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Cosplay Fandom Leisure Engagement: Exploring cosplay participation and involvement on depression and wellbeing toward a recreation therapy.

A Dissertation

Presented in partial fulfillment of requirements

for the degree of

Doctorate of Philosophy Degree

The University of Mississippi

Julie Morris Chambers

May 2023

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Abstract

Engagement in leisure is a complex construct that impacts wellbeing beyond mere participation. Moreover, researchers have explored engagement in various ways including what people do and experience in their personal pursuit of leisure activities (Kleiber et al., 2011). Studies show that leisure engagement positively effects participants' wellbeing and reduces their ill-being. The purpose of this study is to explore the level of cosplay leisure engagement and wellness and mental health of DragonCon (DC) attendees to illuminate if their cosplay engagement has therapeutic effects on wellness, perceived wellness, and depression. In this study, Newman (et al., 2013) and Kuykendall (et al., 2015) leisure models were adapted to measure immersive tendencies, enduring involvement, and behavioral measures of cosplay at the Dragon Con (DC) annual convention. Three research questions were explored 1) the relationships between leisure engagement factored variables and the mental health response variables 2) the relationship of time elapsed from DC event participation and response variables and 3) the relationship of Cosplayer Status and the response variables. Using regression analyses of the seven predictor variables of cosplay engagement and the three response variables measured in this study showed that immersive tendencies, Dragon Con Activity participation and number of years attending Dragon Con predicted significant relationships with lower depression.

Spiritual and the Physical Dimensions of Wellness also were positively affected by Cosplay in two of the three engagement models. Hypotheses testing of Cosplay participation effects on depression suggests that future research should be completed to discover nuances that can be used by recreational therapist's recommendations of cosplay activities to reduce depression.

Dedication

This work is dedicated to my mentor, Dr. Kim Beason, whose words of encouragement and push for tenacity ring in my ears. I also dedicate this dissertation to the memories of my father, William Morris, and my husband, Dr. James Chambers whose tireless encouragement inspired me to keep going. Thank you all for believing in my dream.

Acknowledgments

Words are only small symbols of the depth of appreciation I feel for all of these people. I would like to thank my family, James Morris, Jenny Cross, and Joan Morris for your help recruiting volunteers and your support for all my graduate work. I would also like to thank Edward Chambers for your continued support through the years. My sons William and Phillip inspire me continually. I would also like to thank the Dragon Con Clue Crew for all your help during the Convention and as part of my expert panels. Finally, I would like to the Charles Smith for all of your technical assistance.

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Chapter 1

Introduction

Only 30% to 50% of people with mental health problems seek help from professionals despite the fact that he US has one of the highest mental health burdens in the world (Brown at all 2014). The high unmet mental health needs, with 15% of those who seek help being unable to get services, reflects a limited US Health System capacity (Tikkanen et al 2020).

Currently, even though more people need Mental Health Services than available, major health organizations such as the World Health Organization (WHO) and the National Institute of Mental Health (NIMH) are calling for more services as a result of the COVID-19 worldwide pandemic. Research shows the negative results of restrictive COVID-19 lockdowns on social and mental health of individuals (Bilala, Javed et al 2020). Alarmingly, before the current worldwide COVID-19 pandemic only 42% of Americans who suffered from any form of mental illness received professional Mental Health Services (NIMH 2019). The COVID-19 pandemic created an imminent mental health crisis and an urgency for innovative approaches to proven interventions. The World Health organization recommends maintaining some form of social contact and continued support from Mental Health Providers with support groups. (WHO 2020) and that primary care services should be supported by self-care and community care in an optimal mix of services (Brown et Al 2014).

Early Covid 19 social distancing measures that resulted in businesses, and public facilities temporarily closed or shifted to remote operations, and individuals remained at home under lockdown or other stay-at-home orders left many people with increased leisure time but

increased prevalence of anxiety and depression by approximately 25% and coincided with disruptions in mental health services because of social distancing and lockdowns, (WHO 2022, Office of National Statistics, 2020). Increasing or maintaining leisure engagement during lockdowns predicted higher wellbeing and "participation in creative [leisure] pursuits were generally increased more than participation in sports and outdoor activities" (Morse et al., 2021).

There is widespread cross disciplinary agreement that leisure is a key path to wellbeing (Newman et al 2015), and the systematic application of recreation activity interventions is the cornerstone to therapeutic recreation. Recreation Therapy creative leisure activities such as arts, crafts, dance, creative writing, and drama aid in psychological, physical health recovery, and can help improve overall well-being (Lombardo, 2021). The increased amount of leisure time presents an opportunity to use leisure behavioral activation, an intervention using scheduled leisure activities to increase enjoyable behavioral activity and accomplishment (mastery) to have a balance of mastery and pleasure experiences (Mazzucchelli et al. 2010, Dieser & Christenson. 2016), to address the increased need for mental health care.

One leisure activity that has the potential to be a therapeutic recreation intervention activity, cosplay, the act of dressing as a fictional character at comic conventions or supported events, combines unconventional creative fine arts activities, to facilitate novel creative expression where fans try to capture – through participation and immersion – the original cathartic moment felt during the first viewing of a story or other media (Norris, C., & Bainbridge, J. 2009).

Using the leisure ability model to effectively apply a behavioral activation intervention it is important to assess and plan for leisure engagement of the participant. By combining Kuyykendall et als (2015) concept that "leisure engagement" encompasses both structural and

subjective measures of leisure and Newman et als (2014) bottom-up leisure engagement via psychological mechanisms, the usual simple measure of engagement as participation can better serve the participants and Therapeutic Recreation professionals.

The interchangeable use of terms such as leisure participation, involvement, attendance, and immersion create a risk of confusion between the concepts that result in challenges for meaningful understanding and application of the therapeutic interventions developed from these constructs. Concurrently, the definitions of leisure engagement, involvement, participation, and attendance are often recursive cross disciplinary feedback loops which use one to define the other (Ragheb & Burlinger 2002, Havitz and Mannel 2005). These terms engagement, participation, involvement, and attendance, have been used interchangeably in recreation therapy work, but the concepts should be carefully operationalized separately because of their individual research paradigms. While these constructs are quite different, the overlapping characteristics of each within leisure research and related fields have shown connections with subjective well-being, depression reduction, and multiple dimensions of wellness. There have been several studies that have suggested a positive association between an individual's engagement in leisure activities and subjective well-being (SWB) (Garcı´a-Villamisar and Dattilo 2010; Newman et al. 2014; Schulz, P. et al. 2018). Also, therapeutic forms of leisure program activation have been used for the treatment of depression (Cuijpers et al. 2007). These are foundational constructs for both research in therapeutic recreation and application of programs, interventions, and treatments by practitioners. Inconsistency within the recreation and leisure field concerning the terminology of participation, involvement and engagement should make it difficult for professionals to be able to accurately compare leisure programs. There are leisure engagement models proposed by Newman et al (2014), and Kuykendal (2015) that conceptualize and the operationalize a

multidimensional measure of engagement including measures of the frequency and diversity of leisure participation, time spent in leisure, and psychological processes or meaning of leisure. These models have been shown to be related to subjective wellbeing and depression when related to a person's overall leisure repertoire. Information that identifies the mechanisms that underpin the relationships can help direct the context of potential cognitive and social leisure activity interventions that are beneficial for Subjective Well-Being (SWB) because they are able to satisfy several aspects of human needs such as psychological, social, educational, and relaxation (e.g. accessing interesting activities, getting to know people, learning new information, and feeling relaxed) (Ku, et al., 2016).

Patients now seek subjective well-being and restoration treatment modalities rather than just illness treatment as true health care goals (AHHA 2003). For example, Burlinger says that how a person does something as well as what they do can make a difference in health and subjective well-being and that to take personal responsibility for this is key to obtaining a healthy leisure lifestyle as a therapeutic outcome.

Statement of the problem and research questions

> Many researchers believe that to understand the impact of leisure on health, wellbeing, and other domains of daily life, they not only need to be able to assess what people do in and as their leisure, but also what they experience while they do it, and then how they make sense of, or construe, the experience (Kleiber et al., 2011, p. 101)

One leisure activity, cosplay, the act of dressing as a fictional character at comic conventions or supported events, is an example of fans which try to capture – through participation and immersion – the original cathartic moment felt during the first viewing of a

story (Norris, C., & Bainbridge, J. (2009). As of 2019 the cosplayers spent approximately $23 billion (Lewis 2019) within the larger comic convention industry. Multiple options exist for a person to become involved in cosplay, from the novice who purchases their costume, walking the convention floor and attending parties or meetups, to the professional who has moved from a leisure activity to a career, and even to those who cosplay outside of conventions volunteering or incorporating cosplay into their everyday wardrobe. Dressing up in the context of cosplay is different from the historical precursors of costuming because it reflects contemporary modes of mass cultural engagement in live and virtual events (Mountfort, P., Peirson-Smith, A., & Geczy, A. (2019).

> While dressing up to emulate villains and heroes is not new to fan cultures, it is part of the ritual of identification with a particular character, a way of projecting alignment by displaying investment in the ideals of a show or identification with a particular character to show others how 'serious' a fan they are. (Jenkins, H., & Tulloch, J. (2005)

Cosplay culture, clothing styles, and props allow participants to play with identity. According to Winge (2006) four basic components of cosplay: social setting, character, role play, which facilitates complex interactions between people environments and fantasy that culminate in an immersive experience. The cosplay continuum is based on the level of commitment of the cosplayer. The lower commitment is characterized by cosplayers that are content to dress as their chosen character, attend conventions with events for socialization, and have fun. The other endpoint are cosplayers that are obsessed with a given character with meticulous attention to costume detail, performance as that character as often as time and money will allow (Mountfort, P., Peirson-Smith, A., & Geczy, A. (2019). To this date research has not explored volunteer activities related to cosplay in the continuum of involvement. The playful

nature and leisure experience of cosplay raises key issues around the relationship between engagement and mental health.

During 2020, the lack of comic conventions because of COVID-19 pandemic shutdowns created challenges for the cosplay community to remain cohesive, participate, and immerse in the pastime. In response to these challenges, multiple comic convention groups are hosting virtual events where members can engage in multiple levels of involvement by posting cosplay photos, participating in activities such as panels, meet-ups, celebrity photo-ops, and providing support for each other with comments and messages.

Within this new environment, little research exists regarding the measure of engagement for an existing community that has had to adapt to the challenge of traditional avenues of engagement being restricted. No clear framework to operationalize the construct of leisure engagement currently exists.

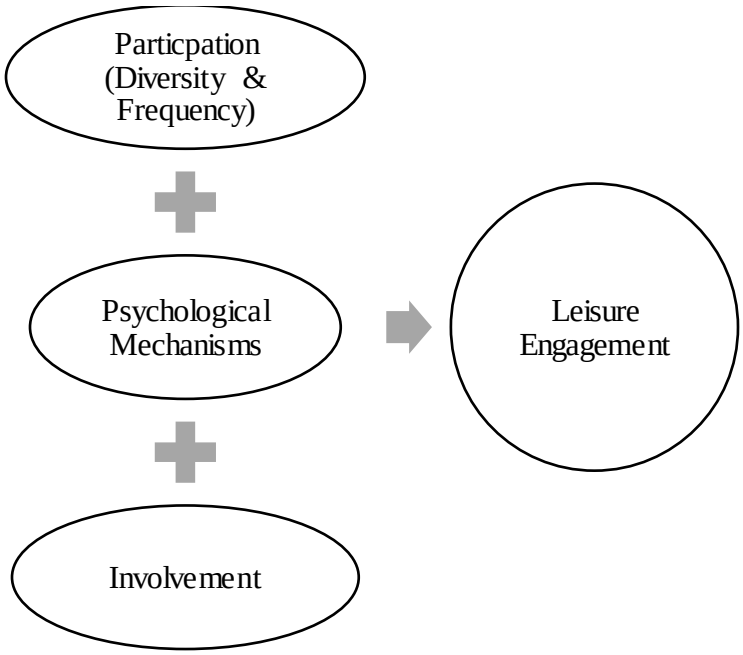
Therefore, the purpose of this study is to explore the level of engagement, based on participation, attendance, and involvement, on the subjective well-being, depression, and resilience in the leisure activity of cosplay from the perspective of Dragon Con attendees. As mentioned previously, cosplay is an active leisure pastime that has been significantly affected by COVID-19 and served as a primary immersion and participation activity for thousands. To better understand how engagement in cosplay might benefit therapeutic recreation and mental health therapies, a leisure engagement model, operationalized by the combination of immersive tendencies, involvement, participation, and attendance scales to determine effects on Subjective Well-Being (SWB), depression, and Dimensions of wellness was explored.

Conceptual Model

Leisure engagement is a behavioral concept with no established consensus definition of the concept most often measured as the amount of time and frequency individuals participate in leisure activities (Kuykendall et al., 2015). A behavior-oriented only conceptualization has limitations, which Newman et al (2013) addressed by linking leisure to subjective wellbeing through a bottom-up model in which key psychological mechanisms promote specific aspects of the leisure domain. Leisure involvement refers to how we think about our leisure and recreation, and it affects our behavior as well. Matsumoto et al (2018) made the connection between leisure involvement and leisure engagement including it in their model. Taken together these concepts can be used to form a model of Leisure engagement. (See figure 1)

Figure 1

Model Leisure engagement. Based on Newman et al 2013 and Kuykendall et al., 2015



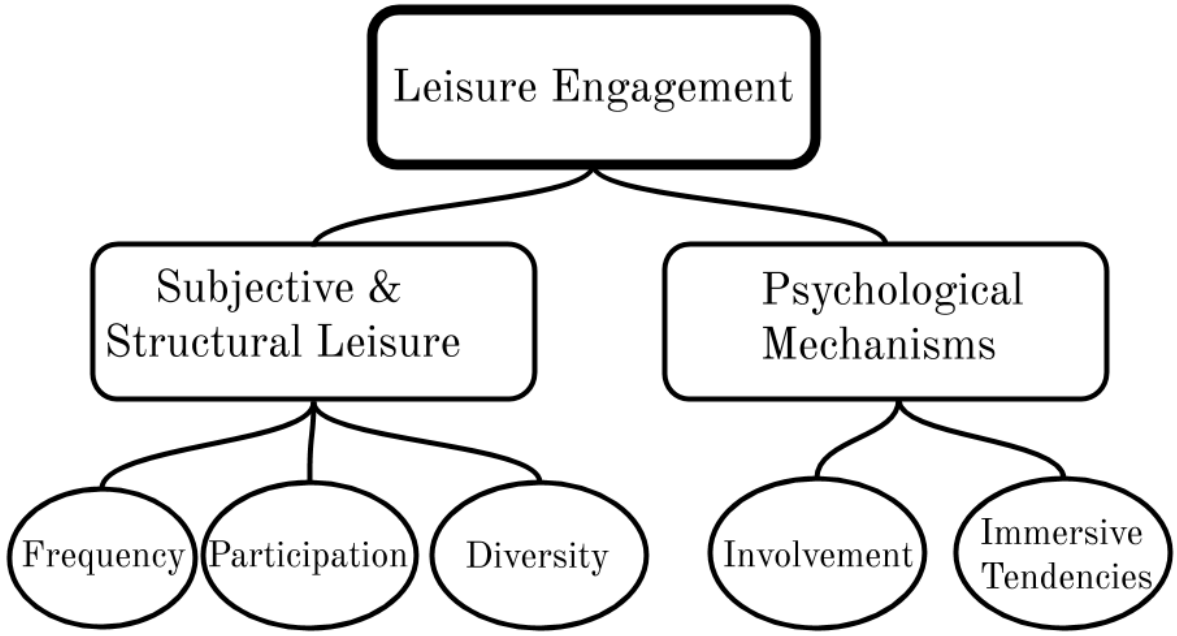
Operational model

The guiding research question is to explore the role of complex cosplay engagement on the mental health of Dragon Con attendees. The conceptualized model was operationalized based on theories of leisure engagement, participation, involvement, immersive tendencies, dimensions of wellness, depression, subjective wellbeing, in addition to empirical research evidence related to cosplay. Participation or attendance, how a participant does an activity, was measured by the frequency and diversity of Dragon Con and cosplay activities for 2021. The dimensions of involvement correspond directly to the definitions of the psychological mechanisms of engagement (Newman et al 2013) and the reasons people cosplay (McGeehon 2018). Involvement, the meaning of a leisure activity to the participant, was measured using a combination of the Leisure Recreation involvement scale (Ragheb 1996) and the modified involvement scale (Kyle et al. 2006). The dimensions of attraction, centrality, social bonding, identity affirmation, and identity expression, Pleasure, Interest, Intensity, Centrality, Meaning. Immersive tendencies, the mental state relating to how involved a person becomes with stories, books, or video games and how strongly people identify with characters in those media, was measured with the (Witmer and Singer 1998) immersive tendencies questionnaire. Depression, a DSVM V medically diagnosed mental health disorder involving feelings of hopelessness and sadness, was measured with the Patient Health Questionnaire. Subjective Wellbeing (SWB), a measurement of Happiness and life satisfaction, was measured wit the World Health 5 question wellbeing survey. The dimensions of wellness chosen for this study coincide with the domains of therapeutic recreation; Mental/Cognitive Functioning, Physical Functioning, Psychological/Emotional Functioning, Social Function, and Spiritual Function. Dimension of wellness was measured with the wellness institutes wellness survey.

Each concept separately has been studied in relation to subjective well-being, depression, and dimensions of wellness, but to this date none have combined the constructs even though the suggestions for future research call for increased diversity of measures. Therefore, this study used the combined characteristics of participation, and involvement in the cosplay world of Dragon Con attendees to develop a construct of engagement and relate this to subjective well-being, dimensions of wellness and depression (see figure 2)

Figure 2

Operational Leisure engagement Newman et al 2013 and Kuykendall et al., 2015 and Witmer and Singer



Research questions and hypotheses

Research Question 1: What is the relationship between the leisure engagement predictor variables and the mental health response variables?

There was no significant relationship between leisure engagement measures and depression scores.

Hypothesis One (H_o^1). There was no significant predictive relationship between leisure engagement measures and PHQ2 major depressive tendencies scores.

Hypothesis Two (H_o^2). There will be no significant predictive relationship between leisure engagement measures and PHQ 9 depressive disorder diagnoses and grades of depressive symptom severity scores.

Hypothesis Three (H_o^3). There will be no significant predictive relationship between leisure engagement measures and subjective wellbeing scores.

There will be no significant relationship between leisure engagement measures and dimensions of wellness scores.

Hypothesis Four (H_o^4). There will be no significant predictive relationship between leisure engagement measures and Occupational dimensions of wellness scores.

Hypothesis Five (H_o^5). There will be no significant predictive relationship between leisure engagement measures and Intellectual dimensions of wellness scores.

Hypothesis Six (H_o^6). There will be no significant predictive relationship between leisure engagement measures and Emotional dimensions of wellness scores.

Hypothesis Seven (H_o^7). There will be no significant predictive relationship between leisure engagement measures and social dimensions of wellness scores.

Hypothesis Eight (H_o^8). There will be no significant predictive relationship between leisure engagement measures and Spiritual dimensions of wellness scores.

Hypothesis Nine E (H_{o9}). There will be no significant predictive relationship between leisure engagement measures and Physical dimensions of wellness scores.

Research Question 2: What is the relationship between the Survey Completion Date and the mental health response variables?

The distribution of Depression score response average is the same across categories of Survey Completion Date Categories.

Hypothesis Ten (H_o^{10}). The distribution of mean differences in PHQ2 major depressive tendencies scores is the same across groups categorized by Survey Completion Date.

Hypothesis Eleven (H_o^{11}). The distribution of PHQ 9 depressive disorder diagnoses and grades of depressive symptom severity scores response average is the same across groups categorized by Survey Completion Date.

Hypothesis Twelve (H_o^{12}). The distribution of Subjective wellbeing response average is the same across groups categorized by Survey Completion Date.

Hypothesis Thirteen (H_o^{13}). The distribution of dimensions of wellness scores will be the same across groups categorized by Survey Completion Date.

Hypothesis Fourteen (H_o^{14}). The distribution of Occupational wellness response average is the same groups categorized by Survey Completion Date.

Hypothesis Fifteen (H_o^{15}). The distribution of Intellectual wellness response average is the same across groups categorized by Survey Completion Date.

Hypothesis Sixteen (H_o^{16}). The distribution of Emotional wellness response average is the same across groups categorized by Survey Completion Date.

Hypothesis Seventeen (H_o^{17}). The distribution of social wellness response average is the same across groups categorized by Survey Completion Date.

Hypothesis Eighteen (H_o^{18}). The distribution of Spiritual wellness response average is the same groups categorized by Survey Completion Date.

Hypothesis Nineteen (H_o^{19}). The distribution of Physical health wellness response average is the same across groups categorized by Survey Completion Date.

***Research Question 3: What is the relationship between the categories of Cosplayer Status and the mental health response variables*?**

The distribution of Depression score response average is the same across categories of Cosplayer Status.

Hypothesis Twenty (H_o^{20}). The distribution of PHQ2 major depressive tendencies scores is the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-one (H_o^{21}). The distribution of PHQ 9 depressive disorder diagnoses and grades of depressive symptom severity scores response average is the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-Two (H_o^{22}). The distribution of Subjective wellbeing response average is the same across categories of Cosplayer Status Categories.

