Molenda, M. (2003). In Search of the Elusive Cadre. *Contemporary Sociology*, *18*(3), 330. https://doi.org/10.2307/2073804

Morina, N., Deeprose, C., Pusowski, C., Schmid, M., & Holmes, E. A. (2011). Prospective mental imagery in patients with major depressive disorder or anxiety disorders. *Journal of Anxiety Disorders*, *25*(8), 1032–1037. https://doi.org/10.1016/j.janxdis.2011.06.012

Morrison, G. R., Ross, S. J., Morrison, J. R., & Kalman, H. K. (2019). *Designing effective instruction*. John Wiley & Sons.

Mueller, Megan K., Gee, N. R., & Bures, R. M. (2018). Human-animal interaction as a social determinant of health: Descriptive findings from the health and retirement study. *BMC Public Health*, *18*(1), 1–7. https://doi.org/10.1186/s12889-018-5188-0

Mueller, Megan Kiely, & McCullough, L. (2017). Effects of Equine-Facilitated Psychotherapy on Post-Traumatic Stress Symptoms in Youth. *Journal of Child and Family Studies*, *26*(4), 1164–1172. https://doi.org/10.1007/s10826-016-0648-6

Mukhtar, F., & PS Oei, T. (2011). A review on the prevalence of depression in Malaysia. *Current Psychiatry Reviews*, *7*(3), 234–238.

Mulder, T. (2007). Motor imagery and action observation: Cognitive tools for rehabilitation. *Journal of Neural Transmission*, *114*(10), 1265–1278. https://doi.org/10.1007/s00702-007-0763-z

Naste, T. M., Price, M., Karol, J., Martin, L., Murphy, K., Miguel, J., & Spinazzola, J. (2018). Equine Facilitated Therapy for Complex Trauma (EFT-CT). *Journal of Child and Adolescent Trauma*, *11*(3), 289–303. https://doi.org/10.1007/s40653-017-0187-3

National Institute of Mental Health. (2018). *Anxiety Disorders*. https://www.nimh.nih.gov/health/topics/anxiety-disorders/

Nguyen, J., & Brymer, E. (2018). Nature-based guided imagery as an intervention for state anxiety. *Frontiers in Psychology*, *9*(OCT), 1–10.

https://doi.org/10.3389/fpsyg.2018.01858

Nurenberg, J. R., Schleifer, S. J., Shaffer, T. M., Yellin, M., Desai, P. J., Amin, R., Bouchard, A., & Montalvo, C. (2015). Animal-assisted therapy with chronic psychiatric inpatients: Equine-assisted psychotherapy and aggressive behavior. *Psychiatric Services*, *66*(1), 80–86. https://doi.org/10.1176/appi.ps.201300524

O'Haire, M. E. (2017). Research on animal-assisted intervention and autism spectrum disorder, 2012–2015. *Applied Developmental Science*, *21*(3), 200–216.

Oguchi, Y., Nakagawa, A., Sado, M., Mitsuda, D., Nakagawa, Y., Kato, N., Takechi, S., Hiyama, M., & Mimura, M. (2014). Potential predictors of delay in initial treatment contact after the first onset of depression in japan: A clinical sample study. *International Journal of Mental Health Systems*, *8*(1), 1–8. https://doi.org/10.1186/1752-4458-8-50

Omar-Fauzee, M. S., Daud, W., Abdullah, R., & Rashid, S. (2009). The effectiveness of imagery and coping strategies in sport performance. *European Journal of Social Sciences*, *9*(1), 97–108.

Othman, N., Ahmad, F., El Morr, C., & Ritvo, P. (2019). Perceived impact of contextual determinants on depression, anxiety and stress: A survey with university students. *International Journal of Mental Health Systems*, *13*(1), 1–9. https://doi.org/10.1186/s13033-019-0275-x

Özdemir, F., & Arslan, F. (2021). *The Effect of Hippotherapy on Posture and Trunk Control in Children with Spastic Diplegic Cerebral Palsy-A quasi-experimental study*.

Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, *25*(1), 104–112. https://doi.org/10.1080/02673843.2019.1596823

Patel, T., Brewin, C. R., Wheatley, J., Wells, A., Fisher, P., & Myers, S. (2007). Intrusive images and memories in major depression. *Behaviour Research and Therapy*, *45*(11), 2573–2580. https://doi.org/10.1016/j.brat.2007.06.004

Patel, V., Flisher, A. J., Nikapota, A., & Malhotra, S. (2008). Promoting child and adolescent mental health in low and middle income countries. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *49*(3), 313–334. https://doi.org/10.1111/j.1469-7610.2007.01824.x

Pearson, J. (2019). The human imagination: the cognitive neuroscience of visual mental imagery. *Nature Reviews Neuroscience*, *20*(10), 624–634.

https://doi.org/10.1038/s41583-019-0202-9

Pearson, J., Naselaris, T., Holmes, E. A., & Kosslyn, S. M. (2015). Mental Imagery: Functional Mechanisms and Clinical Applications. *Trends in Cognitive Sciences*, *19*(10), 590–602. https://doi.org/10.1016/j.tics.2015.08.003

Petersen, S., Houston, S., Qin, H., Tague, C., & Studley, J. (2017). The Utilization of Robotic Pets in Dementia Care. *Journal of Alzheimer's Disease*, *55*(2), 569–574. https://doi.org/10.3233/JAD-160703

Philippe-Peyroutet, C., & Grandgeorge, M. (2018). Animal-Assisted Interventions for Children With Autism Spectrum Disorders: A Survey of French Facilities. *People and Animals: The International Journal of Research and Practice*, *1*(1), 8.

Rahman, M. S. (2015). Health benefits from companion animals. *Microbes and Health*, *4*(1), 1–3.

Ranabir, S., & Reetu, K. (2011). Stress and hormones. *Indian Journal of Endocrinology and Metabolism*, *15*(1), 18.

Reese, L. M. S., Pittsinger, R., & Yang, J. (2012). Effectiveness of psychological intervention following sport injury. *Journal of Sport and Health Science*, *1*(2), 71–79.

Renner, F., Ji, J. L., Pictet, A., Holmes, E. A., & Blackwell, S. E. (2017). Effects of Engaging in Repeated Mental Imagery of Future Positive Events on Behavioural Activation in Individuals with Major Depressive Disorder. *Cognitive Therapy and Research*, *41*(3), 369–380. https://doi.org/10.1007/s10608-016-9776-y

Rishi, P., & Khuntia, G. (2012). Urban Environmental Stress and Behavioral Adaptation in Bhopal City of India. *Urban Studies Research*, *2012*, 1–9. https://doi.org/10.1155/2012/635061

Rizzolatti, G., Camarda, R., Fogassi, L., Gentilucci, M., Luppino, G., & Matelli, M. (1988). Functional organization of inferior area 6 in the macaque monkey. *Experimental Brain Research*, *71*(3), 491–507.

Roberts, H., & Honzel, N. (2020). The Effectiveness of Equine-Facilitated Psychotherapy in Adolescents with Serious Emotional Disturbances. *Anthrozoos*, *33*(1), 133–144. https://doi.org/10.1080/08927936.2020.1694317

Robinson, A. M. (2018). Let's talk about stress: History of stress research. *Review of General Psychology*, *22*(3), 334–342. https://doi.org/10.1037/gpr0000137

Romero, D. H., Riggs, S. A., & Ruggero, C. (2015). Coping, family social support, and psychological symptoms among student veterans. *Journal of Counseling*

Psychology, *62*(2), 242–252. https://doi.org/10.1037/cou0000061

Rozzi, S., & Fogassi, L. (2017). Neural coding for action execution and action observation in the prefrontal cortex and its role in the organization of socially driven behavior. *Frontiers in Neuroscience*, *11*(SEP), 1–9. https://doi.org/10.3389/fnins.2017.00492

Saimpont, A., Malouin, F., & Jackson, P. L. (2013). Motor imagery and neuropathic pain. *Movement & Sport Sciences*, *2013*(82), 83–91. https://doi.org/10.1051/sm/2013094

Salleh, M. R. (2018). The burden of mental illness: an emerging global disaster. *Journal of Clinical and Health Science*, *3*(1), 1–8.

Sandal, R., Goel, N., Sharma, M., Bakshi, R., Singh, N., & Kumar, D. (2017). Prevalence of depression, anxiety and stress among school going adolescent in Chandigarh. *Journal of Family Medicine and Primary Care*, *6*(2), 405. https://doi.org/10.4103/2249-4863.219988

Sander, J. B., & McCarty, C. A. (2005). Youth depression in the family context: Familial risk factors and models of treatment. *Clinical Child and Family Psychology Review*, *8*(3), 203–219. https://doi.org/10.1007/s10567-005-6666-3

Sarkies, M. N., Skinner, E. H., Bowles, K. A., Morris, M. E., Williams, C., O'Brien, L., Bardoel, A., Martin, J., Holland, A. E., Carey, L., White, J., & Haines, T. P. (2019). A novel counterbalanced implementation study design: Methodological description and application to implementation research. *Implementation Science*, *14*(1), 1–11. https://doi.org/10.1186/s13012-019-0896-0

Sauro, J. (2011). A practical guide to the system usability scale: Background. *Benchmarks & Best Practices*.

Schlote, S. (2020). *Horse Time From Home: Pandemic Ideas for Clients and Facilitators*. The Schlote Psychotherapy Professional Corporation. https://equusoma.com/horse-time-from-home/

Scopa, C., Contalbrigo, L., Greco, A., Lanatà, A., Scilingo, E. P., & Baragli, P. (2019). Emotional transfer in human–horse interaction: New perspectives on equine assisted interventions. *Animals*, *9*(12), 1–21. https://doi.org/10.3390/ani9121030

Shadrina, M., Bondarenko, E. A., & Slominsky, P. A. (2018). Genetics factors in major depression disease. *Frontiers in Psychiatry*, *9*, 334.

Shafie, K. M., & Chu, S. W. (2021). Effectiveness Of Hippotherapy for Communication Development of Students with Autism Spectrum Disorder: A

Case Study in The Malaysian Context. *Journal of Special Needs Education*, *11*, 17–29.

Shamsuddin, K., Fadzil, F., Ismail, W. S. W., Shah, S. A., Omar, K., Muhammad, N. A., Jaffar, A., Ismail, A., & Mahadevan, R. (2013). Correlates of depression, anxiety and stress among Malaysian university students. *Asian Journal of Psychiatry*, *6*(4), 318–323. https://doi.org/10.1016/j.ajp.2013.01.014

Shelton, K., & Saltsman, G. (2006). Using the Addie Model for Teaching Online. *International Journal of Information and Communication Technology Education (IJICTE)*, *2*(3), 14–26. https://doi.org/10.4018/jicte.2006070102

Shinohara, K., Honyashiki, M., Imai, H., Hunot, V., Caldwell, D. M., Davies, P., Moore, T. H. M., Furukawa, T. A., & Churchill, R. (2013). Behavioural therapies versus other psychological therapies for depression. *Cochrane Database of Systematic Reviews*, *10*.

Sigfusdottir, I. D., Kristjansson, A. L., Thorlindsson, T., & Allegrante, J. P. (2017). Stress and adolescent well-being: The need for an interdisciplinary framework. *Health Promotion International*, *32*(6), 1081–1090. https://doi.org/10.1093/heapro/daw038

Simmons, W. B. (2011). *The effects of equine therapy on the therapist*. https://scholarworks.smith.edu/theses/1017

Simon, G. E., Coleman, K. J., Rossom, R. C., Beck, A., Oliver, M., Johnson, E., Whiteside, U., Operskalski, B., Penfold, R. B., & Shortreed, S. M. (2016). Risk of suicide attempt and suicide death following completion of the Patient Health Questionnaire depression module in community practice. *The Journal of Clinical Psychiatry*, *77*(2), 0.