The distribution of dimensions of wellness scores will be the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-Three (H_o^{23}). The distribution of Occupational wellness response average is the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-Four (H_o^{24}). The distribution of Intellectual wellness response average is the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-Five (H_o^{25}). The distribution of Emotional wellness response average is the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-Six (H_o^{26}). The distribution of social wellness response average is the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-Seven (H_o^{27}). The distribution of Spiritual wellness response average is the same across categories of Cosplayer Status Categories.

Hypothesis Twenty-Eight (H_o^{28}). The distribution of Physical health wellness response average is the same across categories of Cosplayer Status Categories.

Chapter 2

Literature review

Leisure has a variety of definitions based on the mechanisms of personal experience and the outcomes of interest. Neulinger defined a state of leisure as perceived to have the freedom to choose the activity and is motivated for its own sake and not the consequences (Leisure as a state of mind) (Iso-Ahola, S. E. 1979). Nash defined leisure as activities a person engages in outside of work and activities necessary for daily living; it is based on increased participation in leisure activities to allow for the development of a person (Leisure as activity) (Russel). Because of the complex nature of the leisure engagement model that was studied; the basic leisure principles of Neulinger and Nash were used simultaneously. This study integrated various theories of the psychological mechanisms related to leisure engagement to form the conceptual model to explore which psychological mechanisms promote specific aspects of wellbeing and mental health.

Engagement

Leisure engagement is complex, both conceptual models proposed by Kuykendall et al (2015) and Newman et al (2014) adopt the structural aspect of leisure engagement, including the amount of time, diversity, or frequency of one's participation in normatively defined leisure activities, and the subjective aspect, including, the personal view or experiences of leisure, and a measure of involvement, incorporating the psychological factors associated with leisure activity. Most often engagement is measured as some form of participation and does not explore the meaning or importance of the activity. Matsumoto et al (2018) operationalized a combination of

Newman et al.'s (2014) leisure engagement conceptual model in which key psychological mechanisms promote specific aspects of the leisure domain SWB and Kuykendall et al.'s (2015) meta-analysis of leisure engagement to examine the relationship of leisure engagement, involvement and subjective happiness and measured leisure engagement (frequency) as antecedents to leisure satisfaction with a focal leisure activity, scuba diving. While the items were multi-dimensionally describing how individuals are progressively involved in a focal leisure activity, a flaw was present in the measurement of scuba diving participation because they used a measure of scuba diving that was too limited, "how often did you scuba dive in the last twelve months", without any consideration for ancillary activities or diversity and that skewed the results somewhat. Not having a multidimensional measure of participation further supports the idea that a holistic picture of leisure participation is needed.

When leisure engagement terminology is substituted with participation measures such as in Schultz et al (2018) and Brajša-Žganec et al (2011) there has been evidence that there are robust associations with different facets of well-being. Schultz et al (2018) and Brajša-Žganec et al (2011) measure participation as frequency of participation in leisure activities. Smallfield & Molitor (2018) found in a systematic review within the scope of occupational therapy interventions that addressed leisure engagement as active participation, were enhanced by leisure education (which is a cornerstone of the leisure ability model), and selective use of community-based groups or electronic gaming. Leisure activities related to cosplay are in the arts and creative areas of leisure activities so studies that relate art activity participation are important foundations for studying the new leisure activity of cosplay. Totterdell and Poerio (2020) found that frequency of attendance at different art events predicted subsequent well-being. Effects varied according to the art form and the type of well-being assessed, but overall, the evidence

indicated that encounters with artistic imagination contribute to people's well-being (Totterdell, P., & Poerio, G. (2020). Alternately Zhang et al (2017) found that leisure participation positively related to subjective well-being among elderly Chinese, with females more likely to engage in social and performing-arts activities whereas males were more likely to engage in detachment-recovery and aesthetic activities. Matsumoto et al's (2018) overall measure of engagement did not show a significant relationship with subjective happiness associated with leisure involvement factors. "Affective leisure involvement was measured by the following three factors: attraction, centrality, and resistance to change, whereas cognitive leisure involvement was captured by knowledge and equipment." One of the conclusions was that "the more a focal leisure activity becomes central to one's life, the harder it is for individuals to be satisfied with the leisure activity as their expectation toward the leisure activity increases" (Matsumoto, et al 2018).

In the 2015 meta-analysis of leisure engagement Kuykendall et al. identified that the most important theoretical was evidence to support "these [participation and involvement meaning] processes are not mutually exclusive, our findings imply that both processes coexist and appear to account for approximately equal amounts of variance…". Kuykendall et al. (2014) was the first holistic attempt to link leisure to subjective wellbeing thru involvement psychological mechanisms. Twilley (2017), Matsumoto et al.'s (2018) and Shen et al.'s (2022) studies Have tested this model with varying success. When examining the overall leisure repertoire, or multiple leisure activities a person participates involvement accounts for more of the variance in the outcome variables (Twilley 2017, Shen et al.'s 2022).

The information provided by a scale that operationalizes the leisure engagement theory identifies the mechanisms that underpin relationships and may be helpful in directing potential interventions. Suggesting that cognitive and social leisure activities are beneficial for SWB and

mental health because they can satisfy several aspects of human needs such as psychological, social, educational, and relaxation (Ku, P. W., Fox, K. R., & Chen, L. J. (2016). These aspects of human needs are analogous to commonly accepted dimensions of wellness, and they correspond to the domains of therapeutic recreation, but research has not made the connections between the overlapping concepts. This research seeks to address these conceptual gaps by establishing an activity, participation, and psychological model that links leisure to SWB, dimensions of wellbeing and depression in general through a bottom-up approach.

The models used for this study concentrate on the overall leisure repertoire or a person's overall chosen leisure activities. This research focused on the single leisure activity of cosplay and unlike scuba diving which was examined with these models it is made up of multiple layers of leisure activities. Letamendi (2021) described cosplay as:

> "A visual or external expression of fandom — typically through costume, clothing, masks, makeup, armour or props — that is accompanied by a psychological, internal transformation related to personality, power, abilities, gender and/or sexuality."

Research has shown that costuming as enclothed cognition or the psychological process of clothing influence can have beneficial influences on behavior (Mueller 2021) which is the purpose of a recreational therapy intervention. The next section concentrates on explaining the relevant history and activities of cosplay and the theoretical relationship of cosplay within the greater Recreation Therapy realm.

Cosplay Therapy

Through the combination of costuming and performance of a character the cosplayer has a play opportunity to express themselves, explore their identity, and make a statement about their true self. Sometimes how a person dresses is their voice. As one cosplayer in Lopez – Jefferson (2016) says, just putting on their costume is Halloween, but cosplay is about embodiment of the character and their qualities (Lopez – Jefferson 2016). The cosplayer shows a part of themselves that may not be apparent in the rest of their life. "You don't have to be a big-time actor to be a hero to someone less fortunate" (Drill Soul 2016). "Identification with a social group helps individuals increase their self-esteem, invest themselves in unselfish behaviors, have meaning in their lives, feel a sense of belonging and raise their aspirations" (Inoue et al 2015). The fan community is an imagined space not based on geographic location (Abercrombie and Longhurst 1998) so very different "fandoms" can coexist in the same place even if it's only temporary, such as those at multi genre comic conventions like Dragon Con. As Hills (2002) stated, "Fans are fans because fan communities exist and can be entered". Fandom studies look at the attachment person has to a particular object or situation. This can be a book, movie, character, or even a sports team.

Cosplay is an active portrayal of a fictional character, sometimes completely identifying as that character while in costume (for occasions other than Halloween) and it is a subculture of the Comic Convention culture. Today hundreds of conventions, in the US alone, cater to fan interests from video games to comic books to anime (Denning 2015). While the term cosplay originated in Japan (Bruno), cosplay itself has distinctly American roots. Fandom conventions have evolved and increased the opportunity for fan engagement (Denning 2015). The first costumes at the Los Angeles World Con, saw people dressed as both their favorite characters

from various science fiction franchises and their own creations(Bruno). Competitive highly engaged cosplayers participate in the con masquerade, a formal event where costumes were presented for judging, sometimes accompanied by skits (Bell 2015, Mead 2017). The masquerades have evolved into the generic termed cosplay contests. A cosplayer at a convention is normally dressed up and acts, at least in some ways, in line with their character. Cosplay spectators are consumers who want to interactively participate on the con floor and take pictures of or with their favorite cosplayers and characters. Cosplay performers transform the content into something of their own and then make this product available through various media formats (Bacon-Smith 1999, Lundstrom 2014). Cosplay offers people a chance to show off their creativity, connect with other like-minded individuals and creates a type of community (Clark 2017). Dragon Con, started in 1987 Atlanta Ga., touts itself as the largest multi-genre and pop culture convention with something for everyone (Burton 2020). Today Dragon Con is a four day round the clock convention run by fans for fans, as opposed to the corporate nature of other conventions. Highlights include the Dragon Con parade through downtown Atlanta that is now covered by local television stations. Multiple cosplay contests, parties of all kinds, gaming competitions and other traditional con activities.

For this study cosplay competitors are participants in the con masquerade or any level of con competitions that are qualifying rounds for the overall masquerade competition. Off stage cosplay participants may participate in any of the following activities: beauty pageants, fashion shows, parades, charity events, and informal con floor displays. All these activities are covered in the participation questions on the survey instruments.

The reasons for cosplay are varied but research is beginning to develop a well-supported list. Reasons include: fondness for the character, a sense of belonging to a group, trendiness,

enjoyment, desire to exhibit their costumes, escape, character identification, personal recognition, the art of playing tribute to a character, the experience of relation to a character, costume making, artistic expressive outlets, entertainment skills, coping mechanisms, volunteering opportunities, Fetish/sex, and business opportunity (Benesh-Lui 2007, Flatt 2015, Frey 2013, Rahaman and Letamendi 2013, McGeehon 2018). The reasons cosplayers choose their costumes are how they look in the costume, some psychological characteristics of the character, character history, and physical similarities, these reasons are more important than mere artistic construction issues (Rosenburg and Letamendi 2013).

Cosplay can help alleviate symptoms associated with depression, anxiety, and social stress. (McGeehon, Z. 2018). While many motivations for cosplay besides the love of the character, the cosplayers' parasocial relationship with the characters can manifest these therapeutic rewards because of play therapy and aspects of superhero or villain personas. Cosplay encompasses multiple arts and cultural leisure activities and understanding the emerging evidence (Elsden and Roe 2020) that engagement with these types of leisure activities has depression reducing benefits is relevant to therapeutic recreation providers.

Geek Therapy

Geek therapy is a method integrating pop culture artifacts into the therapeutic process to build rapport with the client (Murray & Faust 2022). While identifying as a geek has traditionally been a source of social isolation (Bean 2020), the rise of popular media portrayals of "nerds/geeks" has led to a cultural normalization of the term and persona that can allow a therapist the opportunity to use the games, media, or other "nerd" activity as a vehicle to what the player patient is experiencing. The popularity and wide range of activities available for these

observations is spawning new geek therapy specialization certifications (Geek therapy.org, Geek Therapeutics.com). The underlying activities of geek culture can provide valuable information to the therapist about context of what the client is experiencing and a variety of games, media artifacts, and other geek culture items can be used as therapeutic interventions. Such as, fan fiction can become bibliotherapy or cosplaying being used to explore identity formation. Working within the realm of popular culture and media requires that the professional be familiar with the underlying story and the monomyth model, as part of superhero therapy to explore what is driving the player to a certain character, avatar, or style of play.

Superhero therapy

To understand a cosplayer's choice to adopt a famous character's persona and become the hero or villain lies in understanding the hero story itself. Joseph Campbell's classic monomyth model of the hero, first proposed in 1949 and based on Carl Jung's view of the myth, sees a hero venture forth from ordinary life into a supernatural adventure where they face challenges, temptations, revelation, and atonement from a decisive crisis and are able to return home transformed (Palumbo, D. 2008). According to Palumbo (2008) this model is still used in meticulous detail in many modern pop culture and science fiction franchises. According to Lawrence the superhero is distinguished from the classical Hero by disguised origins, pure motivations, a redemptive task, and extraordinary powers.

> All superheroes [and super villains] share one main superpower - the power of healing. All the superheroes' stories are essentially 'healing stories' by setting examples of growth through the facing of hardship difficulties and loss. Their readers can draw inspiration from them, reflect on their own emotions, and behavior and use the stories for self-

transformation and healing. (Rubin in Using superheroes in counseling and play therapy (2006)

The Superhero story creates personal mythologies with the elements of costume, dual or secret identity, family issues, superpowers with fatal flaws, transformation and finally the villain they must confront. Since the first appearance of Superman, the value of comics has been debated. On the negative side comic books were portrayed as a "Temptation, corruption, and demoralization that has nothing to do with drama art or literature" (Wortham) and were an evil that must be destroyed by social reform. At the 1954 US Congressional Kefauver hearings, Lauretta Bender, one of the first Doctors to use comic books in therapy, testified about her positive experiences with Comic superhero stories and mental health treatment, including the value of teaching children to express their emotion through drawing comics. The materials that fulfilled many psychological needs of the child offer characters that invite personal identification with their exploits in fantasies and conflicts where good ultimately triumphs over evil (Kappel and Lawrence 2006). That identification provided a step towards the mastery of reality. Superheroes often in some variant lack the traditional nuclear family in their formative years. They rarely enjoy uncomplicated relationships and lay a foundation where they must survive and ultimately rise from these family problems while still excluded from society. Superheroes unite into family units to serve the greater good and defend against villains, but these family units don't exist without the struggles and conflict of ordinary families. Conflict between the superheroes' power and their fatal flaw is the expression of our basic conflicts, such as connection versus isolation, self-indulgence vs self-denial, and perseverance versus surrender (Rubin). Unlike the heroes of antiquity, which experienced an enlightened return after their Conflict resolution, modern superheroes often are forever isolated with the cost of integration

into society being renunciation of their powers or living a dual identity. The modern superhero monomyth is a foundation for use of superheroes in therapy. The superhero story offers a road map that allows one to simultaneously distance and experience obstacles of the past to resolve and face painful traumatic issues.

There's no such thing as an overarching single superhero therapy but superheroes stories can be used as tools and metaphors in many types of therapy. Superhero intervention is not a single specific treatment modality unlike Cinema therapy, where a person views and discusses films for therapeutic gain, drama therapy, where one acts out interactions and assumes the roles of superheroes, or bibliotherapy, where one engages with books and writing for therapeutic gain and engages clients in therapeutic discussions (Fingeroth). Sand tray therapy, where a client can create a world and any super inhabitants, they desire to process difficult issues, is not only for kids lacking in complex language skills it also benefits any aged person who relies on their intellect over emotion, struggles with perfectionism, has a history of trauma or loss, or has unresolved family issues. Use of superheroes in therapy builds on the concept of positive psychology and pop culture therapy (Franking 2020). Popular culture therapy is a place where one can learn to deal with power relationships through interactions that challenge participants to plan and problem-solve through cognitive and social development skills. The general idea is that the superhero character and story can be used in multiple therapies. Superhero stories resonate across life spans (Hain 2005). Through superhero stories readers can draw inspiration and reflect on their own lives (Cohen-Manor 2019). Because superheroes are fictional characters, relationships with them are classified as parasocial, a term coined by Horton and Wolin in 1956, that indicates a one-sided connection with a fictional character or celebrity (Gannon). Research has found that these relationships can inspire art, fulfill needs and desires of fans, and facilitate

real relationships within [fandom] communities (Rosen and Dibble 2016, Tuckanchinsky 2015). Relationships are formed because the audience sees the characters whole life and media outlets encourage these relationships when they have the character break through the fourth wall and speak directly to the audience (Kokesh and Stenadoni 2015). Kaayo (2019) found processing movies, stories, and parasocial relationships helpful to settle fear induced problems, such as responses to trauma or disaster. Drama therapy, in relation to disasters, allows clients to work through the traumatic events to separate the trauma or disaster from the rest of their lives. Drama Therapy Group work provides psychoeducation tools that empower people, build coping skills, and prevent isolation. Immediate acute psychoeducation and Care can provide tools to process the events and prepare the client for new normative patterns (Haen 2005). Literature also supports the need for ongoing drama therapy interventions even years after traumatic events and disasters (Haen 2005). Research has shown the use of bibliotherapy prosocial relationships with teens adverse to help can have positive responses by using self-help themes in superhero graphic novels (Franken 2020). Superhero therapy yields the benefits of coping and escape in the psychological emotional and social functioning domains of recreation therapy (Franken 2020). While the superhero monomyth and play therapies are effective methods traditionally applied to children, studies show that the viability of these therapies extends into adulthood. Overall, superhero therapies provide an intersection where pop culture meets with mental health needs and to provide treatment opportunities.

Much like the personification of superheroes in play therapy, cosplay is a modern form of Goffman's "masking" and the performance of identity because people literally don some form of mask or costume to represent any entity that lends itself to dramatic interpretation, with major influences from the science fiction fandoms including anime, cartoons, comic books, manga,

television series, and video games. The choice of the character the cosplayer portrays is literally Goffman's "mask" and the way they interpret and present that character is the role they play, and the performance takes place in a socially supported context of the Con itself. Goffman says that the repeated social performance of behaviors creates a person's identity. Under this idea, the self is a result of the dramatic effect of a presented scene with the crucial concern of whether credited or discredited. A cosplayer can portray their version of this dramatic effect through the choice of character, costume and the skit or the projected persona. The ideal performance is not just in the success of the masquerade or contest but also in the act of having people ask to take pictures. The best or most credible players have planned poses and expressions for these encounters. Here, in this interaction between the cosplayer and the audience, see Goffman's idea that the self arises from publicly validated performances. The cosplay mask, costume makeup and props, and the performance of the character are choices of the person that create and express their identity. Irving Goffman in his 1959 work, the presentation of self in everyday life, makes a connection between the kinds of "acts" that people put on in their daily lives and theatrical performances, known as dramaturgy, to provide the context of human behavior. Goffman argues that to be a person is to be a mask and to play a role. He points out the original use of the word persona describes the masks worn by characters in Greek tragedies (Goffman 1959). The mask is the representation of the self we want to be, it drives our roles and becomes an integral part of our personality. The performance of this mask is what makes us persons, "We come into the world as individuals, achieve character, and become persons." The idea that the mask creates the role and the roles become the aspects of the person suggests that we play roles, or a series of behaviors repeated until they become second nature, which add up to a person. It means that to perform a person is to be that person even if multiple roles exist. The roles are the interactions

with the social world. Interactions require an actor and an audience where the audience or recipients, can only assume that the actor's self-presentation is the truth. Goffman does have the idea of a front stage self and a backstage self. The front stage is what we project to the world and the backstage is what we see as our true self. If a person distances themselves from their "regular" social roles, they invite the audience to see them as they "really" are and practice role distancing. Goffman (1961) developed the concept of role distance to explain the freedom the individual may take about the role s/he plays. It's like they bring the backstage to the front stage and show another part of themselves. Cosplay takes on a form of Goffman's role distancing because the performance is some part of a person's identity. Presentation of costumes and embodiment of a character's persona is a way of role distancing and letting the world see the real identity of the cosplayer all while they are "hidden" behind a mask. In cosplay a person can convey representations of aspects, the roles, of their personality in the costumes and choice of characters they play. Goffman sees the sum of the roles as the identity and that even though there may be a backstage role, nothing is behind the mask.

Goffman's work has been used to study another form of creation- an avatar's formation as an expression of one's personality. Dunn and Guadagno (2012) studied the influence of personality, self-esteem, and gender on virtual self-representation in the form of avatar creation. They posit that an avatar, a computer mediated representation of oneself, is a graphical expression of Goffman's theory of self-presentation. The study participants actual pictures were compared to their game character avatars. The differences or discrepancies between person and avatar were found to be generally consistent with the idea that people would choose more of the ideal body type with exceptions based on personality types and self-esteem levels. Men high in openness qualities were more likely to choose skin tone variations. Male

and female introverts, with low self-esteem scores and women with high neuroticism scores were more likely to build attractive avatars, thus compensating for such personality shortcomings. Their findings indicate that a strong connection between the selection of avatars as self-representation and personality traits exist. Erving Goffman (1961) asserted that fulfilment of a social role is very similar to portrayal of an imaginary character.

While seemingly conflicting research has found that people generally find their cosplay and avatar self-representation to be like themselves some create new personas (Ewell at al2016). Dunn and Guadagno found that the big five personality traits of agreeableness and extraversion influence the physical attributes of the avatar. Research suggests that when given the choice people will imbue their avatars with a moral like their own (Ewell et al 2016). People emotionally invested in and identify with their characters are likely to conduct themselves like their "true" self and they expect others to do likewise (Ewell et al 2016). Costumes and pretend identity allow people to manage anxiety (Coale 1992). Costuming can help people feel more in charge and less out of control (Coale 1992). Role play can be used to help people cope with psychological issues they face in life.

Play therapy

The beginning of play therapy can be traced back to Freud(1920) and early play research. In Beyond the Pleasure Principal Freud saw play as a way to gain competence control and resolve conflicts in the life of children. A child developed from instinctual actions to give way to the reason of Adulthood. Through play, a child can re-experience threatening events to gain control over them where in Freud's view play is restricted to Childhood and its opposite is reality (Freud 1920). Western concept of play as non-productive rational voluntary and fun was limiting

given the growing evidence of much broader definitions, Including Joseph Lee's idea that play is a social necessity and Child Development and community life, and Mitchell & Mason's self-expression theory that human beings need to find Outlets to use their abilities to express themselves. Play therapy for adults has been found to increase cognitive functioning for older adults and increase positive emotions (Damayanti, N. R., & Ali, N. M. 2022).