Singer, J. L. (2006). *Imagery in psychotherapy*. American Psychological Association.

Skottnik, L., & Linden, D. E. J. (2019). Mental imagery and brain regulation—new links between psychotherapy and neuroscience. *Frontiers in Psychiatry*, *10*(OCT), 1–14. https://doi.org/10.3389/fpsyt.2019.00779

Starling, M., McLean, A., & McGreevy, P. (2016). The contribution of equitation science to minimising horse-related risks to humans. *Animals*, *6*(3). https://doi.org/10.3390/ani6030015

Sturm, J., Plöderl, M., Fartacek, C., Kralovec, K., Neunhäuserer, D., Niederseer, D., Hitzl, W., Niebauer, J., Schiepek, G., & Fartacek, R. (2012). Physical exercise through mountain hiking in high-risk suicide patients. A randomized crossover

trial. *Acta Psychiatrica Scandinavica*, *126*(6), 467–475. https://doi.org/10.1111/j.1600-0447.2012.01860.x

Sundarasen, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G. M., Khoshaim, H. B., Hossain, S. F. A., & Sukayt, A. (2020). Psychological impact of covid-19 and lockdown among university students in malaysia: Implications and policy recommendations. *International Journal of Environmental Research and Public Health*, *17*(17), 1–13. https://doi.org/10.3390/ijerph17176206

Tallon, K., Ovanessian, M. M., Koerner, N., & Dugas, M. J. (2020). Mental imagery in generalized anxiety disorder: A comparison with healthy control participants. *Behaviour Research and Therapy*, *127*(December 2019), 103571. https://doi.org/10.1016/j.brat.2020.103571

Thau, L., Gandhi, J., & Sharma, S. (2019). *Physiology, cortisol*.

Thomas, C. G. (2021). Experimental research. In *Research Methodology and Scientific Writing* (pp. 93–133). Springer.

Thompson, W. L., Kosslyn, S. M., Sukel, K. E., & Alpert, N. M. (2001). Mental imagery of high- and low-resolution gratings activates Area 17. *NeuroImage*, *14*(2), 454–464. https://doi.org/10.1006/nimg.2001.0803

Todd, D. E. (2020). *REDUCING DEPRESSION AND ANXIETY WITH EQUINE ACTIVITIES*.

Toussaint, L., Nguyen, Q. A., Roettger, C., Dixon, K., Offenbächer, M., Kohls, N., Hirsch, J., & Sirois, F. (2021). Effectiveness of progressive muscle relaxation, deep breathing, and guided imagery in promoting psychological and physiological states of relaxation. *Evidence-Based Complementary and Alternative Medicine*, *2021*.

Van Brakel, W. H. (2006). Measuring health-related stigma--a literature review. *Psychology, Health & Medicine*, *11*(3), 307–334. https://doi.org/10.1080/13548500600595160

Vatanparast, S., Kormi-Nouri, R., Abaollahi, M., Ashayeri, H., Vafadar, Z., & Choopani, F. (2015). Mental imagery of representation beyond the equivalence of perception by emphasizing methods FMRI. *International Journal of Medical Reviews*, *2*(4), 339–348.

Wadsworth, M. E., & Achenbach, T. M. (2005). Explaining the link between low socioeconomic status and psychopathology: testing two mechanisms of the social causation hypothesis. *Journal of Consulting and Clinical Psychology*, *73*(6),

1146.

Waghachavare, V. B., Dhumale, G. B., Kadam, Y. R., & Gore, A. D. (2013). A study of stress among students of professional colleges from an urban area in India. *Sultan Qaboos University Medical Journal*, *13*(3), 422–429. https://doi.org/10.12816/0003266

Wang, P. (2011). *The production of reusable learning objects in Chinese culinary arts online instruction using the ADDIE instructional design model*. Idaho State University.