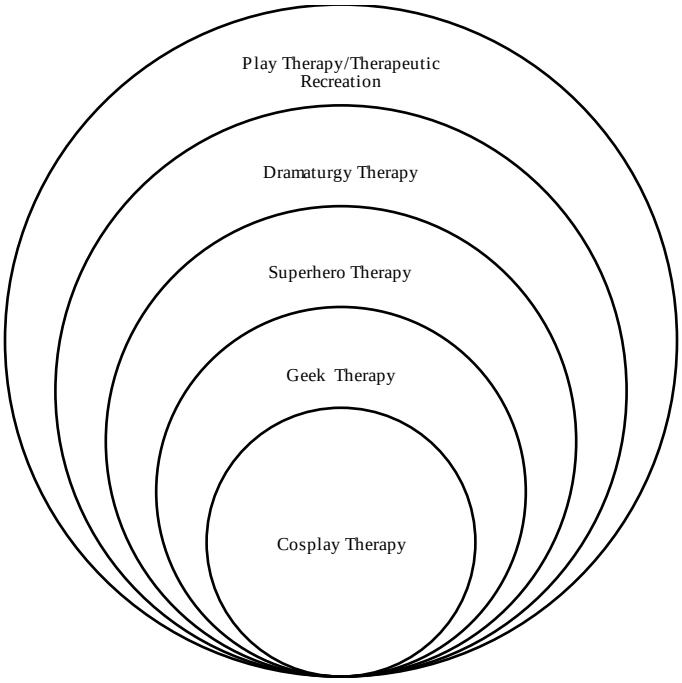
Recreation Therapy as an intervention

According to the American therapeutic recreation association, "Recreational therapy, also known as therapeutic recreation, is a systematic process that utilizes recreation and other activity-based interventions to address the assessed needs of individuals with illnesses and/or disabling conditions, to psychological and physical health, recovery, and well-being. Further, "Recreational Therapy" means a treatment service designed to restore, remediate, and rehabilitate a person's level of functioning and independence in life activities, to promote health and wellness as well as reduce or eliminate the activity limitations and restrictions to participation in life situations caused by an illness or disabling condition."

Recreation therapy systematically uses play as an intervention that focuses on the connection between good health and life enjoyment, as opposed to play therapy that uses play to uncover and deal with psychological issues. These two therapies could be combined as a complementary approach that uses play as an enjoyable intervention to help a client deal with psychological issues to increase their level of health. Play therapy can be related to recreation therapy and cosplay through a bottom-up conceptual model where each type of therapy becomes more specific in relation to the intervention activity, but all activities can be used to treat or address similar issues (see figure 3).

Figure 3

Relationship of cosplay involvement with therapeutic interventions



Variables

To define leisure engagement operationally, identify, and summarize the key theoretical linkages between the recursive concepts of immersion, participation, and involvement each of the subcomponents are defined. The definitions assigned to each of the subcomponents are based on theoretical and conceptual definitions found in the literature. For this study,

Burlinger's (2005) definition of attendance and participation, Ragheb's (2002) definition of involvement, and a combination of Kannegieser, E., & Atorf, D. (2020), Zhang, C., Perkis, Zhang, C. (2020), A., & Arndt, S. (2017), and Argawal et AL's (2020) definition of immersion. Involvement is included in the immersion construct that uses Argawal et al's (2020) definitions of immersion, as a user's psychological state when they are involved, absorbed, engaged, or engrossed. Ragheb (2002) linked immersion in leisure with involvement when he said, "intensity of involvement is an exceptionally high degree of immersion in a self-directed leisure experience the can be characterized as having optimal flow experiences and contributing to an individual's leisure experience." Therefore, Ragheb's definition of involvement contains the degree of importance, meaning of choices, and the intensity of engagement. The positive psychology definition of flow links the above with participation because the mental state of someone performing some activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the activity (APA). Immersion is differentiated from flow because even though they are similar, flow is an extreme optimal experience in activities while passive activities can engage a user and induce immersion (Argrawal et al 2020). Participation then is the quality of actions of a client and the amount of effort a client puts into an activity. While attendance is a binary count of how many times a person shows up it is expounded on by engagement which is defined as leisure diversity, frequency, and/or quantity Kuykendall and Ng (2015). These definitions are cross disciplinary feedback loops that use one to define the other. While no one definition of subjective well-being exists, agreement stands that it includes positive emotions, moods, lack of depressive emotions, satisfaction with life, feelings of engagement, and resilience (APA). Depression is a medical condition that interferes with daily life and normal function with five or more of the main symptoms should be either

depressed mood or anhedonia. The other symptoms include sleep difficulties, appetite or weight changes, poor concentration, fatigue, psychomotor agitation/retardation, feelings of worthlessness and thoughts of dread where the severity, onset and duration are used to determine the type of depression (DSMV, NIH). Many of these concepts are related to the aforementioned constructs of involvement, immersion, and participation.

Involvement

Like the other constructs in this study leisure involvement is a commonly used word that has multiple meanings within the research from different disciplines. The study of involvement has roots in consumer behavior research. This paradigm posits three components to involvement, Situational involvement, and Enduring involvement (EI). According to Havitz and Dimanche (1997) situational involvement is the current and immediate effect of enduring involvement, which is temporary in nature, and based on how a person thinks about a particular situation. Enduring involvement on the other hand is a stable measure of the arousal potential of a product or activity. Enduring Leisure is a concept that has its roots in consumer behavior research (Shanae 2011). Due to its reasonably stable levels and advantage in explaining a broad range of more characteristic and less situation specific behaviors enduring involvement points to a sustained relationship over time. Chang at all (2018) concluded that a baseline orientation toward the activity without temporal feelings in any situation. Situational involvement is an affective state that is temporary and based on a person's thoughts and determinations of activities (Sunday 2011). They are multidimensional concepts that are operationalized by the common measures of attraction, importance, pleasure, centrality, interest, intensity, and self-expression. The high levels of EI that have consistently been linked with duration, frequency, and intensity

of participation result in elevated mood states (Havitz and Dimanche 1997). Havitz and Mannell (2005) used a modified consumer involvement profile that measured the attraction, sign, risk probability and risk consequences constructs "variables such as SI and psychological commitment are important mediators of El and subsequent behavior." "Risk measurement must be improved or dropped from subsequent involvement research designs." Flow was indirectly influenced through the type of activity's El and SI "our data do suggest that high levels of El are congruent with elevated mood states and deeper focus of attention." and suggest that "one might expect to see positive relationships between frequent experiences of El, SI, flow, and quality of life factors such as life satisfaction, self-esteem, health and subjective well-being." The combination of enduring involvement and situational involvement have been shown to lead to feelings of flow.

Flow is so named because during Csikszentmihalyi's 1975 interviews several described their experiences as an intense and focused concentration on the present moment that merges with action. "People become so involved in what they are doing that the activity becomes spontaneous, almost automatic; they stop being aware of themselves as separate from the actions they are performing," Csikszentmihalyi reported. (Csikszentmihalyi, 1990). Within recreation the concept is defined as the state where the challenges of participation are equal to the skill required to participate and include the states shown in positive psychology (APA Kraus 'book). Flow is a cross-disciplinary effect utilized in computer science and game design. The fundamentals of flow underline what video games need to form the basic involvement levels that allow a player to feel a sense of continuity without finding too much, or too little, challenge in the game world (Smith 2016).

In 1991, Moorhouse proposed a model of fan levels centered around a core involvement level divided into professionals and amateurs. As you moved outward the involvement became less and less. The interested public were a heterogeneous group that consisted of dabblers in focal concerns, mere consumers of the symbols, and new entrants. Furthest out was the public, which was generally uninvested. This model bore similarities with Stebbins model of serious leisure participation with different names for the levels of participation, but no inclusion of the serious leisure commitment and skills necessary for classification. Recent serious leisure research pertains to fandoms has included the pursuits of Civil War reenactment (Hunt 2004), football fan practices (Gibson, Williming and Holdnak, 2002), chess (Gould et al, 2011) and rock climbing (Lee Bentley and Hsu 2017). Football fan involvement and Civil War reenactment linked the concept of fandom with serious leisure. Fandom studies in general have been cross disciplinary studies of popular culture in the context of hobby groups promoting activities that are alternatives to work, otherwise known as leisure (Reid). Specifically, the serious leisure pursuit of Civil War reenactment showed that participants, as opposed to professionals, consider themselves amateur historians that invest sizeable time and money commitments to endure hardships while they participate in these rewarding activities (Hunt 2007, Middlestead 1995). While renaissance fair participants had similar views, they identified that a better involvement framework may explain passion and memorable experiences (Slocum at all 2020).

Only partial agreement to date exists as to which facets are essential to determine leisure involvement. Leisure involvement research methods must be diversified if meaningful progress toward consensus on construct validity and reliable measurement is to be achieved.

Immersion

"There are several similar concepts with slightly different scopes associated with immersion, namely, flow, presence, engagement, engrossment, cognitive absorption, narrative involvement, puppetry, and transportation." (Zhang, Perkis, & Arndt 2017). Immersive tendency relates to how involved a person becomes with stories, books, or video games and how strongly people identify with characters in those media. (Falconer et al 2020). The immersive experience of film spectatorship emerges and grows alongside the development of storytelling (Zhang, C. 2020). Argrawal et al (2020) concentrates on audiovisual immersion to create a definition of immersion as a mental state, which is why sensory stimulation is not required to experience immersion, when an individual is in a state of deep mental involvement. Zhang et al (2017) defines immersion as a feeling of being deeply engaged in a "make-believe world as if real." It is understood as a user's psychological state when they are involved, absorbed, engaged, or engrossed. Immersive tendencies allow us to experience an alternate reality that only exists in our imagination, and this gives us the thrills to explore some of the previously uncharted territories, to feel, sense, or even interact with or manipulate new objects. These interactions can create vast potential to iterate a product life cycle and appropriate user experience in a cost-effective economic manner (Zhang, 2020). Immersion has been described as a psychological construct like involvement that varies with time and human activity. Components of immersion include attraction and time investment. Kannegieser & Atorf (2020) proposed that multiple levels of immersion. The lower level, engrossment, is made up of emotional attachment and decreased perceptions. Total immersion is defined in terms of presence and empathy.

Emotional Immersion is the type of immersion when the user feels emotionally aroused and absorbed by the narrative content of the story. Different from spatial immersion,

> emotional immersion does not necessarily allow users to feel the "bodily presence" into the scene but allows them to be cognitively identified and emotionally empathized with one of the characters of the story or avatars in the game world (Falconer et al 2020).

Research has shown that emotional immersion is more immersive than spatial immersion (Zhang, C., Perkis, A., & Arndt, S. 2017). Moller et al (2014) found that immersive leisure environments promote wellbeing is important to invite the possibility of further experience design for use in health and wellness. Even though they concentrated on technology, many of the concepts can be applied to other immersive experiences by extending the immersive computer game experience to other therapeutic leisure interventions. "In fact, immersive environments can be understood within a leisure studies paradigm; scholars are now employing operational definitions of leisure that extend beyond participation in specific types of activities, settings, and time." Intensity of immersion in gambling was a predominant factor in the detection of the excessive practice related to the maladaptive screen practices that confirm the high level of commitment generated during excessive practice phases (Rémond & Romo 2018, Jacko 2018). Call to determine if immersion is bipolar or a gradient experience.

> ...impacts of the immersive experience that are brought to the users, particularly at the cognitive, emotional, and behavioral levels, if any, have not been fully assessed. Knowledge of these was particularly conducive to the application of immersive technologies as a therapeutic tool, such as mental or physical rehabilitation. (Zhang, C. 2020).

Witmer and Singer (1998) developed Immersive Tendencies Questionnaire to measure factors that encourage involvement, enable immersion, and internal tendencies to become involved with simulated environments. The scale proposes to evaluate the total propensity to

immersion and contains four variables (focus, implication, tendency to play video games, and emotion). (Rémond, J. J., & Romo, L. (2018). Falconer et al (2020) used a modified version of immersive tendencies questionnaire (ITQ) to examine how individuals experience presence in simulated environments. Respondents varied in immersive tendencies particularly between sexes.

Participation

Several studies already mentioned (Zhang, et al 2017, Matsumoto, et al 2018, Totterdell, P., & Poerio, G. 2020) have labeled the variables as involvement or engagement but upon closer examination they are measures of participation. Participation is often looked like a binary variable that measures a single instance of participation. When the variable contains a wider range of counts, like in the scuba diving study, it can be problematic for data analysis. One of the problems with using the term involvement when measuring participation is that little to no examination of the levels of involvement or the meaning of involvement shown earlier to be important components of the measure. One such study is that of Lelonek-Kuleta et al (2020) measured frequency and duration of online gambling to characterize Pole's involvement in online gambling. They found the factors that explained the level of participation, involvement, in online gambling were gender, age, population of the place of residence, education, and monthly family income. Original fandom scales that characterize the level of fan identity did not assess fan participation because previous research erroneously said that participation activities were rare among fans. Vinney's (2019) research linked participation levels in fandoms in general with an increase in subjective well-being and suggested that future research in this paradigm include exploration of ways in which popular media fans relation's might be used to improve the

beneficial outcomes for people who engage in this generally increasing common aspect of the modern human experience.

Participation in leisure activities that provide a greater diversity of opportunities for freedom of choice, self-expression, and creativity were most likely to bring about higher psychological well-being and lower depression among older adults (Dupuis and Smale 2013). The diversity or leisure repertoire has also been shown to be related to continued lifetime participation (Mäkelä, et al 2017).

The Children's Assessment of Participation and Enjoyment (CAPE) and the Preferences for Activities of Children (PAC) measures include diversity (number of activities done), intensity (frequency of participation measured as a function of the number of possible activities within a category), enjoyment of activities, and preferences for involvement in each activity (King et al 2004). Currently, there is no standardized assessment tool that assesses the elderly's leisure participation in occupational therapy. Jeong et al (2019) developed a multidimensional occupational leisure participation assessment tool that measures both quantitative frequency and qualitative measurements such as satisfaction and interest. Available assessments lack diversity of leisure activities and should include both quantitative outcomes and outcomes of the subjective experience (Jeong et al 2019). This tool compares the importance between multiple activities and does not focus on the subjective outcomes of a single activity. The results of this study correspond well with Payne et al (2006), who found that the broader the leisure repertoire or diversity the higher the perceived mental health.

Well-Being

General subjective wellbeing (life satisfaction, the presence of positive feelings and absence of negative feelings) has been shown to be correlated to increased leisure

participation. This research will use Deiner's (2000) theory of wellness as used in the Newman et al (2014) model of the psychological mechanisms of leisure and SWB. Hutchinson and Kleiber (2005) studied the connection between casual leisure and subjective well-being after a traumatic or stressful event. They used qualitative interviews and found that leisure can contribute positively to self-protection, self-restoration, and personal growth following negative life events "coping, as well as affirmation and elaboration of the self, occurs as a result of infusing enjoyable moments with meaning." In contrast to intense concentration or flow, casual leisure can provide numerous and social benefits not because of the skill or attention demanded but because benefits and outcomes. Call for future research to elaborate the relationships between various health or wellbeing outcomes and different forms of casual leisure. Paggi et al (2016) found frequency of participation in leisure activities acted as a mediator between physical health and subjective well-being in their cross-sectional survey study. Subjective well-being is a lifelong process that is to a certain extent modifiable through participation in leisure activities. "Future research should consider the different types of activities separately, given that health may enable or hinder these activities in different ways (e.g., social vs. physical activities)." (Bartsch unpublished) Bartsch looked at subjective well-being and participation in a fan community. This fan identity scale only measured activity participation identity, not level of participation. Research conducted with older and disabled populations provides evidence that interventions targeted at the improvement of the leisure domain can enhance SWB. Harmon and Kyle (2016) found in their qualitative interview study that involvement in the leisure outlet of a music scene came to define the closeness of relationships through shared love of music, interaction, and care for each other's subjective well-being. Kuykendall and Ng (2015) found in their meta-analysis study of leisure engagement, which they defined as leisure diversity,

frequency, and/or quantity and subjective well-being that a clear link between leisure engagement and SWB exists across a wide range of populations. Plant (2018) found attendance at fan conventions increased the sense of subjective well-being. They surveyed in person attendees and compared to online only fans. Cosplayers reported better SWB across a few indicators. They call for more research into different groups other than anime fans.

This study will use Hettler's model of wellness. Wellness is differentiated from well being's psychological states because wellness is an "active process through which people become aware of, and make choices toward, a more successful existence". Prilleltensky (2013) found that a balanced state of wellness includes increased life expectancy, healthier relationships, increased productivity, and fewer mental and physical issues. Brito (2020) showed that participation in a sports club had a high positive impact on the social, emotional, and physical wellness dimensions for college students.

Depression

The idea that creativity is related to mood disorders or psychopathology is a western stereotype based on the assumption that within the artistic community that "madness, melancholy, and suicide are somehow normal" (Feist 1998) but evidence suggests that a question of the link between creativity and mental illness maybe too general (Nittle 2019). Because of the multiple types of mood disorders, depression illnesses, and domains of creativity, conclusions need to be highly specific about the depression measurement approach being utilized, the type of disorder, and domain of creativity being assessed (Taylor 2017). Evidence suggests that mood disorders may influence factors unique to verbal and performance domain types of creativity

(Taylor 2017). “Depressive symptoms have been found to negatively affect the cognitive fluency and energy required for creativity” (Johnson, et al., 2012).

Major depressive disorder is recognized to have many patients experience relapses and reoccurrences when residual symptoms persist after a depressive episode ends and while consistent data supports continuation of pharmacotherapy psychotherapy appear promising in the prevention of relapse and recurrence (Nierenberg, et al 2003). There is a “common wisdom” reflected in depression research that people are aware of the potential positive influences of participation in leisure activities but there is also a feedback loop in which the more depression is experienced the less a person can participate in leisure activities (Nimrod et al 2012). Tourism and related and leisure related activities have been found to relieve the symptoms of melancholy related depression both before the trip and reminiscing over the travel experience and comforting dynamics experienced (Christou and Simillidou 2020, Keller ad Boland 1998). A timetable of improved happiness and life satisfaction from 15 days before the leisure travel experience to one month following the experience showed expectation and serendipity are important for prolonging happiness ((Kwon and Lee 2019). Alternatively, Kroesen and Handy (2014) found that tourism related leisure did not have a relationship with enduring happiness suggesting a cyclical relationship between the leisure experience and time. A visitor leisure experience may as a depression antidote there do appear to be certain melancholy remedying effects offered by the visitor leisure experience that are necessarily restricted to the phases of the leisure experience (Christou and Smillidou 2020). There is a complex and dynamic nature of the leisure experience and further in-depth examination of the interrelationship of different types of recreation activities (Lee et al 1994).

Lack of depression is an important component of SWB which has been shown to be related to the levels of leisure participation. "Lower levels of SWB are also associated with depression, anxiety, stress, and the need for therapy (Steger et al. 2006)." Many different aspects of leisure participation such as physical activity (Fernandez-Montero et al 2020), leisure settings (Chang et al 2020), and leisure coping (Iwaska, Nagata et al 2019) have been shown to have an inverse relationship with depression. It also has preventative qualities according to Suhas et al (2019) and Hussien et al (2020). Understanding the relationship between leisure participation and depression is important to medical, psychiatric, and therapeutic recreation interventions.

Recent studies indicate that Behavioral activation is a useful method for difficult to reach populations (Cuijpers et al 2007). Cognitive behavioral treatments such as Beck, Rush, Shaw, and Emery's (1979) therapy integrate activity scheduling as one of the basic elements. The treatment rationale for behavioral activation therapy is that increasing healthy behaviors while decreasing depressed behaviors leads to positive experiences resulting in improved thoughts and mood (Lejuez et al 2011). Major depressive disorder

Dimensions of Wellness

According to the National Council for therapeutic recreation, "the purpose of the recreation therapy (RT) process is to improve or maintain physical, cognitive, social, emotional and spiritual functioning in order to facilitate full participation in life." The difference between recreation therapies and general recreation is that RT is a systematic application of the assessment planning, implementation, and evaluation process versus activities primarily for enjoyment. The spheres of activity or domains for therapeutic recreation are Mental/Cognitive Functioning, Physical Functioning, Psychological/Emotional Functioning, Social Function, and Spiritual Functioning. Characteristics of wellness include that it is a part of health, the most

described multidimensions of physical, social, intellectual, emotional (mental) and spiritual. (Corbin, & Pangrazi, 2001) in addition to the World Health Organization definition of health as more than freedom from illness, disease, and debilitating conditions (Tamashiro, H. (2021). The intersection of these multidimensional concepts leads to the idea that not only are dimensions of wellness the process of interventions, but they are also outcome measures, useful to individual counseling (Zechner, M. R., et al 2022).

Literature Review Conclusion

Overall, this literature review has linked Newman et al's (2014) leisure engagement model, which is based on the broad concept that leisure can be both structural, leisure as time, and subjective, leisure as time, with overall goals for improving mental health. Both structural and subjective leisure have psychological, involvement, immersive tendencies, participation, frequency, and diversity components that have been empirically linked to mental health measures of subjective well being, depression, and resilience. Understanding the holistic connection of leisure engagement to mental health increases the efficacy and options of interventions available to recreation therapists. Recreation therapists can use cosplay engagement as a modality to accomplish superhero play therapy goals to support mental health improvement. An increased variety of effective mental health treatment interventions was needed to address the unique challenges and increased demand for services that the COVID-19 pandemic creates for recreation therapists as part of a comprehensive mental health team.

Chapter 3

Methods

This quasi-experimental study used a posttest only design. An online survey to explore the relationship of the multidimensional cosplay engagement model levels with depression, subjective wellbeing, and specific wellness measures. Because of the cancellation of all fandom conventions in 2020, the 2021 live and virtual participants provided the their 2021 participation in convention activities and recollected their 2019 and 2020 Dragon Con convention activity participations.

Participants

Dragon Con 2021 attendees, and members of the Dragon Con Facebook groups; *Dragon Con Official, Dragon Con Unofficial, Dragon Con Newbies*, and *Causeplay Alliance* Facebook groups completed an online questionnaire either at the 2021 convention or online the week of the convention through December 2021 that included their recalled participation in sixteen Dragon Con activities for the 2019 live con, 2020 virtual con, and the 2021 hybrid live/virtual con.

During the past three decades literary, media, sociological, and fandom researchers have become aware of the socio-cultural significance of cosplay as well as the theoretical and methodological challenges academic studies present. In the recreation field, research on cosplay has focused on tourism aspects of the phenomenon (Hao et al 2020, Graburn and Yamamura 2020, Uriate et al 2019, and Steine 2019). The Melea et al (2019) online Facebook web survey

of Greek cosplay not only made the connection between mental health and cosplay, but also showed that cosplay Facebook groups are a reliable and valid method of sample recruitment. For determination of sample size and power they used the overall number of cosplayers who live in Greece as opposed to using only the membership numbers of the Facebook groups.

Population size is based on the Dragon Con 2021 reported attendance of 42,000 people. Repeated random sampling t the Convention and 3 Facebook invitation posts were used to reach the suggested valid sample size (Nayak, B. K. 2010)was 383 surveys, using a quota stratification to match the overall con demographics. These will help reduce nonresponse bias.

Instrument

A 111-question survey was developed and administered using Survey Monkey. The survey used Skip Logic sections, so no respondent was able to respond to all 111 questions. The survey sections included; a screening question for age and if they had participated in any type of fandom convention, questions concerning fandom attendance for 2019-2021, # of years they attended DRAGON CON, activity participation at DRAGON CON, Cosplay Involvement, Immersive Tendencies (ITQ), Depression measures (PHQ2, PHQ9), Dimensions of Wellness (DOW), and Subjective Wellness (WHO5) and concluded with a demographics section.

The instrument developed specifically for the study measured engagement based on Newman et al (2015) constructs of participation (frequency and diversity), involvement (centrality, importance, pleasure, self-expression, interest, meaning and intensity), and immersive tendencies. Appropriate questions were deductively generated from tested valid and reliable scales (Tables and Appendix A). Wellbeing was measured using the World Health

organization five item Well-Being index. Depression was measured using the PHQ-9 questionnaire. The survey included a demographic screening questions section. If participants didn't cosplay, attended a fandom convention or Dragon Con specifically, they only received the mental health and other con participation portions of the survey.

Involvement was measured using Ragheb's LRI scale (2002). This scale has been shown to be valid and reliable in multiple populations. Additional items from Kyle and colleagues' (Kyle et al 2004) modified involvement scale and McIntyre and Pigram's (1992) were utilized. The resulting scale measures the importance, enjoyment/ pleasure, centrality, self-expression, interests, intensity and meaning constructs. These constructs were used to measure the descriptive relationship with reasons people cosplay (McGeehon, 2018) and their relation to the theoretical concepts of Newman et al's (2015) engagement model. Moreover, the 2018 Kirillova et al. survey study showed the greater the level of involvement in the anime subculture, the greater the consumer importance of fantasy to tourism motivation. Not only does this show the usefulness of an involvement survey scale, but it begins to make the connection between involvement and fandoms.

Depression was measured using a combination of the depression module of the Patient Health Questionnaire (PHQ 9) and the PHQ 2 scales for anxiety and depression. These scales have been shown to be valid and reliable across multiple populations (Manea, Gilbody, & McMillan, 2012, Kroenke, Spitzer, Williams, & Löwe, 2009). "The impairment in mental health associated with anxiety is identical to that associated with depression" (Kroenke, Spitzer, Williams, & Löwe, 2009) creating a need for screening for both conditions and the PHQ 9 and 2 provide this construct. These scales are not diagnostic but indicators for further inquiry to establish the presence or absence of a clinical disorder warranting treatment. A score of 10 or

higher on the PHQ 9 is recommended as the cutoff score for detecting major depressive disorders (Manea, Gilbody, & McMillan, 2012). A score of 3-4 on the PHQ 2 section indicates further investigation is needed to determine the type and severity of anxiety disorders (Kroenke, Spitzer, Williams, & Löwe, 2009). Moreover, the PHQ 2 scale has good specificity (81-83%) and sensitivity for diagnostic, multiple anxiety disorders (Kroenke, Spitzer, Williams, & Löwe, 2009).

Mental health well-being was measured by the WHO 5 scale. This is a valid and reliable scale that has been used to measure well-being as it relates to leisure activities (Vinney, C., Dill-Shackleford, K. E., Plante, C. N., & Bartsch, A. 2019). The five sub measures of the WHO 5 include occupational, emotional, physical, social, and psychological domains.

Data sample and collection

Pilot Test

The pilot test was conducted at the Atlanta Georgia Renaissance Festival May 8,9, 2021 to investigate the validity by jury of the instrument and the reliability of the measures of Cosplay Leisure Engagement used for the study. The survey was distributed to 50 Cosplayers at the Georgia Renaissance Festival. The jury consisted of Cosplayers that had participated in Dragon Con cosplaying at least one year or more. Minor changes to content and context were made to the instrument following the suggestions of the jurists based on the pilot study results that included the vernacular of questions to simplify and better interpreted by the participant's understanding and to standardize scale measures for the purpose of the study.

Dragon Con Survey

Recruitment occurred in person at the 2021 Dragon Con convention with a random sample framework. A QR code link to the survey monkey survey was created and distributed via business cards explaining the project. There was also a QR code poster that was part of a cosplay, worn by the researcher and posted at multiple locations throughout the convention hotels, where convention goers could scan and link to the survey. Participants completed the survey between Sep. 2, 2021, and Jan. 5, 2022. The instrument was administered by electronic link that led participants to the survey information page. The invitation could be accessed by QR code at the convention and posted on the Facebook pages (9/4, 9/15, and 10/20). After the screening pages participants were asked to indicate whether how and why they participated in activities during the 2019, 2020, and 2021 events. The 21 items based on the Dragon Con program guide were modified slightly (to a general category classification) so that participants indicated participation in the event irrespective of the programing track. An example item is "Panels" as a representation of all the different types of panel activities a person could attend. Participants indicated if they had attended Dragon Con panels as either "yes" or "no" without recalling specific panels or how many panels attended each year for the 2019, 2020 Virtual Con, or the 2021 Hybrid Con. The 21-item Participation questions were condensed and/or reduced to 18 items after scrutiny revealed several overlapped questions or parallel meaning. A PCA analysis was then conducted to further understand and simplify the participation score and resulted in a Dragon Con activity diversity (DCAD) of 7 factors subscale, and Dragon Con activity participation (DCAP) of 16 activities was used for the hypothesis testing.

Facebook groups were purposefully chosen as recruitment sites for the cosplayer participants in this study along with general comic/fandom convention attendees, members of a Dragon Con, and/or a member of a causeplay group. Comparison groups for the study included

Fandom Convention goers, Dragon Con attendees who do not cosplay, and Fandom Con attendees who are primarily gamers, not cosplayers. The Facebook groups were categorized as "Dragon Con Official," "Dragon Con Unofficial," and "Dragon Con Newbies." "Dragon Con Newbies" include no/low con experience and recruited by the convention administration on the first day to help "first timers" have a positive experience during the con. Some of these members had never attended Dragon Con others stumbled upon the page. Their total membership during the 2021 Dragon Con was 4,913. The "Dragon Con Official" participants are followers of the con owner page, the source of official announcements- Membership = 36,883. Finally, the "Dragon Con unofficial" page is a fan run page with a Membership of 23,000.

These groups provide the continuum of participation levels for Fandom and cosplay additional groups were established to provide anchor points of "highest" cosplay and "least or no cosplay. Causeplay groups are the highly involved cosplayers based on the highest level of commitments to cosplay involvement. General Fandom Convention attendees and cosplayers will represent the majority of causeplayer respondents. The gamer group have a similar range of participation within their chosen group of leisure activities but are not used as a "low" cosplay group and was interpreted accordingly.

Recruitment posts embedded with a letter and survey link directed potential subjects to join the project. This study used purposive sampling procedures because of the ease of selecting a sample of typical convention participants with different levels of cosplay engagement where well-being could be assessed and include participants that may have attended the 2019 and 2020 Dragon Con events. Research has shown that majority internet-based samples can closely resemble probability samples in terms of demographics that use more conventional probability sampling approaches (Schneider and Harknett 2019). Furthermore, Lu and Shuett (2012) used an

online survey to examine the relationship between enduring involvement and volunteer experience. Facebook represents a distinct advantage over conventional sampling frameworks because unlike phone and email sampling it is a durable means of contact. Participants then engaged with the online survey through survey monkey.

Data Screening

Participant data collected from QR code and invitation was downloaded into SPSS 26 for statistical analysis. First, the data was screened for outliers and anomalies in the data patterns. Four out-of-range values, vendors, fashion show participant, paid cosplayer and video game tournament, due to Lack of response rate and non-leisure activities, were identified and recoded as missing data. The minimum amount of data for factor analysis was satisfied, with a final overall sample size of 304 (using listwise deletion), providing a ratio of over 12 cases per variable (Nayak, B. K. (2010).

Using participants two-week recall on measures of depression (PHQ 9) three categories based on the recognized patterns of response during the August-December data collection period were formed; 1 During Dragon Con, 2 Two weeks post Dragon Con, and 3 greater than 2 weeks post Dragon Con, as shown in Table 11. This allowed for the immediate effect of participation in the Dragon Con to be compared to post Con 2 weeks after con and then more than 2 weeks post con. This anomaly in data collection provides data that can be explored to determine the longevity of the leisure experience on depression.

Analysis

After the aforementioned survey data was gleaned and adjusted descriptive, univariate, and multivariate statistical analyses was completed using SPSS software. First, Cronbach alpha were run to assess the reliability and internal consistency of the overall survey scale. A Principal Components factor Analysis (PCA) calculated to investigate if the 21 Dragon Convention activities/session/events may be generalized into smaller factored groups. After the initial groupings five activities were removed due to little or no participation or multicollinearity issues and16 activities/session/events included in the final PCA analyses. The results of the PCA analysis were used to create a diversity score. The PCA analysis was run on three separate and identifiable conditions to explore the nuance of the leisure activity cosplay. First, an overall participation score including all levels of cosplay was chosen to include in PCA calculations. Next, two subgroups were delineated; participants with low cosplay involvement importance, these are the con goers who do not participate in cosplay, scores and high cosplay involvement importance score were calculated. Finally, a T-test was run on diversity scores for the low cosplay involvement importance score and a cosplay involvement importance score to test if the was any difference between the groups.

To address research question one nine different multiple linear and step-wise regressions were run to determine the relationships between the leisure engagement predictor variables and the mental health response variables. Regressions were run on the three groups investigated and formed using PCA analyses: an overall participation group, a low cosplay involvement group and a high cosplay involvement group. A stepwise method was used with the first block demographic variables and the second block predictor variable that included; Numbers of years attending Dragon Con, Dragon Con Activity Participation (DCAP), Involvement score,

Immersive Tendencies score, Dragon Con Diversity for overall participation score, low cosplay involvement group score and high cosplay involvement group score. This method was chosen to determine if predictor variables significantly influenced the outcome variable in the engagement model.

To address research questions 3 and 4 a series of non-parametric tests were run in SPSS because the normality assumption was violated for at least one of the measured variables in each hypothesis. When entering an independent sample non-parametric test in SPSS you can allow the system to run multiple tests and report the most appropriate test for the data. For this studies data a Kruskal-Wallace test was calculated to determine if the survey completion groups and cosplay activity groups were different for the predictor variables.

Chapter 4

Results

Participants

For this study, respondents completed a questionnaire either in person or online that explored their participation in Dragon Convention activities for the 2021 hybrid live/virtual con and to recall their activities from the 2019 live con and 2020 virtual con to understand the effects the COVID-19 pandemic had on cosplay. A total of 705 respondents initiated the survey. Surveys with incomplete entries and respondents who did not participate in any 2021 hybrid Dragon Con Activities were eliminated 304 participants (54 males; 195 females 8 other; Mage = 34.25) remained.

The sample included ethnicity groups with a makeup of 72% White/Caucasian, 3% Hispanic or Latino, 3% Black or African American, 1.6% American Indian or Alaskan Native, 0.3% Asian or Pacific Islander and 16.8% which preferred not to answer. The average household income was between $75,000 and $99,000 and 65.1% of the sample was employed working full time at the time of the survey. 63.5% of the sample had a bachelor's degree or higher. (See Appendices A-F for sample demographic tables).

Study Variables

The explanatory variables for the study included an involvement scale (Table 1), an immersive tendencies scale (Table 2), and participation variables (Table 3).

The LRI and MIS involvement scale constructs of Centrality, Social Bonding, Attraction, and Identity questions were used to create a 12-question involvement scale that corresponds to research results that identified reasons people cosplay (Rosenberg, R. S., & Letamendi, A. M. 2013).

Table 1

Involvement Scale Statistics (N=304)

	M	S E M	SD
1. Cosplaying offers me relaxation when life's pressure builds up	3.85	.06	1.02
2. I find that a lot of my life is organized around cosplay	2.50	.07	1.23
3. When I cosplay, others see me the way I want them to see me	3.07	.05	.92
4. Cosplaying is one of the most satisfying things I do	3.66	.07	1.13
5. Most of my friends are in some way connected with cosplaying	3.00	.07	1.25
6. When I am cosplaying, I can really be myself	3.55	.06	1.12
7. I enjoy discussing cosplay with friends	4.20	.05	0.93
8. You can tell a lot about a person when you see them cosplaying	3.29	.06	1.04
9. I have little or no interest in cosplay	4.56	.05	0.86
10. Cosplay is one of the most enjoyable things I do	3.78	.06	1.10
11. Cosplay says a lot about who I am	3.37	.06	1.09
12. Cosplay is very important to me	3.82	.06	1.00

The original immersive tendencies scale (Witmer, B. G., & Singer, M. J. 1998) (Table 2) was used because it included questions regarding books which are accepted source materials for cosplay characters.

Table 2

Immersive Tendencies Scale Descriptive Statistics (N=304)

	Mean	S E M	SD
1. When you watch movies or tv dramas how easily do you become deeply involved?	3.23	.05	.97
2. When you watch a television program or read a book do you ever become so involved in that people have problems getting your attention?	3.10	.07	1.23
3. When you watch movies do you ever become so involved that you are not aware of things happening around you?	2.68	.06	1.10
4. How frequently do you find yourself closely identifying with the characters in a story line?	3.19	.05	.94
5. Do you ever become so involved in a video game that it is as if you are inside the game rather than moving a controller and watching the screen?	1.90	.08	1.44
6. When watching sports, do you ever become so involved in the game that you react as if you were one of the players?	1.28	.06	1.02
7. Do you ever become so involved in a daydream that you are not aware of things happening around you?	2.39	.07	1.18
8. Do you ever have dreams that are so real that you feel disoriented when you awake?	2.71	.06	1.09
9. When playing sports, do you become so involved in the game that you lose track of time?	1.48	.08	1.44
10. Have you ever gotten excited during a chase or fight scene on TV or in the movies?	3.32	.06	1.12
11. Have you ever gotten scared by something happening on a TV show or in a movie?	2.79	.06	1.05
12. Have you ever remained apprehensive or fearful long after watching a scary movie?	2.7	.08	1.34
13. When you listen to music do you ever become so involved in that people have problems getting your attention?	2.36	.06	1.12
14. When you listen to music do you ever become so involved that you are not aware of things happening around you?	2.44	.06	1.13
15. Do you ever become so involved in doing something that you lose all track of time?	3.43	.06	.99
16. Do you ever grieve the death or loss of a fictional character	3.31	.0 7	1.20

Descriptive statistics (Table 3) were computed to check the normality of the item distributions and to verify whether the items met the parametric assumptions underlying factor analysis (Fabrigar & Wegener, 2012; Field, 2013).

Table 3

Pre-factor Analysis Descriptive Statistics for Activity Survey Items (304)

Dragon Con Activities	M	S E M	SD
Panels	.88	.02	.32
Video gaming tournament	.01	.01	.11
Video gaming	.06	.01	.24
RPG game	.08	.02	.28
Other Game session	.11	.02	.32
Shopping	.89	.02	.31
Cosplay workshops	.23	.02	.42
Competitor	.10	.02	.31
Competition spectator	.49	.03	.50
Fashion show participant	.02	.01	.14
Fashion show spectator	.17	.02	.38
Costumed parties	.46	.03	.50
Parades 2021	.39	.03	.49
Blood drive	.15	.02	.36
Blood drive in costume	.07	.01	.26
Fundraising in costume	.05	.01	.22
Non-costumed fundraising	.05	.01	.22
Non-cosplay workshops	.26	.02	.44
Paid cosplaying	.01	.00	.08
Vendor	.11	.02	.32
Costume on the general convention floor	.55	.03	.50

The response variables included in the study included the Patient Health Questionnaire for Depression (PHQ2 & PHQ9) presented in table 4 and Subjective Wellbeing (SWB) presented in Table 5 and Dimensions of Wellness (WD1O, WD2I, WD3E, WD4So, WD5S, and WD6P) depicted in Tables 6 through 6e. Overall depression scores indicated that 40% (121) of the sample Have PHQ scores that would indicate moderate to severe depression.

Table 4

Patient Health Questionnaire (PHQ2, PHQ9) descriptive Statistics

	M	S E M	SD
PHQ 2			
88. Little interest or pleasure in doing things	10.22	.49	8.62
89. Feeling down, depressed, or hopeless	8.83	.47	8.28
PHQ 9			
90. Trouble falling or staying asleep, or sleeping too much	13.32	.60	10.51
91. Feeling tired or having little energy	14.44	.55	9.67
92. Poor appetite or overeating	10.87	.56	9.72
93. Feeling bad about yourself or that you are a failure or have let yourself or your family down	8.39	.54	9.49
94. Trouble concentrating on things, such as reading the newspaper or watching television	8.96	.52	9.01
95. Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual	3.55	.38	6.59
96. Thoughts that you would be better off dead, or of hurting yourself	2.47	.35	6.14

The WHO 5 Subjective wellbeing scale includes both wellbeing and depression indicators. Also, the WHO 5 wellbeing scale is disease anonymous to increase generalizability irrespective of the disease entity and/or condition under examination. Therefore, WHO is used as a screening tool and an outcome measure (Topp et al 2015).

The WHO considers the outcome measure of positive well-being to be another term for mental health conventionally translated to a percentage scale from 0 (absent) to 100 (maximal) health-related quality of life and when WHO-5 is used for the screening of depression, a cut-off score of ≤50 is used. The baseline score representative for major depression in the primary care setting is a mean score ≤28. WHO 5 has been used as an outcome measure involving patients with major depression because of the high sensitivity (0.93) of the instrument. Studies using WHO 5 are also used to evaluate occupational health (Feicht 2013) and social capital wellbeing (Jung et al 2012). Participants mean response score In Table 5 was used for this study but not meant to be a clinical examination of each participant.

Table 5

WHO 5 Subjective Wellbeing Descriptive Statistics (n=273)

	Mean	SEM	SD
1. I have felt cheerful and in good spirits	3.46	.03	.59
2. I have felt calm and relaxed	3.31	.03	.54
3. I have felt active and vigorous	3.17	.03	.64
4. I woke up feeling fresh and rested	3.05	.05	.81
5. My daily life has been filled with things that interest me	3.54	.04	.64

The dimensions of wellness measured included physical, social, intellectual, emotional (mental) and spiritual aspects which correspond to the therapeutic domains of Mental/Cognitive Functioning, Physical Functioning, Psychological/Emotional Functioning, Social Function, and Spiritual Functioning, respectively. Table 6 shows the summary score for each of the dimensions of wellness and Tables 6a-f show the mean scores of each question for each respective dimension of wellness.

Table 6
Descriptive Statistics for Dimensions of wellness (n=280)

		Mean	SE	SD
Occupational wellness	WD1O	67.73	1.04	18.18
Intellectual wellness	WD2I	64.53	0.77	13.40
Emotional wellness	WD3E	61.10	0.98	16.92
Social wellness	WD4So	57.67	0.88	15.02
Spiritual wellness	WD5S	59.41	1.06	17.90
Physical health wellness	WD6P	63.26	0.95	15.97

The occupational dimension of wellness reflects participant balance and fulfillment with their job/occupation. Six questions from the National Wellness Institute Focus Survey assessed level of fulfillment in each of the Six Dimensions of Wellness. The results for each question are presented in Table 6a.