Wang, S.-K., & Hsu, H.-Y. (2008). Using ADDIE model to design Second Life activities for online learners. *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, 2045–2050.

Wang, S. K., & Hsu, H. Y. (2009). Using the ADDIE model to design second life activities for online learners. *TechTrends*, *53*(6), 76–81. https://doi.org/10.1007/s11528-009-0347-x

Watanabe, E., Fukuda, S., Hara, H., & Maeda, Y. (2006). Differences in relaxation by means of guided imagery in a healthy community sample. *Alternative Therapies in Health and Medicine*, *12*(2), 60.

Weigensberg, M. J., Joy Lane, C., Winners, O., Wright, T., Nguyen-Rodriguez, S., Goran, M. I., & Spruijt-Metz, D. (2009). Acute effects of stress-reduction interactive guided imagerySM on salivary cortisol in overweight Latino adolescents. *The Journal of Alternative and Complementary Medicine*, *15*(3), 297–303.

Weßlau, C., Cloos, M., Höfling, V., & Steil, R. (2015). Visual mental imagery and symptoms of depression - results from a large-scale web-based study. *BMC Psychiatry*, *15*(1), 1–13. https://doi.org/10.1186/s12888-015-0689-1

Weßlau, C., & Steil, R. (2014). Visual mental imagery in psychopathology—Implications for the maintenance and treatment of depression. *Clinical Psychology Review*, *34*(4), 273–281.

Weydert, J. A., Shapiro, D. E., Acra, S. A., Monheim, C. J., Chambers, A. S., & Ball, T. M. (2006). Evaluation of guided imagery as treatment for recurrent abdominal pain in children: a randomized controlled trial. *BMC Pediatrics*, *6*(1), 1–10.

White-Lewis, S. (2020). Equine-assisted therapies using horses as healers: A concept analysis. *Nursing Open*, *7*(1), 58–67. https://doi.org/10.1002/nop2.377

Wirth, S., Gebhardt-Henrich, S. G., Riemer, S., Hattendorf, J., Zinsstag, J., & Hediger,

K. (2020). The influence of human interaction on guinea pigs: Behavioral and thermographic changes during animal-assisted therapy. *Physiology and Behavior*, *225*, 113076. https://doi.org/10.1016/j.physbeh.2020.113076

Wiyono, B. D., Purwoko, B., & Naqiyah, N. (2020). *Online Counselling Website for Student Psychological Assistance in Learning From Home*. *491*(Ijcah), 1127–1130. https://doi.org/10.2991/assehr.k.201201.188

Wong, K. P., Bonn, G., Tam, C. L., & Wong, C. P. (2018). Preferences for online and/or face-to-face counseling among university students in Malaysia. *Frontiers in Psychology*, *9*, 64.

World Health Organization. (2020). *Depression*. https://www.who.int/news-room/fact-sheets/detail/depression

Yau, Y. H. C., & Potenza, M. N. (2013). Stress and eating behaviors. *Minerva Endocrinologica*, *38*(3), 255–267.

Yokoya, S., Maeno, T., Sakamoto, N., Goto, R., & Maeno, T. (2018). A Brief Survey of Public Knowledge and Stigma Towards Depression. *Journal of Clinical Medicine Research*, *10*(3), 202–209. https://doi.org/10.14740/jocmr3282w

Young, C., & Horton, J. (2019). *Canine and equine therapy for mental health: A review of clinical effectiveness*.

Zeelenberg, R., & Pecher, D. (2015). A method for simultaneously counterbalancing condition order and assignment of stimulus materials to conditions. *Behavior Research Methods*, *47*(1), 127–133.

Zheng, L., Miao, M., Lim, J., Li, M., Nie, S., & Zhang, X. (2020). Is lockdown bad for social anxiety in COVID-19 regions?: A national study in the SOR perspective. *International Journal of Environmental Research and Public Health*, *17*(12), 1–12. https://doi.org/10.3390/ijerph17124561