Table 6a

Dimensions of Occupational Wellness Descriptive Statistics

	M	SE	SD
WD1O			
45. My work reflects my personal values.	67.54	1.34	23.14
46. I feel I have good work-life balance.	57.29	1.43	24.64
47. I enjoy the work I do.	64.92	1.34	23.26
48. My work offers me challenges I can handle.	74.29	1.19	20.6
49. I have opportunities to make meaningful contributions at work.	71.12	1.46	25.01
50. The work I do accomplishes something important.	72.74	1.47	25.22

The intellectual dimension of wellness reflects a person creative mental activity. There were six questions from the National Wellness Institute Focus Survey to assess a person's level of fulfillment of the intellectual dimension of Wellness and the results for each question are presented in Table 6b.

Table 6b

Dimensions of Intellectual Wellness Descriptive Statistics

	M	SE	SD
WD2I			
51. I engage in stimulating or creative activities.	71.04	1.17	20.32
52. I engage in downtime or relaxation that lacks specific goals or focus to recharge my brain.	62.89	1.40	24.30
53. I fully immerse myself in tasks with energized focus and enjoyment.	58.94	1.17	20.28
54. I stay informed about local, national, or world events.	59.09	1.54	26.74
55. I treat my own errors as opportunities to learn and grow.	70.04	1.20	20.90
56. I engage in continual learning opportunities	65.27	1.57	27;00

The emotional dimension of wellness reflects a person's awareness and acceptance of feelings and emotions. There were six questions from the National Wellness Institute Focus Survey to assess a person's level of fulfillment in each of the Six Dimensions of Wellness. The results for each question are presented in Table 6c.

Table 6c

Dimensions of Emotional Wellness Descriptive Statistics

	M	SE	SD
WD3E			
57. When I experience positive or negative emotions, I can appropriately express how I feel.	65.51	1.24	21.26
58. I can adequately manage my emotional response when in an upsetting or challenging situation.	63.09	1.32	22.69
59. I seek help from others when I am experiencing difficulties.	55.17	1.53	25.97
60. I love and accept myself as I am.	65.34	1.50	25.59
61. I engage in stress management activities.	56.92	1.45	24.56
62. To cope with challenges in life, I focus on the most positive aspects of the event or situation	61.31	1.31	22.39

The social dimension of wellness reflects the person's concept of interdependence with others and nature. There were six questions from the National Wellness Institute Focus Survey to assess a person's level of fulfillment in each of the Six Dimensions of Wellness. The results for each question are presented in Table 6d.

Table 6d

Dimensions of Social Wellness Descriptive Statistics

	M	SE	SD
WD4So			
63. I have a strong sense of belonging with the community in which I live.	26.61	.86	14.58
64. I help resolve environmental issues in my community.	44.01	1.70	28.13
65. I protect and conserve natural resources to insure a healthy environment for all organisms.	62.07	1.49	25.06
66. I use my strengths to help others.	74.07	1.21	20.56
67. I do things that contribute to a larger cause.	60.65	1.25	21.15
68. I have loving, supportive relationships (friends, family) in my life.	78.86	1.27	21.72

The spiritual dimension of wellness reflects a person's search for meaning and purpose rather than connection to a particular religion. There were six questions from the National Wellness Institute Focus Survey to assess a person's level of fulfillment in each of the Six Dimensions of Wellness. The results for each question are presented in Table 6e.

Table 6e

Dimensions of Spiritual Wellness Descriptive Statistics

	M	SE	SD
WD5S			
69. I feel that my life has a sense of direction or meaning to it.	61.82	1.62	27.22
70. I live each day in a way that is consistent with my values	75.09	1.21	20.42
71. Prayer and/or meditation are a regular part of my daily routine.	36.82	2.22	33.97
72. I feel a sense of connectedness with creation and all other living beings.	60.14	1.75	29.01
73. I accept events and others as they are and do not make judgments.	59.23	1.36	23.00
74. I have a sense of peace about my life.	59.44	1.44	24.06

The physical dimension of wellness reflects the personal responsibilities for care healthy attitudes. There were six questions from the National Wellness Institute Focus Survey to assess a person's level of fulfillment in each of the Six Dimensions of Wellness. The results for each question are presented in Table 6f.

Table 6f

Dimensions of Physical Wellness Descriptive Statistics

	M	SE	SD
WD6P			
75. I wake up feeling fresh and rested.	44.10	1.42	23.37
76. Poor physical or mental health keeps me from doing my usual activities, such as for self-care, work, or recreation.	57.39	1.69	28.04
77. I consume 4 or more drinks of alcohol in a 2-hour period.	83.45	1.76	29.09
78. I use e-cigarettes or other tobacco products	86.72	1.99	32.37
79. I consume at least 5 servings of fruits and vegetables in a day	53.78	1.57	25.64
80. I engage in at least 150 minutes of physical activity in a week	56.06	1.88	30.70

Subobjective of the Study

A subobjective of this dissertation was exploration of con-based activities which could be used to measure Dragon Con Participation and then develop a conceptual/theoretical based measurement system for convention participation. Three constructed groups were used for this analysis: first an overall participation group, second a Low Importance Level of Cosplay participation group, and third a High Importance Level of Cosplay participation group. Importance Level of Cosplay participation is based on the question; personal importance of level of cosplay involvement as a leisure activity in which they participate. This is an integrated method of including involvement in the engagement model.

Principal components analysis was ran using Promax rotation. Seven factors emerged that were used for exploring con participation and testing several hypotheses. The composite participation variables used for hypothesis testing and also were the basis for a construct of the con leisure engagement model. Twenty-one initial activities were included in the survey and 16

emerged as activities entered the PCA and emerged as seven. The participants were asked to indicate whether they had participated in activities during the Dragon Con event (Questionnaire, Appendix C, Page X) in 2019, 2020, and 2021hybrid.

Chronbach aplha reliability analysis determined the 21 con activity items represented an internally consistent measure (α= 0.59). Blood Drive and Vendor were items removed that increased the chronbach's alpha. Moreover, Video Game Tournaments, Fashion show participant, and Paid Cosplaying were removed based on low/no reponse. Analysis of the inter-item correlations demonstrated associations between items ranging from 0.002 to 0.41. While most items did not fall in the acceptable correlation range, they were included in the intial rotation analysis to assess their suitability for the factor analysis. The final PCA was computed on 16 items raising alpha to 0.60 which for exploratory purpose deemed to be an adequate baseline (Pallant, J. 2001).

The verifying assumptions made on the factorability of the 16 Activity items was examined for 2021 and the following criteria for the factorability of a correlation were used. The Kaiser-Meyer-Olkin measure of sampling adequacy was .612, above the commonly recommended value of .6, and Bartlett's test of sphericity was significant ($\chi 2$ (136) = 532.54, p < .001) (Shrestha, 2021, Neill, J. 2008). This indicated that the correlation matrix was favorable and not an identity matrix (Determinant = .184). The diagonals of the anti-image correlation matrix were also all over .5 (See Appendix A). Finally, the communalities for all were above .4, further confirming that each item shared some common variance with other items (See Table 7). Given these overall indicators, factor analysis was deemed to be suitable with all 16 items.

Table 7

Communalities for 2021 activity participants

	Extraction
Panels	.62
Video gaming	.46
RPG session	.61
Other Games	.66
Shopping	.63
Cosplay workshops	.66
Competitor	.51
Competition spectator	.61
Fashion show spectator	.47
Costumed parties	.67
Parades	.53
Blood drive in costume	.73
Fundraising in costume	.62
Non-costumed fundraising	.58
Other non-cosplay workshops	.70
Costume on the general convention floor	.65

There are two additional scenarios for PCA analysis that were explored: first an overall analysis of the factors on their own merit and second, an analysis using as a selection the importance of the level of cosplay (ILC) to the participant. One of the core assumptions of a leisure engagement model is that there is a breadth and a depth to activity participation. For this

study the breadth is the variety of DragonCon Convention activities and how often a person participated in them. The depth comes from the self-reported personal importance of that involvement. Therefore, the variable Cosplay involvement importance was used as a selection variable for comparison of high importance and low importance groups.

Overall Principal Components Analysis (PCA) solutions

The 16 con participation variables were examined using PCA analysis with obim and varimax rotation producing a seven factor solution that share a common variance. (Young 2013). The (Kaiser, 1960) criterion and identified factors that were greater than 1 were examined.

The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.61, above the recommended .6 and Bartlett's test of sphericity was significant ($\chi^2(120) = 502.96$, $p<0.001$). A total of 62.7% of the variance was explained by the seven factors with eigenvalues greater than 1. Initial eigen values for the 2021 participation indicated that the seven factors explained variances of: 14.96 %, 10.89 %, 8.61%, 7.42 %, 7.23 %, 7.05%, and 6.52%, respectively. Solutions for the seven factors were examined using oblimin and varimax rotations of the factor loading matrix, to obtain simple and interpretable factors. The seven factors "describe the data in terms of new variables (principal components) that are uncorrelated without seeking to reduce dimensionality, leaving out lesser significant components is not needed" (Jaadi 2021). Factors with eigenvalues less than 1.00 are not considered to be stable and are not retained in the analysis (Girden, 2001).

Inspection of Cattell's scree test supported the appropriateness of rotating these four factors, i.e., the bend in the elbow occurred after four factors. Thus, based on the exploratory purpose of the study the seven factors were based on results of visual inspection of Cattell's scree test, the

accounted percentage of variance. and the eigenvalues analysis.

There was minor difference between the varimax and oblimin rotation solutions, thus both solutions were examined in subsequent analyses before deciding to use a Varimax rotation for the final solution. Varimax was chosen because the correlation matrix generated showed exceptionally low to no correlation between variables satisfying the varimax assumption of no correlation between variables (Corner 2009, Watkins 2018, Shrestha 2021).

Communalities were strong, ranging from .46 to .75. Items. There are multiple ways to treat components loading on more than one factor (Loewen& Gonulal, 2015) and for the purpose of this study components were retained factors with the greatest loading value. Parades and costumed parities cross loaded on two factors with moderate loadings; however, both factors were retained as they are distinct cosplay activities at the Dragon Con. The PCA computed with 16 items resulted in a reasonably clear factor pattern and the loadings were interpretable.

The seven factors identified are used as "participation" independent variables for the study. Sensical labels were developed for each of these seven variables. Factor 1, DC Cosplayers (n=293, 96.4%) was represented by 3 items, Factor 2 DC Gamers (n= 54, 17.8%) was represented by 3 items, Factor 3 DC Spectator (n=158, 52%) was represented by 2 items, Factor 4 DC Fundraiser (n=26, 8.6%) was represented by 2 items, Factor 5 DC Shop/Parade (n=286, 94%) was represented by 2 items, Factor 6 DC Workshops (n=111, 36.2%) was represented by 2 items, and Factor 7 DC Competitor (n=47, 15.5%) was represented by 2 items. Factor loadings of each of the 16 items are shown in Table 8.

Table 8

Summary of PCA Pattern Matrix (Varimax with Kaiser Normalization) for 16-Item Inventory

	Factor						
	1	2	3	4	5	6	7
DC Cosplayers							
Costume on the general convention floor	.70						
Costumed parties	.61		.40				
Panels	-.53						
DC Gamers							
Other Game session		.79					
Role Playing game session		.77					
Video gaming session		.60					
DC Spectator							
Competition spectator			.77				
Fashion show spectator			.64				
DC Fundraiser							
Non-costumed fundraising				-.76			
Fundraising in costume				-.70			
DC Shop/Parade							
Shopping					-.74		
Parades			.49		.56		
DC Workshops							
Other non-cosplay workshops						-.85	
Cosplay workshops						-.78	
DC Competitor							
Blood drive in costume							.85
Competitor							.65

Extraction Method: Principal Component Analysis. Rotation converged in 21 iterations.

Internal consistency for each of the seven created factors was examined using Cronbach's alpha. The factors with low alphas; DC Cosplayers (α=0.35), DC CON Gamers (α=0.58), DRAGON CON Spectator (α=0.44), DC Fundraiser (α=0.45), DC Shop/Parade (α=0.06), DC Workshops (α=0.54), and DC Competitor (α=0.37). However, based on the purpose of the study

and that they have significant loading scores they were retained as participation variables. No substantial increases in alpha for any of the scales could have been achieved by eliminating more items. Composite scores were created for each of the seven factors, based on the mean of the items which had their primary loadings on each factor.

Low Importance Level of Cosplay Selection PCA Analysis

Varimax was chosen because the correlation matrix generated showed low to no correlation between variables satisfying the varimax assumption of no correlation between variables (Corner 2009, Watkins 2018, Shrestha 2021). The Kaiser (Kaiser, 1960) criterion and identified factors that are greater than 1 were examined. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.63 below the recommended 0.6 and Bartlett's test of sphericity was significant ($\chi^2(120) = 299.33$, $p<0.001$). The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.529 below the recommended 0.6 and Bartlett's test of sphericity was significant ($\chi^2(120) = 298.36$, $p<0.001$). A total of 60.38% of the variance was explained by six factors with eigenvalues greater than 1. Initial eigen values for the 2021 participation indicated that the six factors explained 18.66 %, 10.67 %, 9.31%, 8.0 %, 7.22 %, and 6.51%, of the variance respectively. Solutions for six factors were each examined using oblimin and varimax rotations of the factor loading matrix, to obtain simple and interpretable factors. It is important to keep all the six factors to "describe the data in terms of new variables (principal components) that are uncorrelated without seeking to reduce dimensionality, leaving out lesser significant components is not needed" (Jaadi 2021). "Those [factors] with eigenvalues less than 1.00 are not considered to be stable and are not retained in the analysis." (Girden, 2001). Inspection of Cattell's scree test (see Figure 2) supported the appropriateness of rotating these four factors, i.e., the bend in the elbow occurred after two factors. Cattell's visual scree test resulted in 3 factors, while Kaiser's

rule would have retained six. Thus, these six factors were based on the results of visual inspection of Cattell's scree test, the accounted percentage of variance and the eigenvalues analysis.

Communalities were strong, ranging from .41 to .78. Items Video Gaming sessions and Parades cross loaded on two factors with low loadings; however, these factors were retained as distinct activities at the DRAGON CON. The PCA was computed with 16 items resulting in a reasonably clear factor pattern and the loadings were interpretable. The low involvement importance group had 116 participants. The factors are different than those in the overall PCA or the High involvement selection group. Factor 1, DC Cosplayers (n=293 96.4%) was represented by 3 items, Factor 2 DC Gamers (n= 54, 17.8%) was represented by 3 items, Factor 3 DC Spectator (n=158, 52%) was represented by 2 items, Factor 4 DC Fundraiser (n=26, 8.6%) was represented by 2 items, Factor 5 DC Shop/Parade (n=286, 94%) was represented by 2 items, Factor 6 DC Workshops (n=111, 36.2%) was represented by 2 items, and Factor 7 DC Competitor (n=47, 15.5%) was represented by 2 items. Table 10 summarizes the loading value of each item on its factor.

Table 9
Summary of PCA Pattern Matrix (Varimax with Kaiser Normalization) for 16-Item Inventory Low Involvement importance selection variable

	Factor					
	1	2	3	4	5	6
DRAGON CON Workshop, Video gamer, Fundraiser						
Other non-cosplay workshops	.80					
Non-costumed fundraising	.58					
Cosplay workshops	.50					
Video gaming session	.47				.43	
DRAGON CON Competitor, Parades Fundraiser						
Competitor in competitions and masquerades		-.70				
Fundraising in costume		-.70				
Blood drive in costume		-.60				
Parades		-.40	.76			
DRAGON CON Spectator						
Competition spectator			.75			
Fashion show spectator			.46			
DRAGON CON Gamer						
Other Game session				.81		
Role Playing game session				.77		
DRAGON CON Cosplayer						
Costume on the general convention floor					.70	
Costumed parties					.64	
Panels					-.60	
DRAGON CON Shopper						
Shopping						.88

Extraction Method: Principal Component Analysis.
a. Rotation converged in 25 iterations.
b. Only cases for which Cosplay Involvement Importance Grps = 1 are used in the analysis phase.

Internal consistency for each of the scales was examined using Cronbach's alpha. The factors had lower than acceptable alphas; DRAGON CON Workshop Video gamer Fundraiser (α=0.46), DRAGON CON Competitor(α=0.19), DRAGON CON Spectator(α=0.46), DRAGON

CON Gamer(α=0.35), DRAGON CON Cosplayer(α=0.35), and DRAGON CON Shopper; they have significant loading scores but have been retained because of the exploratory nature of the research. No substantial increases in alpha for any of the scales could have been achieved by eliminating more items. Composite scores were created for each of the seven factors, based on the mean of the items which had their primary loadings on each factor.

Although a varimax rotation was used, only small correlations between each of the composite scores existed (see table 10). In summary, an exploratory factor analysis of the questionnaire's items produced an interpretable 7-factor simple structure.

Table 10
Final Factor Inter-Correlation Matrix. Low Cosplay involvement importance Component Correlation Matrix[a]

Component	1	2	3	4	5	6
1 Workshop, Video gamer, Fundraiser	1.00	-.15	.11	.13	.15	.10
2 Competitor, Parades Fundraiser	-.15	1.00	.02	-.11	.00	-.06
3 Spectator	.11	.02	1.00	.03	.06	.11
4 Gamer	.13	-.11	.03	1.00	.03	.11
5 Cosplayer	.15	.00	.06	.03	1.00	.04
6 Shopper	.10	-.06	.11	.11	.04	1.00

Extraction Method: Principal Component Analysis.
a. Only cases for which Cosplay Involvement Importance Grps = 1 are used in the analysis phase.

High Importance Level of Cosplay Selection Analysis

The Kaiser (Kaiser, 1960) criterion and identified factors that are greater than 1 were examined. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.529 below the recommended 0.6 and Bartlett's test of sphericity was significant ($\chi^2(120) = 298.36$, $p<0.001$). A total of 64.59% of the variance was explained by seven factors with eigenvalues greater than 1.

Initial eigen values for the 2021 participation with a selection criteria of High Cosplay involvement importance indicated that the seven factors explained 13.86 %, 10.68 %, 9.58%, 8.60 %, 7.63 %, 7.29 %, and 6.94%, of the variance respectively. Solutions for seven factors were each examined using oblimin and varimax rotations of the factor loading matrix to obtain simple and interpretable factors. It is important to keep all the seven factors to "describe the data in terms of new variables (principal components) that are uncorrelated without seeking to reduce dimensionality, leaving out lesser significant components is not needed" (Jaadi 2021). "Those [factors] with eigenvalues less than 1.00 are not considered to be stable and are not retained in the analysis." (Girden, 2001). Inspection of Cattell's scree test (see Figure 5) supported the appropriateness of rotating these four factors, i.e., the bend in the elbow occurred after two factors. Cattell's visual scree test resulted in 3 factors, while Kaiser's rule would have retained six. Thus, these six factors were based on the results of visual inspection of Cattell's scree test, the accounted percentage of variance eigenvalues analysis.

There was trivial difference between the varimax and oblimin solutions, thus both solutions were examined in subsequent analyses before deciding to use a Varimax rotation for the final solution. Varimax was chosen because the correlation matrix generated showed exceptionally low to no correlation between variables satisfying the varimax assumption of no correlation between variables (Corner 2009, Watkins 2018, Shrestha 2021).

Communalities were strong, ranging from 0.46 to 0.75. Items Parades and costumed parities cross loaded on two factors with moderate loadings; however, both factors were retained as they are distinct cosplay activities at the DRAGON CON. The PCA was computed with 16 items resulting in a reasonably clear factor pattern and the loadings were interpretable. The individual activities with the greatest participations are Shopping (n= 272), Panels (n=269),

Cosplay on Con Floor (n=168), Competition Spectator (n=148), Parties (n=140), and Parades (n=120) all other variables had less than 100 participants. Factor 1, DC Cosplayers (n=293 96.4%) was represented by 3 items, Factor 2 DC Gamers (n= 54, 17.8%) was represented by 3 items, Factor 3 DC Spectator (n=158, 52%) was represented by 2 items, Factor 4 DC Fundraiser (n=26, 8.6%) was represented by 2 items, Factor 5 DC Shop/Parade (n=286, 94%) was represented by 2 items, Factor 6 DC Workshops (n=111, 36.2%) was represented by 2 items, and Factor 7 DC Competitor (n=47, 15.5%) was represented by 2 items. Table 11 summarizes the loading value of each item on its factor.

Table 11
Summary of PCA Pattern Matrixa (Varimax with Kaiser Normalization) for 16-Item Inventory High Involvement importance selection variable

	Component						
	1	2	3	4	5	6	7
DC Spectator							
Fashion show spectator	.74						
Competition spectator	.70						
Parades	.52						
Costumed parties	.46						
DC Gamer							
Other Game session		.85					
Video gaming		.77					
Role Playing game		.57					
DC Cosplayer							
Costume on the general convention floor			-.80				
Shopping			-.76				
DC Workshop							
Other non-cosplay workshops				.82			
Cosplay workshops				.82			
DC Competitor							
Competitor					.79		
Blood drive					.68		
DC Cosplay Fundraiser							
Fundraising in costume						.82	
DC Panels							
Panels							.77
Non-costumed fundraising							.50

Extraction Method: Principal Component Analysis.

a. Rotation converged in 16 iterations.

b. Only cases for which Cosplay Involvement Importance Grps = high are used in the analysis phase.

Internal consistency for each of the scales was examined using Cronbach's alpha. The factors had lower than acceptable alphas; DC spectator(α=0.53), DC Gamer(α=0.58), DC Cosplayer(α=0.37), DC Workshop(α=0.54), DC Competitor (α=0.37), DC Cosplay Fundraiser, and DC Panels(α=0.15); they have significant loading scores and have been retained because of

the exploratory nature of the research. No substantial increases in alpha for any of the scales could have been achieved by eliminating more items. Composite scores were created for each of the seven factors, based on the items which had their primary loadings on each factor, which became the Dragon Con Activity Diversity score.

Although a varimax rotation was used, only small correlations between each of the composite scores existed (see table 12). In summary, an exploratory factor analysis of the questionnaire's items produced an interpretable 7-factor simple structure.

Table 12

Final Factor Inter-Correlation Matrix. Component Correlation Matrix[a]

Component	1	2	3	4	5	6	7
1. DC Spectator	1	-.04	-.07	.11	-.02	.10	.02
2. DC Gamer	-.04	1	.07	.01	-.01	.04	-.01
3. DC Cosplayer	-.07	.07	1	.01	-.14	-.04	-.09
4. DC Workshop	.11	.01	.01	1	-.02	.04	0
5. DC Competitor	-.02	-.01	-.14	-.02	1	.02	.05
6. DC Cosplay Fundraiser	.10	.04	-.04	.04	.02	1	.06
7. DC Panels	.02	-.01	-.09	0	.05	.06	1

Extraction Method: Principal Component Analysis.

a. Only cases for which Cosplay Involvement Importance Grps = 2 are used in the analysis phase.

Finally, a t test was performed to test for differences between the Cosplay high and low involvement importance groups participation scores for Dragon Con Activity Diversity Score and the Dragon Con Activity Participation. For the Dragon Con Activity Diversity 116

participants who reported a low level of Cosplay involvement importance (M=2.97, SD 1.67) compared to the 157 participants who reported an elevated level of Cosplay involvement importance (M=3.34, SD 1.10) demonstrated significantly different overall participation PCA scores, t (271) =-2.63, *p*=.005. The 116 participants who reported a low level of Cosplay involvement importance (M=3.36, SD 1.38) compared to the 157 participants who reported an elevated level of Cosplay involvement importance (M=3.76, SD 1.27) demonstrated significantly different low ILC participation PCA scores, t (271) =-2.49, *p*=.007. For the overall Dragon Con Activity Participation 116 participants who reported a low level of Cosplay involvement importance (M=4.2, SD 2.16) compared to the 157 participants who reported an elevated level of Cosplay involvement importance (M=5.36, SD 2.09) demonstrated significantly different overall participation PCA scores, t (271) =-4.46, *p*<.001. The 116 participants who reported a low level of Cosplay involvement importance (M=3.36, SD 1.38) compared to the 157 participants who reported an elevated level of Cosplay involvement importance (M=3.76, SD 1.27) demonstrated significantly different low ILC participation PCA scores, t (271) =-2.49, *p*=.007. There was no significant effect of High ILC Activity Diversity t (271) =-0.80, *p*=.21 despite the High cosplay involvement importance group (M=3.76 SD=1.27) having a higher average Activity Diversity participation score than the low cosplay involvement importance group (M=3.36 SD=1.37) on the High cosplay involvement Activity Diversity PCA score.

Research Question 2: **Hypotheses Testing**

Thirty-seven (37) hypotheses were developed to explore the effects cosplay may have on participants of the DragonCon convention to determine cosplayers health were predicted by their involvement, participation, and immersive tendencies in this leisure activity. Furthermore, the

effects of COVID were hypothesized to have influenced both cosplay participation, immersion, and involvement as well as their depression and wellness.

The first nine hypotheses tested whether the explanatory variables and covariables either predicted or effected the levels of "Health" response variables; Depression (2), Subjective wellbeing (1), and Dimensions of Wellness (6), based on the measures of leisure engagement for Dragon Con Cosplayers. Leisure engagement was measured through immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity (DCAD), Dragon Con activity participation (DCAP), Gender, Age, Ethnicity, Average household income, Employment status, and Education.

Hypothesis One and Two: Depression

The first two hypothesis states that there would be no significant relationship between leisure engagement measures and depression scores. Step-wise multiple regression analysis was used to test if the Engagement variables significantly predicted participants' ratings of depression; both the complete PHQ 9 and the PHQ 2 depression measures were explored.

To examine the unique contribution of cosplay engagement in the explanation of Depression, a hierarchical multiple regression analysis was performed. Variables that explain cosplay leisure engagement were entered in two steps. For depression measured by PHQ 9, that establishes depressive disorder diagnoses as well as grades depressive symptom severity as the response variable in step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity (DC AD), and Dragon Con activity participation (DC AP) were entered into the step 1 equation. Before the hierarchical multiple

regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 1.24), and collinearity tolerance (all greater than .81) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .07 (adjusted R^2 = .05), which was significantly different from zero ($F_{(6, 242)}$=2.99, p=.008). Education, β = -0.18, p=.006, and age, β = -0.15, p=.03 were the only statistically significant explanatory variables. In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity (DC AD), and Dragon Con activity participation (DC AP) were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .05, which was significantly different from zero ($F_{(8, 240)}$=4.042, p<.001). Only two of the subscales of engagement contributed significantly to the explanation of PHQ9 Depression, DCAP, β = -0.13, p=.04 and IT, β = 0.21, p=.001.

For depression measured by PHQ 2, that measures the frequency of depressed mood and anhedonia over the past two weeks as the response variable, variables that explain cosplay leisure engagement were entered in two steps. In step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 2.0), and collinearity tolerance (all greater than .81) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .06 (adjusted R^2 = .03), which was significantly different from zero ($F_{(6, 232)}$=2.39, p=.03). Education was the only statistically significant explanatory variable, β = -0.15, p=.02. In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .07, which was significantly different from zero ($F_{(8, 230)}$=3.37, p<.001). Only two of the subscales of engagement contributed significantly to the explanation of PHQ2 Depression, Dragon Con activity participation, β = -0.18, p=.005 and IT, β = 0.15, p=.02.

Hypothesis Three: Wellbeing

The third hypothesis states that there would be no significant relationship between leisure engagement measures and the Subjective Wellbeing score. After detrending the data due to a high autocorrelation indicated by a Durbin Watson score of 0.4 hierarchical Multiple regression analysis was used to test if the engagement traits significantly predicted participants' ratings of Subjective Wellbeing.

Variables that explain cosplay leisure engagement were entered in two steps for Well-Being measured by WHO 5, that measures current mental well-being over a time frame of the previous two weeks, as the response variable. In step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple

regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 1.7), and collinearity tolerance (all greater than .85) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .04 (adjusted R^2 = .02), which was not significantly different from zero ($F_{(6, 242)}$=1.85, p=.09). In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .02, which was significantly different from zero ($F_{(7, 241)}$=2.46, p=.02). Only one of the subscales of engagement contributed significantly to the explanation of Well-Being, DCAP, β = .15, p=.02.

Hypothesis Four - Nine: Dimensions of wellness

The fourth thru ninth hypothesis states that there would be no significant relationship between leisure engagement measures and Dimensions of Wellness; the Occupational, Emotional, Social, Spiritual, and Physical scores. Multiple regression analysis was used to test if the engagement traits significantly predicted participants' ratings of Occupational, Emotional, Social, Spiritual, and Physical Dimensions of Wellness scores.

The results of Occupational Dimensions of Wellness analysis.

To examine the unique contribution of cosplay engagement in the explanation of Occupational Dimensions of Wellness scores. Variables that explain cosplay leisure engagement were entered in two steps. For Occupational Dimensions of Wellness scores as the response variable in step 1 age, gender, income, and education were the explanatory fixed covariate

variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity, and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 1.24), and collinearity tolerance (all greater than .81) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .09 (adjusted R^2 = .06), which was significantly different from zero ($F_{(6, 241)}$=3.84, p=.001). Education, β = 0.14, p=.03, Income, β = 0.14, p=.03, and age, β = -0.14, p=.03 were the only statistically significant explanatory variables. In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .006, which was significantly different from zero ($F_{(10, 237)}$=2.43, p=.009). None of the subscales of engagement contributed significantly to the explanation of Occupational Dimensions of Wellness scores.

The results of the Intellectual Dimensions of Wellness analysis.

To examine the unique contribution of cosplay engagement in the explanation of Intellectual Dimensions of Wellness score, a hierarchical multiple regression analysis was performed. Variables that explain cosplay leisure engagement were entered in two steps. For Intellectual Dimensions of Wellness score as the response variable in step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity, and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple regression analysis was performed, the explanatory

variables were examined for collinearity. Results of the variance inflation factor (all less than 1.27), and collinearity tolerance (all greater than .79) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .03 (adjusted R^2 = .002), which was not significantly different from zero ($F_{(6, 242)}$=1.10, p=.37). In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .03, which was not significantly different from zero ($F_{(10, 238)}$=1.492, p=.14).

The results of the Emotional Dimensions of Wellness score analysis.

To examine the unique contribution of cosplay engagement in the explanation of Emotional Dimensions of Wellness score, a hierarchical multiple regression analysis was performed. Variables that explain cosplay leisure engagement were entered in two steps. For Emotional Dimensions of Wellness score as the response variable in step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity (DCAD), and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 1.18), and collinearity tolerance (all greater than .86) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .02 (adjusted R^2 = -.002),

which was not significantly different from zero ($F_{(6, 242)}$=.90, p=.49). In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .03, which was not significantly different from zero ($F_{(10, 238)}$=1.35, p=.20).

The results of the Social Dimensions of Wellness score regression.

To examine the unique contribution of cosplay engagement in the explanation of Social Dimensions of Wellness score, a hierarchical multiple regression analysis was performed. Variables that explain cosplay leisure engagement were entered in two steps. For Social Dimensions of Wellness score as the response variable in step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 1.64), and collinearity tolerance (all greater than .86) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .02 (adjusted R^2 = -.003), which was not significantly different from zero ($F_{(6, 242)}$=.89, p=.50). In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .06, which was significantly different from zero ($F_{(10,}$

$_{238)}$=2.09, p=.03). Only Age, β = -0.16, p=.03 contributed significantly to the explanation of Social Dimensions of Wellness score.

The results of the Spiritual Dimensions of Wellness score regression.

To examine the unique contribution of cosplay engagement in the explanation of Spiritual Dimensions of Wellness, a hierarchical multiple regression analysis was performed. Variables that explain cosplay leisure engagement were entered in two steps. For Spiritual Dimensions of Wellness as the response variable in step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 1.16), and collinearity tolerance (all greater than .86) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .05 (adjusted R^2 = .02), which was not significantly different from zero ($F_{(6, 242)}$=1.99, p=.07). In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity (DCAD), and Dragon Con activity participation (DCAP) were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .06, which was significantly different from zero ($F_{(10,238)}$= 2.84, p=.002). Only two of the subscales of engagement contributed significantly to the explanation of Spiritual Dimensions of Wellness, DCAP, β = 0.30, p=.02 and IT, β = 0.15, p=.02.

The results of the Physical Dimensions of Wellness score regression.

To examine the unique contribution of cosplay engagement in the explanation of Physical Dimensions of Wellness, a hierarchical multiple regression analysis was performed. Variables that explain cosplay leisure engagement were entered in two steps. For Physical Dimensions of Wellness as the response variable in step 1 age, gender, income, and education were the explanatory fixed covariate variables. In step 2, this study's leisure engagement subscales of immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the step 1 equation. Before the hierarchical multiple regression analysis was performed, the explanatory variables were examined for collinearity. Results of the variance inflation factor (all less than 1.16), and collinearity tolerance (all greater than .86) suggest that the estimated βs are well established in the following regression model.

The results of step 1 indicated that the variance accounted for (R^2) with the first four explanatory variables (age, gender, income and education) equaled .12 (adjusted R^2 = .10), which was significantly different from zero ($F_{(6, 242)}$=5.32, p<.001). Education, β = 0.20, p=.001, and age, β = 0.20, p=.003 were the only statistically significant explanatory variables. In step 2 the subscales of engagement; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity, and Dragon Con activity participation were entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .05, which was significantly different from zero ($F_{(8, 240)}$=4.042, p<.001). Only the subscale DCAP, β = 0.29, p=.03 of engagement contributed significantly to the explanation of Physical Dimensions of Wellness.

Research Question 3: Hypothesis Ten – Twenty-seven

The third subobjective of this study was to explore if the distribution of Health indicator scores are different across the study groups of Cosplayers.

Hypothesis Ten – Nineteen

Hypotheses 10-19 are based upon determining the differences in health indicator scores categories based on the time of survey completion. Health indicator scores are measured by PHQ2, PHQ9, Dimensions of wellness; occupational, intellectual, emotional, social, spiritual, and physical, and the WHO 5 wellbeing index. Cosplayer Categories were measured by Survey Completion date, Cosplay Activity type participation, and a participation covid effect measured by the difference in attendance between 2019 and 2021.

The response variables: depression (PHQ2, PHQ9) subjective wellbeing (SWB) and Dimensions of wellness (WD1O, WD2I, WD3E, WD4So, WD5S, and WD6P) measures based on survey completion dates was categorized; 1 During Dragon Con, 2 Two weeks post Dragon Con, and 3 greater than 2 weeks post Dragon Con, as shown in Table 13.

Table 13

Response variables descriptive based on completion dates

	DRAGON CON(N=75)			Two weeks post (N=26)			+2 weeks post DRAGON CON(N=210)		
	M	SD	SE	M	SD	SE	M	SD	SE
PHQ9	9.37	6.25	.72	9.38	8.32	1.63	11.57	6.78	.47
PHQ2	19.58	12.15	1.58	21.89	16.31	3.84	23.68	15.66	1.15
SWB	3.32	.39	.05	3.39	.55	.12	3.30	.50	.04
WD1O	71.23	18.43	2.13	66.12	18.48	3.63	66.89	18.19	1.26
WD2I	65.39	13.06	1.51	65.44	13.53	2.76	64.27	13.71	.95
WD3E	60.36	14.24	1.69	62.72	18.59	3.79	61.69	17.80	1.23
WD4So	57.41	14.31	1.71	58.18	14.94	3.19	57.97	15.42	1.07
WD5S	58.09	14.41	1.73	54.94	20.16	4.40	60.69	18.87	1.32
WD6P	65.26	14.38	1.77	61.43	18.86	4.22	210	62.73	16.59

Hypothesis 10-11 states that that there was no significant difference in the depression scores (PHQ2 & PHQ9) for the three-time categories developed from the survey completion dates. A Kruskal-Wallis test indicated that the PHQ 9 depressive disorder diagnoses and grades of depressive symptom severity scores differed over the category based on the time of survey completion, $H(2) = 6.633$, $p = 0.036$. A post Hos examination using a Bonferroni correction showed that there was a difference between groups that completed the survey greater than two weeks out and the other groups with the highest average depression score of 11.57. A Kruskal-

Wallis test indicated that the PHQ2 major depressive tendencies scores did not differ over the category based on the time of survey completion, H (2) = 2.591, p = 0.274.

Hypothesis Twelve states that the distribution of Subjective wellbeing response average is the same across the categories based on the time of survey completion. A Kruskal-Wallis test indicated that the Subjective wellbeing response average scores did not differ over the time of survey completion, H (2) = 1.387, p = 0.500.

Hypothesis 13-19 states that the distribution of the six Dimensions of wellness response average is the same across the categories based on the time of survey completion. Kruskal-Wallis tests indicated that all six of the dimensions of wellness response average scores did not differ over the categories based on the time of survey completion (see Table 14)

Table 14

Dimensions of Wellness Independent-Samples Kruskal-Wallis Test Summary [a]

	N	H	DF	Sig.
PHQ9	302	6.55a	2	.04
PHQ2	255	2.67a	2	.27
SWB	303	2.36a	2	.73
WD1O	303	5.37a	2	.07
WD2I	302	.29a	2	.86
WD3E	296	.88a	2	.64
WD4So	291	.03a	2	.98
WD5S	287	2.01a	2	.37
WD6P	281	1.30a	2	.52

a The test statistic is adjusted for ties.

Hypothesis Twenty – Twenty-eight

Cosplayer Status is measured by activity type of participation; 1 Cosplayer, 2 Cause Player, and 3 Non-Cosplay Convention Participant. A Cosplayer is a person who wears a costume and participates in Dragon Con Activities. A Cause player is differentiated when they self-identify as a cause player or participate in additional philanthropic or activism activities in costume. Table 15 summarizes the descriptive results for the different Cosplayer Groups.

Table 15

Descriptive Statistics for response variables by Cosplayer activity grouping

	Cosplayer (n=231)			CAUSEplayer (n=65)			NonCosplay participant (n=15)		
	M	SD	S E M	M	SD	S E M	M	SD	S E M
PHQ9	11.1	6.9	.46	10.2	6.3	0.8	10.6	7.6	2.0
PHQ2	23.2	15.5	1.10	19.6	12.2	1.7	26.9	17.0	4.9
SWB	3.3	.5	.03	3.4	0.4	0.1	3.5	1.0	0.1
WD1O	65.9	18.6	1.23	73.5	16.5	2.0	73.5	16.1	4.2
WD2I	64.2	13.4	.89	66.3	14.5	1.8	63.3	10.6	2.7
WD3E	61.3	17.2	1.15	62.6	16.4	2.1	58.6	17.9	4.6
WD4So	57.2	15.5	1.05	60.9	13.0	1.6	55.4	16.1	4.1
WD5S	59.1	18.3	1.24	61.8	16.6	2.1	59.5	20.2	5.2
WD6P	62.1	16.1	1.10	65.8	17.4	2.3	69.0	12.5	3.3

Hypothesis Twenty states that the distribution of PHQ2 major depressive tendencies scores is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test indicated that the PHQ2 major depressive tendencies scores did not differ over the Cosplayer Status Categories, $H(2) = 2.467$, $p = 0.291$. Hypothesis Twenty-one states that the distribution of PHQ 9 depressive disorder diagnoses and grades of depressive symptom severity scores response average is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test

indicated that the PHQ 9 depressive disorder diagnoses response average scores did not differ over the Cosplayer Status Categories, H (2) = 0.630, p = 0.730.

Hypothesis Twenty-two states that the distribution of Subjective wellbeing response average is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test indicated that the Subjective wellbeing response average scores did not differ over Cosplayer Status Categories, H (2) = 2.361, p = 0.307.

Hypothesis Twenty-three states that the distribution of Occupational wellness response average is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test indicated that the Occupational wellness response average scores differed over the Cosplayer Status Categories, H (2) = 9.487, p = 0.009. Cosplayers (M=65.9) had lower Occupational wellness response average scores than Causeplayers (M=73.45) or Non-Cosplay Convention participants (M=73.45). Hypothesis Twenty-four states that the distribution of Intellectual wellness response average is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test indicated that the Intellectual wellness response average scores did not differ over the Cosplayer Status Categories, H (2) = 1.728, p = 0.422. Hypothesis Twenty-five states that the distribution of Emotional wellness response average is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test indicated that the Emotional wellness response average scores did not differ over the Cosplayer Status Categories, H (2) = 0.428, p = 0.807. Hypothesis Twenty-six states that the distribution of social wellness response average is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test indicated that the social wellness response average scores did not differ over the Cosplayer Status Categories, H (2) = 4.393, p = 0.111. Hypothesis Twenty-seven states that the distribution of Spiritual wellness response average is the same across categories of Cosplayer Status Categories. A

Kruskal-Wallis test indicated that the Spiritual wellness response average scores did not Cosplayer Status Categories, H (2) = 0.706, p = 0.703. Hypothesis Twenty-eight states that the distribution of Physical health wellness response average is the same across categories of Cosplayer Status Categories. A Kruskal-Wallis test indicated that the Physical health wellness response average scores differed over the Cosplayer Status Categories, H (2) = 6.000, p = 0.050. Non-Cosplay Convention Participants (M=69.01) had a higher Physical health wellness response average score than Cosplayers (M=62.13) or Causeplayers (M= 65.78).

Chapter 5

Conclusions, Discussion Recommendations

The purpose of this study was to explore the relationship between leisure engagement measured by immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity (DCAD), and Dragon Con activity participation (DCAP) and the response variables of subjective wellbeing, dimensions of wellness and depression in the leisure activity of cosplay from the perspective of Dragon Con attendees. After cleaning the data set and delineating to participants which attended the 2021 Dragon Con event analysis of the data was performed. Initially, a factorial analysis (PCA) was performed to explore the DragonCon activities of 304 Dragon Con participants to be used as independent variables. Then, hierarchical multiple linear regression and Kruskal-Wallis tests were calculated to determine whether to reject or accept the null hypotheses. The hypotheses posited were grounded in leisure engagement, serious leisure, and the recreation experience continuum. between the response variables (depression, subjective wellbeing, and dimensions of wellness) and explanatory variables (participation, diversity, involvement, and immersive tendencies). The following conclusions, discussion and recommendations are based on the results of these analyses.

Participants

Preliminary data analysis of the sample demographics shows that the study population has many similar characteristics of the overall cosplay community (CC). Reported gender of cosplayers ranges between 62% - 74% female, depending on the type of Con (Decker 2018, Rosenberg and Letamendi 2018, Kington 2015, Melea et al 2019). The study sample was 64% female, 17% male, and 2% other which is within the range for overall cosplayers and slightly more females than the general population of Dragon Con, which was 49% female.

The average age range within the cosplay community is18-50 with an average of 28.4 years old and 73% between 18-35, (Decker 2018, Rosenberg and Letamendi 2018, Lewis 2019). Analyses revealed 15% of the sample in this study was below 30 with 60.8% between the ages 30-49. According to DragonCon media relations the average age of Dragon Con attendees is between 23-39 (60%). Among the cosplay community the largest ethnic group is Caucasian 68-91% followed by Asian or Pacific Islanders 5.2 - 12%, Hispanic or Latino 3.3 - 5%, African American 2.1 %, and Native American 0.5 - 3.8%. (Rosenberg 2015, Kington 2015) The sample in this study included ethnicity groups with a makeup of 72% White/Caucasian, 3% Hispanic or Latino, 3% Black or African American, 1.6% American Indian or Alaskan Native, 0.3% Asian or Pacific Islander and 16.8% which preferred not to answer, these demographics, except the Asian or Pacific Islander group, are within the average range found in other studies.

Household income for the average cosplayer has been reported to be between $20,000 - $74,000 (Kington, 2015). This study sample average household income was higher between $50,000 and $124,000 (46.9%). The sample population was like the average cosplayer in terms of education; 63.5% of the sample had a bachelor's degree or higher and 24 - 70% of the general

cosplayer community hold bachelor's Degrees or higher (Kington 2015). Overall, the results of demographic analysis suggest that the sample had similar demographic characteristics to the general Cosplay population except that they were slightly older with a higher average household income and a slightly higher percentage were experiencing elevated depression symptoms.

The similarities between the sample, Cosplayers in general and Dragon Con attendees make the results of the analysis generalizable to the delimited population of interest. The study of cosplayers is a growing cross disciplinary topic of interest, and this study contributes to a broad understanding of the different characteristics of the population of cosplayers and fandom convention attendees.

Participation

The study subobjective explored activities used to measure Dragon Con Participation and a conceptual/theoretical measurement system for participation. The PCA results complemented the detachment recovery interpretation of leisure engagement (Newman et al 2013) by revealing potential differences in cosplayers with varying levels of ILC.

Results from the three different principal components factor analyses resulted in categorized participation variables: overall participation (7 Factors), Low ILC (6 Factors) and High ILC (7 Factors). was used to identify and compute a composite score for the factors underlying the Dragon Con participation score matrix. The factors DC Gamer, DC Spectator, DC Cosplayers were in all three PCA analysis groups. The factors DC workshops and DC Competitors were in the overall and High ILC groups. The Panels and Shopping items both showed up as single question factors.

Rotated PCA results revealed that overall variance for total ILC, low ILC, and high ILF were 62,68%, 60,38% and 64.59&, respectively. Shen et al (2022) found that there was a difference in the association between leisure engagement and the mental health measures of depressive symptoms and wellbeing based on the change in leisure engagement during the COVID 19 pandemic. Because this study also showed a difference in the participation categories depending on the ILC it is reasonable to further investigate the factors identified in the PCA analyses. The results of the PCA analyses indicate that the items are not unidimensional, but the low Cronbach alpha scores of the resulting factors ranging from 0.15-.58 are contradictory.

In conclusion the three PCA analyses exploring the participation of Cosplayers indicated that there were factors used as explanatory variables for the purpose of exploring the effects cosplay had on depression, subjective wellness, and dimensions of wellness. Because the study is exploratory all identified factor groupings in explanatory variables were included in the multivariate tests of significance. Understandably, these factors were limited by the scope, response rate, and timing of data collection and these conditions need to be researched further using scale analyses to develop a valid and reliable scale of participation for cosplay activities.

The common suggestion to improve the Cronbach alpha score and the internal reliability of a scale is to remove certain items (Tavakol& Dennick, 2011) but the analysis of the participation scales reveled that this was not the case for the sixteen factors in the scale. Low alpha score in this study was due to the low intercorrelation coefficients among the posited cosplay activities, interpreted by the participants and limited by the binomial response nature of the questions used for analyses. This supports Tavakol and Dennick's (2011) comments on low alpha score that may also be due to low intercorrelations among the individual items or a very homogeneous sample of respondents. The way to address this would be to increase the items or

number of participants resulting in combinations of low correlations that can yield reliable overall scores. A major disadvantage with the current scale was the dichotomous nature of the questions, asking only if the respondent had participated in each year. Because this study is exploratory the results should be used to further refine the scales instead of eliminating items.

Therapeutic Recreation literature such as Burlingame (2010) points out the difference between participation and attendance is not only what a client does but how they do it and that there are few tools available to the recreational therapist that measure participation over attendance. The PCA results of this study indicate that a Participation scale needs to be refined. Participation could be refined to measure individual activities, but there are more than 1,300 panels in thirty-two different fandom tracks making this more of a measure of the popularity of the individual tracks. Instead of addressing the large variety of Cosplay and Fandom Convention leisure activities that have so many unique qualities another way would be to develop a scale that lets a person self-report what their level of participation was in each activity thereby increasing participation from a mere attendance measure.

A plausible way to address strengthening conceptual and operational development of a Cosplay participation scale would be to use Den's 1995 leisure level model as a framework for the level of participation from a spectrum of leisure that includes unhealthy negative choices to cathartic level of choices. In this model the participant assesses their current participation choices which form an educational foundation for choices between very unhealthy leisure activity and very health cathartic leisure activity. An example of how this could be used and tailored within a cosplay participation scale is the Cosplay panel question where respondents are provided a Likert-type question that evaluates how they participate in Dragon Con panels they attend. First, a an inventory of how they participate in each panel, e.g., I am preoccupied in thought or feeling

and just going through the motions of attending the panel, I am a spectator with no emotional involvement or personal investment, I am a spectator emotionally involved there's personal investment and true entertainment, I am active physically socially or cognitively by paying attention to the speaker, I am creative inventive imaginative asking questions, and my participation reaches a point of catharsis by making a change to my participation in the leisure activity related to this panel. Then, another Likert-type question could ask the degree to which they participated in each of the activities chosen from the foregoing inventory.

An additional consideration to increase the number of participation choices is to subcategorize activities, for example panels, celebrity presentations, fan discussions, educational presentations, or main programing. Experts from the Cosplay multiverse would serve as jurors to provide validity for these categories.

A systematically developed scale using the sixteen items discovered in the PCA may result in a valid cosplay participation variable for future study. The Scale developed from this research is a measure of the diversity of participation at Dragon Con, each of the seven variables is given a score of 1, if there was any participation in any of the activities, or zero, if there was no participation in those activities. The resulting Diversity score is 1-7 where an increasing value indicates the variety of activities participated. This is a diversity measure of activities at the fandom convention itself, but cosplay can entail more than just activities at the convention. Unlike Serious Leisure there are not a particular set of skills needed to attend and participate in Fandom conventions. Much like the serious leisure paradigm participation in cosplay activities can be the systematic pursuit of an amateur, hobbyist, or volunteer core activity that is highly substantial, interesting, and fulfilling and where, in the typical case, participants find a career in

acquiring and expressing a combination of its special skills, knowledge, and experience (Stebbins 1993). Further measures of cosplay diversity should include activities outside of the convention. Moreover, an event-based participation scale(s) contributes to the leisure field as further delineation and illumination of involvement in Fandom Convention and Coplay participation.

Involvement

The involvement measures for this study correspond to the psychological mechanisms of leisure engagement because they stressed the importance of identity and motivational properties (Jun et. al. 2012). Newman et. al. (2013) attempted to address the complexities of levels of leisure participation measures by including psychological mechanisms of leisure engagement, this study measured these psychological mechanisms with various constructs of the involvement scales. The results of this study do not show the measures of Havitz, M. E., & Dimanche, F. (1997) involvement as the same type of meaning as the psychological measures of Newman et al (2013) and that involvement is a more complex concept than a single dimensional scale can measure.

Immersive tendencies

As part of this study immersive tendencies were measured as a subscale of Leisure engagement because both Shen (2022) and Newman et al (2014) acknowledge that individual differences or personality can contribute to the differences in wellbeing and health without any direct measure of the effect. The explanatory variable immersive tendencies (IT) are a theoretical construct that relates to the tendency to behave playfully and to become involved in a continuous stream of stimuli (Wallace and Safir 2010). While the concept of IT was developed for use with

presence in virtual environments (Witmer and Singer 1998), Riva (2006) extended the concept of presence to diverse types of media. Using the Samur (2016) extension of the sense of presence to that of stage presence, the performance of a cosplay character is much like that of creating a customized avatar in VR or a stage performance. Cosplay creates a sense of presence by combining stage presence, Goffman's masking, through character creation and performance, and the sense of presence felt in mediated environments. Therefore, IT is an important mechanism for the transportation of the cosplayer into the fictional or mediated environment because cosplay is a site-specific performance that transports both the audience and the actor/cosplayer into the fictional world of the character or enhances the Para social relationship of the cosplayer and the character. ITs have been shown to be linked with higher levels of depression in phobic participants (Robillard et al 2003), but they were not examined as a predictor of depression and instead measured along with demographic characteristics.

The results of this study show that the higher the IT score the higher the depression score on both the PHQ2 ($\beta = .14$) and the PHQ9 ($\beta = .21$) in agreement with previous results of personality qualities and depression for cosplayers. Immersive tendencies that have been shown to be linked to personality qualities include openness to experience, neuroticism, and extraversion (Weibel et al 2010). These same personality traits were found in Filipino cosplayers (Reyes and Davis 2017) and Greek cosplayers (Melea et al 2019). Higher levels of neuroticism and lower levels of extraversion, openness to Experience and conscientiousness are personality qualities that have been linked to higher depression (Weber et al 2011). Oh, and Oh (2021) created a depression treatment for mild to moderate depression using immersive tendencies and presence to achieve emotional control and short-term emotional stability. Vlake et. al. (2021) reported reduced posttraumatic stress disorder and depression scores and better mental health in

patients with higher IT scores using a virtual reality system to reduce post intensive care syndrome. The results of this study also present an opportunity for further examining cosplay as a treatment for depression in persons with higher IT scores.

Hypothesis testing

The first research question was concerned with the overall relationship between the leisure engagement explanatory variables and the response variables as well as predicting the response variables. The first nine null hypotheses dealt with the relationship between cosplay leisure engagement factors; immersive tendencies (IT), involvement (INV), Dragon Con Activity Diversity (DCAD), and Dragon Con activity participation (DCAP), with the response variables of depression, measured by the PHQ2 and PHQ9, subjective wellbeing, measured by the WHO5, and Dimensions of wellness, measured by Occupational wellness (WD1O), Intellectual wellness (WD2I), Emotional wellness (WD3E), Social wellness (WD4So), Spiritual wellness (WD5S), and Physical wellness (WD6P) and was analyzed with hierarchical multiple linear regression.

The range of r^2 values of 0.09 – 0.18 are all below the minimum of 0.4 (Berger, 2003) indicating that none of the null hypothesis can be rejected. However, the nature of this study is exploratory so while the null hypothesizes concerning the relationship of the leisure engagement variable and the dependent variable cannot be rejected due to low r^2 values, the identification of significant predictors is important, as the result is useful for identifying what variables should be in a prediction equation for future study (Zach,2019, Osborne, 2000). Overall, the results of the regression analysis for Hypothesis One (H_o^1) - Hypothesis Nine E (H_o^9) indicated the predictors; DCAP significantly predicted PHQ2 and PHQ9, SWB, WD5S, and WD6P and IT predicted PHQ2, PHQ9, and WD5S.

Depression as a response variable was measured by the PHQ9 and the subscale PHQ2. The difference between the two scales is that PHQ2 items reflect depressed mood and anhedonia and is used as a screener in a first step approach, while the complete PHQ9 items reflect the 9 DSM symptoms of major depression. In this study 121 respondents (40%) have PHQ9 scores that indicate moderate to severe depression as compared to an estimated 32.8% of the US population with elevated depressive symptoms (Ettman et al 2022). Current research on leisure engagement models has had varying results in relation to depression.

The second explanatory variable of Cosplay leisure engagement that has a significant relationship with the response variable of depression is the Dragon Con Activity Participation (DCAP) score. The Dragon Con Activity participation score measures the number of activities a person participates in as opposed to the Dragon Con Activity Diversity (DCAD) that measures the distinct types of activities a person participates. Because of the annual nature of the Dragon Con convention measurement of the frequency of participation is difficult. The DCAD is analogous to a person's leisure repertoire in that it looks at the variety of activities that are available at Dragon Con and the result of the PCA found that there were seven distinct groups of activities. While none of the Hypothesizes had DCAD as a significant predictor of the response variables, this variable should be included and expanded upon in future research because this study only included activities that were available during the Dragon Con convention. Cosplay has antecedent activities, such as the consumption of source material; watching movies, reading, playing games etc., creating the costumes, performance activities outside of the Con; volunteering in costume, photoshoots, or other competitions, which were not measured, and these could be included in future studies. The leisure engagement models this study is based on

use both diversity and frequency of leisure activities in both the overall leisure repertoire (Kuykendall et al.,2015; Newman et al., 2014, Shen 2022) and with a specific leisure activity (Matsumoto 2018). The Matsumoto (2018) study looked at Leisure Engagement in scuba diving and the relationship with subjective happiness and found problems in the participation scale, the study concluded that subjective happiness was associated with involvement factors rather than behavior-oriented leisure engagement, inconsistent with prior studies (Kuykendall et al.,2015; Newman et al., 2014) that focused on overall leisure repertoire over a specific leisure activity. Shen (2022) found that reduced leisure repertoire participation levels predicted negative mental health and involvement meaning predicted mental wellbeing, beyond the effect of COVID-specific risks. In this study, the negative relationship between the explanatory variable DCAP, PHQ9 (β=), and PHQ9 (β=) indicates a possibility that as cosplay participation DCAP increases depression decreases.

Cosplay activities have a large variety of subcomponents that help it fit in the serious leisure paradigm. Like serious leisure pursuits of actors and reenactors cosplaying requires; a dedication to learning as much as possible to provide an accurate depiction of characters and events, investment of time money skill in order to meet expected standards of authenticity and performance. According to the PCA analysis activities within cosplay that correspond to the serious leisure paradigm include; spectators that are neophytes or participants at the low end of the SLP involvement scale, the moderate to core devotees that are the cosplayers who create their own costumes and perform on the convention floor and devotee workers who compete and cross over into paid work as judges and costumers. Cosplaying has availability of a leisure career, need to put in effort to gain skill and knowledge, realization of various special benefits, unique ethos and social world, and an attractive personal and social identity. Not only has commitment to

serious leisure been associated with lower levels of depression (Heo et al 2018), additionally the serious leisure perspective can help structure a behavioral activation framework intervention to treat severe depression (Dieser & Christenson 2017). This study contributes to a better understanding of cosplay activity participation and depression, because it begins to identify activities that may be useful for behavioral activation interventions.

Often the term Subjective well-being is research literature as a substitute for the term happiness. "Subjective well-being (SWB) is the scientific term for happiness and life satisfaction—thinking and feeling that your life is going well, not badly" (Diener 2022). The World Health Organization- Five Well-Being Index (WHO-5) is a short self-reported measure of current mental wellbeing over the past two weeks (Topp et al., 2015). Matsumoto (2018) looked at Leisure Engagement in scuba diving and the relationship with subjective happiness and found that the overall leisure engagement happiness relationship was rejected with problems in the participation scale, but they did find that subjective happiness was associated with involvement factors rather than behavior-oriented leisure engagement inconsistent with prior studies (Kuykendall et al.,2015; Newman et al., 2014) that focused on leisure repertoire over a specific leisure activity. Shen (2022) found that reduced leisure participation levels predicted negative mental health and involvement meaning predicted mental wellbeing, beyond the effect of COVID-specific risks. Newman et al., (2014) proposed a framework of leisure engagement that increases as multiple involvement needs are fulfilled, that in turn increases SWB and they do acknowledge that individual differences or personality can contribute to the differences in wellbeing and health without any direct measure of the effect. Leisure participation via activism, may also be a form of therapeutic practice for well-being (Frew, E., & Forsdike, K. (2022).

The Significant factors of DCAP and immersive tendencies similarities to the results found in past research led to the conclusion that while not significant predictors in the current study because of low r value they should be looked at in future studies that seek to address ways to increase the r value. This could be accomplished by increasing the sample size. or by increasing the measurement levels of predictors. Matsumoto (2018) had a similar problem with the engagement participation of the scuba divers and recommended future research should consider how subjective happiness can also be associated with these factors. The recommendations to further develop a more complete measure of cosplay participation by revising the DCAP would address the participation side and increasing the construct scores instead of overall involvement scores would help with the involvement and needs measures of the engagement model. In conclusion this study has identified areas of interest for future study instead of identifying predictors of depression, wellbeing, and dimensions of health.

The second research question of this study was to explore if the distribution of Health indicator scores were different across the study groups of Cosplayers.

The first study group of Cosplayers categories were based on the time of survey completion. A Kruskal-Wallis test of Hypothesis 10 indicated that the PHQ 9 depressive disorder diagnoses and grades of depressive symptom severity scores differed over the category based on the time of survey completion. The depression score mean for the group that completed the survey + 2 (M= 11.57) weeks post con was greater either during DRAGON CON (M=9.37) or two weeks post DRAGON CON (M=9.38). The early theoretical aspects of a linear model of the recreation experience can be traced back to (Clawson & Knetsch, 1966; Schreyer, 1982; Wager,1964; Hammitt 2018) and are based in positivistic psychology. Fix et al (2018) further refined the model to include a feedback loop that progress from a need or motivation to

participate in the activity or behavior then goal attainment or satisfaction followed by feedback or memories and back to new needs and motivations. This model was developed and has been applied in the outdoor recreation field, and it closely mirrors the behavioral activation model of therapy. Immersive tendencies therapy (Oh & Oh 2021) being used for short term depression reduction benefits, much like this work has shown in the response based on time of survey completion categories. Cosplay therapy is being used as a framework to address issues such as self-esteem, anxiety, and identity issues as part of a longer term or full therapy plan (Klesman 2020). Like recreation experience model the Upward Spiral Theory of Lifestyle Change (Fredrickson, 2015) can be a framework to use leisure to drive positive lifestyle changes that benefit the wellbeing of individuals. The upward spiral theory of lifestyle change explains how positive affect can facilitate long-term adherence to positive health behaviors (Cappellen et al 2018) the feedback loop for this theory is that the positive affect experienced during health behaviors creates on conscious motives for health behaviors that leads to participation in health behaviors and back to that positive affect (Andersn, L. & Heyne 2016, Korb 2019). The converse has also been found to be true that the cessation of healthy behaviors is negatively associated with depression levels (Sode & Chenji 2019). Behavioral activation treatments of depression have shown to be effective (Cuijpers et al 2006) and can be used with the upward spiral theory of lifestyle change to promote a longer-term treatment outcome. In relation to Cosplay there is an immediate benefit of participation that may fade over time. The cross-sectional nature of this research does not allow for a causation conclusion but a difference in depression levels was identified after two weeks, which is the recall time limit for the depression measures. This research identified the first tier of both the recreation experience model and the upward spiral theory in the reduction of depression scores during and immediately following Dragon Con.

Cosplay therapy as a recreation therapy using the upward spiral theory of lifestyle change and the recreation experience model can be used to help a person establish a leisure identity by developing an interest that becomes a characteristic of that person.

Cosplayer Status is measured by activity type of participation; 1 Cosplayer, 2 Causeplayer, and 3 Non-Cosplay Convention Participant. A Cosplayer is a person who wears a costume and participates in Dragon Con Activities. A Causeplayer is differentiated when they self-identify as a cause player or participate in additional philanthropic or activism activities in costume. A Kruskal-Wallis test of Hypothesis Twenty-three that the distribution of Occupational wellness response average is the same across categories of Cosplayer Status Categories indicated that the Occupational wellness response average scores differed over the Cosplayer Status Categories and Cosplayers had lower Occupational wellness response average scores than Causeplayers or Non-Cosplay Convention participants. A Kruskal-Wallis test of Hypothesis Twenty-eight the distribution of Physical health wellness response average indicated that the Physical health wellness response average scores differed over the Cosplayer Status Categories. Non-Cosplay Convention Participants had a higher Physical health wellness response average score than Cosplayers or Causeplayers. No research has been done to differentiate the identity of Causeplayers except as part of marketing research. According to Lockard (2022) in a U.K. study, those who volunteered reported being more satisfied with their lives and rated their overall health as better. Causeplayers must spend time on construction of costumes in addition to performances and demands associated with volunteer activities which may create limits to leisure time available for exercise and other physical health activities. Volunteering gave a sense of purpose. A study by the Mayo Clinic (2021) specifically found benefits to physical health through various

results of stress and anxiety reduction. Hochber (2013) found that volunteering benefits occupational health by reinforcing skill, offering leadership opportunities and have a 27% better chance of finding employment than non-volunteer counterparts. The results of the study are supported by research related to volunteerism in the occupational wellness variable but are contradicted in the physical wellness variable. Causeplayers have an occupational wellness advantage over the average cosplayer because cosplay volunteering was measured by activities done through some sort of organization. The structure and networking possibilities are increased through the interactions with the organization in addition to the volunteering itself. Causeplay has an essential similarity to volunteerism by the nature of the activity, but the motivations to participate in the activity may be different than for the average cosplayer or non-cosplay volunteer. This research identifies a difference, but future work is necessary to clarify and characterize this newly identified group of cosplayers.

The Participation Covid effect was measured in Hypothesis Twenty-nine – Thirty-seven by the change in participation between 2019 and 2021 A Kruskal-Wallis test indicated that depression (PHQ2, PHQ9) subjective wellbeing (SWB) and Dimensions of wellness (WD1O, WD2I, WD3E, WD4So, WD5S, and WD6P) measures did not differ over the Covid effect Activity participation change. This contradicts from the Shen (2022), this may be attributed to the difference of examining a single leisure activity like Matsumoto et. al. (2018) and an overall leisure repertoire like Kuykendall et al., (2015) and Newman et al., (2014). One other possibility to consider is that this study was conducted at the first DRAGON CON after the Covid 19 pandemic caused a shutdown of all in-person Fandom Conventions, there were still health restrictions and convention limitations in place, so the participants were still actively experiencing Covid effects. The overall U.S. population experienced increased depression,

anxiety, and an average decease in physical activity during the Pandemic shutdown (Ettman et al 2022). While participants recruited at the DRAGON CON expressed a general sense of excitement being back at the con, the only questions that covered the differences in between pre covid and post shutdown were the differences in the participation scores and the perception of their overall mental health from 2019-2021.

This study identified different participation activity groups that could be part of a recreation treatment intervention, and it has also identified a window of highest depression reduction within the study parameters. Current research into cosplay has focused on motivations (Rosenberg and Letamendi 2018, Lewis 2019, Kington 2015), identity formation (Rahman 2012), gendering aspects (Nichols 2019, Loke 2016), and tourism of the activities (Yamamura, & Seaton2020). One consistent observation across cosplay research is that cosplayers are a widely diverse group of participants with multiple activities and interests. This study has begun to identify useful participation categories of what cosplayers do at fandom conventions through PCA analysis of DRAGON CON fandom convention activities. Cosplay is a broad term that encompasses a large variety of activities from crafting costumes, performing/exhibiting the costume and character, to competing in contests and masquerades that can fit into social, cognitive, and physical active leisure pursuits. Recreational Therapist use activity-based methods in a systematic process to address the needs of individuals with illnesses or disabling conditions to psychological and physical health recovery and wellbeing. Cosplay is being used as one of these activities in mental health therapies (Klesman 20202, Gannon2018). To add this leisure activity into a recreation therapy modality the activity itself must be understood and this study is the start of that by categorizing the participation activities at conventions, identifying some

differences in overall cosplay activities, and identifying a leisure experience continuum effect on depression based on participating in cosplay.

Limitations of the study

Limitations may influence this study. First analysis of the sample showed that the population was slightly older with a higher average household income and a slightly higher percentage were experiencing elevated depression symptoms. Individuals outside of the cosplay community had a low completion and return rate on the survey so a true control group was not attained. Con participants that did not attend in 2021 were excluded and not used as a comparison group because they had some form of involvement in the cosplay and fandom convention community. Another limitation involves the sampling methods. The initial completion rate was exceptionally low at the DRAGON CON, where many people started the study but dropped out. The Facebook posts had a much higher completion rate at the time of each posting. The study is also limited to the understanding of the questions. The nature of the participation questions was to have activities grouped as large categories that were suggested to be clear by the expert jury. One of the reasons for a difference in the physical wellness could have to do with a limitation of the study. Multiple cosplay groups that have fitness requirements to join were unavailable at the time of sampling, their responses would have contributed to a more complete representation of the characteristics of cosplayers overall.

Conclusions

This study identified different participation activity groups that could be part of a recreation treatment intervention, and it has also identified a window of highest depression reduction within the study parameters. Current research into cosplay has focused on motivations (Rosenberg and Letamendi 2018, Lewis 2019, Kington 2015), identity formation (Rahman

2012), gendering aspects (Nichols 2019, Loke 2016), and tourism of the activities (Yamamura, & Seaton2020). One consistent observation across cosplay research is that cosplayers are a widely diverse group of participants with multiple activities and interests. This study has begun to identify useful participation categories of what cosplayers do at fandom conventions through PCA analysis of DRAGON CON fandom convention activities. Cosplay is a broad term that encompasses a large variety of activities from crafting costumes, performing/exhibiting the costume and character, to competing in contests and masquerades that can fit into social, cognitive, and physical active leisure pursuits. Recreational Therapist use activity-based methods in a systematic process to address the needs of individuals with illnesses or disabling conditions to psychological and physical health recovery and wellbeing. Cosplay is being used as one of these activities in mental health therapies (Klesman 20202, Gannon2018). To add this leisure activity into a recreation therapy modality the activity itself must be understood and this study is the start of that by categorizing the participation activities at conventions, identifying some differences in overall cosplay activities, and identifying a leisure experience continuum effect on depression based on participating in cosplay.

Recommendations

Based on the conclusions of this study, further research is needed in aspects of the cosplay experience and defining the identity of cosplayers and causeplayers. Leisure engagement can be seen as a complex model and the constructs of participation and involvement have been supplemented by the immersive tendency measure to account for the individual differences suggested in the literature. Clearly defining the participation categories of the complex variety of cosplay stages and activities could increase the recommendations available to recreation therapists for activity specific interventions.

For participation to move from just an attendance measure the meaning of the attendance needs to be explored by creating a measure of the quality of the of the experience to the participant. This measure could positively contribute to developing more complete future recreation therapy assessment tools to measure participation.

Further research is recommended to contribute to the knowledge base. It is recommended that a larger more complete representative sample size be obtained future research. A control group is also important for future research. This study did not use a control group for comparison. Additional research using a control group is recommended. There were Multiple cosplay groups that have fitness requirements to join would have contributed to a more complete representation of the characteristics of cosplayers overall.

It would be interesting to further compare causeplayer and cosplayers for participation during the con and outside the traditional activities. Further research is also warranted to explore a repeated measure of depression for respondents to determine a causality relationship and to evaluate the leisure experience continuum relationship with depression.

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Appendix

Appendix A

IRB Approval

From: irb@olemiss.edu <irb@olemiss.edu>

Sent: Thursday, June 10, 2021 1:14 PM

To: Julie Ann Morris Chambers <jachambe@olemiss.edu>

Subject: IRB Exempt Determination of 21x-303

PI:

This is to inform you that your application to conduct research with human participants, "Cosplay Fandom Engagement Effect on Subjective Well-being, Dimension of Wellness, and Depression: Constructing a recreational therapy modality. " (Protocol #21x-303), has been determined as Exempt under 45 CFR 46.101(b)(#2). You may proceed with your research.

Please remember that all of The University of Mississippi's human participant research activities, regardless of whether the research is subject to federal regulations, must be guided by the ethical principles in The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research.

It is especially important for you to keep these points in mind:

- You must protect the rights and welfare of human research participants.
- Any changes to your approved protocol must be reviewed and approved before initiating those changes.

- You must report promptly to the IRB any injuries or other unanticipated problems involving risks to participants or others.
- If research is to be conducted during class, the PI must email the instructor and ask if they wish to see the protocol materials (surveys, interview questions, etc) prior to research beginning.

If you have any questions, please feel free to contact the IRB at irb@olemiss.edu.

Appendix B *Anti-image Correlation Matrix of 2021 activity participation*

Anti-image Matrices[a]

		Panels 2021 RL or VR	Video gaming session 2021 RL or VR	Role Playing game session 2021 RL or VR	Other Game session 2021 RL or VR	Shopping 2021 RL or VR	Cosplay workshops 2021 RL or VR	Competitor in competitions and masquerades 2021 RL or VR	Competition spectator 2021 RL or VR	Fashion show participant 2021 RL or VR	Fashion show spectator 2021 RL or VR	Costumed parties 2021 RL or VR	Parades 2021 RL or VR	Blood drive 2021 RL or VR	Blood drive in costume 2021 RL or VR	Fundraising in costume 2021 RL or VR	Non-costumed fundraising 2021 RL or VR	Other non-cosplay workshops 2021 RL or VR	Costume on the general convention floor
Anti-image Covariance	Panels 2021 RL or VR	.937	.060	-.042	.011	-.061	.013	-.004	-.105	.010	.013	.003	-.045	-.073	.104	.040	-.075	-.055	.030
	Video gaming session 2021 RL or VR	.060	.842	-.095	-.160	-.045	.032	-.092	.056	.042	.038	-.053	-.031	-.066	.058	-.014	-.016	-.100	-.019
	Role Playing game session 2021 RL or VR	-.042	-.095	.804	-.274	.067	.039	-.039	.020	.017	-.003	-.039	-.040	-.007	.013	-.053	.053	-.003	.058
	Other Game session 2021 RL or VR	.011	-.160	-.274	.746	-.090	-.117	-.042	-.028	.042	.016	-.007	.088	.014	.014	.064	-.032	-.018	.067
	Shopping 2021 RL or VR	-.061	-.045	.067	-.090	.865	.022	.007	-.040	-.034	-.095	.034	.034	-.106	.012	-.030	-.021	-.034	-.183
	Cosplay workshops 2021 RL or VR	.013	.032	.039	-.117	.022	.759	-.077	.014	-.040	-.015	-.095	-.011	-.077	-.002	.009	.008	-.267	-.099
	Competitor in competitions and masquerades 2021 RL or VR	-.004	-.092	-.039	-.042	.007	-.077	.835	-.062	-.142	.071	-.053	-.026	.011	-.144	-.082	-.051	.050	.013
	Competition spectator 2021 RL or VR	-.105	.056	.020	-.028	-.040	.014	-.062	.780	-.025	-.174	-.142	-.171	.065	-.056	.029	-.035	.010	-.026
	Fashion show participant 2021 RL or VR	.010	.042	.017	.042	-.034	-.040	-.142	-.025	.923	.078	-.050	.054	.048	-.025	-.038	.071	-.023	-.043
	Fashion show spectator 2021 RL or VR	.013	.038	-.003	.016	-.095	-.015	.071	-.174	.078	.861	-.133	-.015	.013	-.052	.049	.014	-.041	.039
	Costumed parties 2021 RL or VR	.003	-.053	-.039	-.007	.034	-.095	-.053	-.142	-.050	-.133	.696	-.078	-.020	.078	-.084	-.058	.005	-.233
	Parades 2021 RL or VR	-.045	-.031	-.040	.088	.034	-.011	-.026	-.171	.054	-.015	-.078	.851	.070	-.062	-.097	.098	-.106	.060
	Blood drive 2021 RL or VR	-.073	-.066	-.007	.014	-.106	-.077	.011	.065	.048	.013	-.020	.070	.660	-.345	-.014	-.018	-.037	.028
	Blood drive in costume 2021 RL or VR	.104	.058	.013	.014	.012	-.002	-.144	-.056	-.025	-.052	.078	-.062	-.345	.653	.007	-.011	.019	-.061
	Fundraising in costume 2021 RL or VR	.040	-.014	-.053	.064	-.030	.009	-.082	.029	-.038	.049	-.084	-.097	-.014	.007	.834	-.227	-.039	-.072
	Non-costumed fundraising 2021 RL or VR	-.075	-.016	.053	-.032	-.021	.008	-.051	-.035	.071	.014	-.058	.098	-.018	-.011	-.227	.869	-.072	.021
	Other non-cosplay workshops 2021 RL or VR	-.055	-.100	-.003	-.018	-.034	-.267	.050	.010	-.023	-.041	.005	-.106	-.037	.019	-.039	-.072	.798	.061
	Costume on the general convention floor	.030	-.019	.058	.067	-.183	-.099	.013	-.026	-.043	.039	-.233	.060	.028	-.061	-.072	.021	.081	.754
Anti-image Correlation	Panels 2021 RL or VR	.456[b]	.067	-.048	.013	-.068	.015	-.005	-.133	.011	.014	.003	-.050	-.093	.133	.045	-.083	-.063	.036
	Video gaming session 2021 RL or VR	.067	.662[b]	-.116	-.202	-.053	.040	-.110	.069	.048	.044	-.070	-.037	-.089	.078	-.017	-.019	-.122	-.024
	Role Playing game session 2021 RL or VR	-.048	-.116	.582[b]	-.354	.080	.050	-.048	.026	.020	-.004	-.052	-.049	-.010	.018	-.065	.064	-.003	.074
	Other Game session 2021 RL or VR	.013	-.202	-.354	.573[b]	-.112	-.156	-.053	-.037	.051	.020	-.009	.110	.020	.020	.082	-.039	-.023	.089
	Shopping 2021 RL or VR	-.068	-.053	.080	-.112	.616[b]	.027	.008	-.049	-.038	-.110	.044	.039	-.141	.016	-.035	-.024	-.041	-.226
	Cosplay workshops 2021 RL or VR	.015	.040	.050	-.156	.027	.650[b]	-.097	.018	-.047	-.019	-.131	-.014	-.109	-.002	.011	.009	-.343	-.131
	Competitor in competitions and masquerades 2021 RL or VR	-.005	-.110	-.048	-.053	.008	-.097	.676[b]	-.077	-.161	.083	-.070	-.031	.015	-.195	-.099	-.060	.062	.017
	Competition spectator 2021 RL or VR	-.123	.069	.026	-.037	-.049	.018	-.077	.651[b]	-.029	-.212	-.193	-.210	.091	-.079	.037	-.043	.012	-.034
	Fashion show participant 2021 RL or VR	.011	.048	.020	.051	-.038	-.047	-.161	-.029	.582[b]	.087	-.063	-.061	.062	-.032	-.043	.079	-.027	-.051
	Fashion show spectator 2021 RL or VR	.014	.044	-.004	.020	-.110	-.019	.083	-.212	.087	.609[b]	-.172	-.018	.017	-.070	.058	.016	-.049	.049
	Costumed parties 2021 RL or VR	.003	-.070	-.052	-.009	.044	-.131	-.070	-.193	-.063	-.172	.672[b]	-.102	-.029	.116	-.111	-.075	.006	-.322
	Parades 2021 RL or VR	-.050	-.037	-.049	.110	.039	-.014	-.031	-.210	.061	-.018	-.102	.559[b]	.093	-.084	-.116	.113	-.129	.075
	Blood drive 2021 RL or VR	-.093	-.089	-.010	.020	-.141	-.109	.015	.091	.062	.017	-.029	.093	.531[b]	-.525	-.019	-.024	-.051	.040
	Blood drive in costume 2021 RL or VR	.133	.078	.018	.020	.016	-.002	-.195	-.079	-.032	-.070	.116	-.084	-.525	.508[b]	.009	-.014	.027	-.087
	Fundraising in costume 2021 RL or VR	.045	-.017	-.065	.082	-.035	.011	-.099	.037	-.043	.058	-.111	-.116	-.019	.009	.645[b]	-.267	-.047	-.091
	Non-costumed fundraising 2021 RL or VR	-.083	-.019	.064	-.039	-.024	.009	-.060	-.043	.079	.016	-.075	.113	-.024	-.014	-.267	.592[b]	-.086	.026
	Other non-cosplay workshops 2021 RL or VR	-.063	-.122	-.003	-.023	-.041	-.343	.062	.012	-.027	-.049	.006	-.129	-.051	.027	-.047	-.086	.609[b]	.078
	Costume on the general convention floor	.036	-.024	.074	.089	-.226	-.131	.017	-.034	-.051	.049	-.322	.075	.040	-.087	-.091	.026	.078	.612[b]

a. Only cases for which Attendance year of 2021, 2021 + other years = Attended in 2021 alone and other years are used in the analysis phase.

b. Measures of Sampling Adequacy(MSA)

CURRICULUM VITAE

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HESRM

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EDUCATION

The University of Mississippi (Anticipated) 2023

Ph.D. in Health and Kinesiology (Recreation)

Doctoral Committee Chair Dr. K. Beason

University of Arkansas 2004-2008

Doctoral Committee Chair Dr. M. Moiseichik

The University of Mississippi 2004

M.A. (Recreation)

Graduate Committee Chair Dr. K. Beason

The University of Mississippi 2002

M.S. (Biology)

Graduate Committee Chair Dr. S. Threlkeld

Georgia Institute of Technology 1993

B.S. (Mgt.)

University of Mississippi (Anticipated) 2023

Ph.D. in Social Work

PROFESSIONAL EXPERIENCE

University of Mississippi

Graduate Assistant HESRM

Boy Scouts of America Aug 2013- Dec 2016

District Executive Talllahatchie district, Chicksa district

Yocona Area Council BSA Jan 2009- Aug 2013

Part time employee, Camp Director and Council COPE chairperson

University of Arkansas July 2004-Dec 2008

Graduate Assistant Lake Wedington Recreation Project

MS Dept. of Environmental Quality

Aquafair Coordinator Sept. 2003-May 2004

University of Mississippi

Graduate Assistant

Health Exercise Science and Recreation Dept June 2003- May 2004

Coordinator Benefit-Based Festival and

Special Events Programming Conference April 2004

NYSP Camp Special Event coordinator June 2003

Graduate Student worker and Graduate Assistant

UMFS/CWWR Aug. 1998-May 2003

Education Activities Coordinator UMFS/CWWR

Day Camp Coordinator UMFS/CWWR

University Museums Education Department Feb. 1997-June 1998

Biology Department Teaching Asst. and Research Asst. Jan. 1996-Dec. 1996

GRANTS AND CONTRACTS

2015 BSA Shark Tank competition grant. To develop a graduate assistant partnership with the university of Mississippi. $26,000

2014 Walmart community development grant. To develop facilities and a healthy eating education program at Camp Yocona and the Yocona area council BSA. $63,000

2004 Tribal-State Compact Grant. To support the Take Back Your Town: conference on Sustainable Festival and Special Event Development Conference. Funded April 2004. $10,000

2004 Oxford Tourism Association. Support monies for the 2004 Benefits Based Special event and festival planning conference. Funded $600.00

2003 Share Your Heritage Grant. To support the North Mississippi Heritage and Cultural Tourism Conference in Oxford Mississippi. Submitted to the National Historic Preservation Society. $12,500.

1999, 2000,2001 EPA&MSDEQ Environmental Education Grant To Support the UMFS Summer Science Camp. $5,000

PRESENTATIONS

Chambers J.A.M., Holyfield (May2006) Identity and Emotions a soldier's story. 2006

Symbolic Interaction Conference. Niagara Falls, Canada.

Chambers J.A.M., Hughes J., Moiseichik (March 2005) Trash a dirty little secret? 2005 Annual Conference ARPA. Fayetteville, AR.

Bouldin C., Chambers J.A.M., Marks A., Jackson C., Moiseichik (March 2005) Recreation Program Diversity 2005 Annual Conference ARPA. Fayetteville, AR.

Beason, K.R., Chambers, J.A., Rockey, D. (September 2004) Profiling the Fantasy Sport Consumer: Exploring the Connection Between Fantasy Sport “Passion" and Attendance at Professional Sport Games. 2004 Fall Football Conference, Las Vegas Nevada

Chambers, J.A. & Beason, K.R. (June 2004). Profiling the Fantasy Sport Consumer: Exploring the Connection between Fantasy Sport “Passion” and Attendance at Professional Sport Games. Research Symposium presentation. North American Sport Marketing Conference. Atlanta, GA.

Beason, K.R. & Chambers, J. (March 2004). Consumer Behavior of Fantasy Sport Consumers. 2004 Annual Fantasy Sport Trade Association (FSTA) Conference, Las Vegas, NV

Chambers J.A.,Ballard S. (September 2003). Youth Sports. Miss MRPA Mini

Conference, Oxford, MS.

TEACHING EXPERIENCE

Doctoral Teaching Assistant, University of Mississippi

Department of Health, Exercise Science, and Recreation Management 2019-present

Course: Foundations of Recreation Management (Fall 2019; class size: 70 students)

Created course syllabus; independently developed and taught lectures; developed, administered, and graded midterm and final exams; facilitated class discussions

Course: Aquatic Exercise (Fall 2019; class size 17 students) Independently developed and taught lectures and workouts

Community Health (Spring 2019 class size 54 students) Created course syllabus; independently developed and taught lectures; developed, administered, and graded midterm and final exams; facilitated class discussions

Course Exercise Science Internship (Spring 2019 class size 120 students) Supervised Student internships.

Graduate Teaching Assistant, University of Arkansas

Recreation 2004 – 2008

Courses: RECR 3853 Leisure Behavior, RECR 3843 Facilities Design and Maintenance for Recreation

Graduate Teaching Assistant, University of Mississippi

Department of Health, Exercise Science, and Recreation 2002-2004

Courses: PRM 332 Outdoor Recreation, HS 205 First Aid

Graduate Teaching Assistant, University of Mississippi

Department of Biology 1996

Courses: BIOL 322 Ecology Lab, BIOL 161 & 163 Biological Science lab 1 & 2

PROFESSIONAL AFFILIATIONS/MEMBERSHIPS

National Parks and Recreation Society Fall 2003

MS Parks and Recreation Society Fall 2003

American Acoustical society Fall 2002

Ecological Society of America Fall 2001

Distinguished Walton Fellowship, The University of Arkansas

Rho Phi Lamda Recreation Honor Society

REFERENCES

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