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The Experience of Mental Health Practitioners With Computer Games Designed to Induce Empathy

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The Experience of Mental Health Practitioners

With Computer Games Designed to Induce Empathy

A Thesis

Presented in

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By

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Abstract

Though mental health care providers' primary function is to facilitate improved outcomes for their clients, providers who have stigmatizing attitudes towards mental illness can compromise therapeutic outcomes for those living with mental disorders. The therapeutic relationship is the component of care most closely tied to therapeutic outcomes, and this relationship is often jeopardized by provider stigma. Training and mid-career interventions to reduce stigma by enhancing provider empathy for persons with mental illness show varying levels of effectiveness and a majority of these use lecture based instruction. Interventions that engage mental health providers in the experience of persons with mental health (such as role-playing, photovoice, and positive contact with persons who have mental health issues) have shown to be more effective at enhancing provider empathy. Computer games have also been designed and tested for this purpose, and offer significant promise in enhancing empathy through their immersive nature and consistent feedback. This study applies secondary analysis to qualitative interviews with mental health providers who have played the empathy-enhancing games FLUCTuation, Into Darkness, It's for the Best, and Perfection in order to better understand their experiences and emotional and cognitive responses to the gameplay, as well as their reactions regarding the utility of these games.

Introduction

Community psychology regards empathy and compassion as fundamental to the work of the discipline (Cook, 2012). Community psychologists examine the experiences of persons facing stigma, as well as ways to reduce the impact of stigma as an obstacle to health and happiness for a number of populations (Fife & Wright, 2000; Jason & Richman, 2007; McDonald, Keys, & Balcazar, 2007; Parker, & Aggleton, 2003; Rudolph, 1988; Schnittker, 2007). Rappaport (1987) contends that community psychology should be alert to the stigmatizing impact that psychology itself may unintentionally facilitate. Clinical psychologists who harbor (consciously or unconsciously) stigmatizing beliefs about mental health care recipients can compromise the therapeutic relationship with these clients (Corrigan & Penn, 1999). Community psychology as a discipline should search for ways to increase and maintain support for the development of empathetic therapeutic relationships.

According to the U.S. Department of Health & Human Services' Health Resources and Services Administration (HRSA), 52.3% of the United States' mental health service needs are not met and 2,772 additional mental health practitioners would be needed to fulfill these needs (2016). If one accounts for the effects of stigma from mental health professionals, the reality of the quality of service provided comes into question as well; it is common for mental health recipients to report being in an unsupportive therapeutic relationship as a result of feeling misunderstood or stigmatized by their provider (Parker, & Aggleton, 2003; Fife & Wright, 2000; Rudolph, 1988; McDonald, Keys, & Balcazar, 2007; Schnittker, 2007). Thus, examining and reducing mental health provider stigma is essential to building and improving therapeutic relationships.

Poor therapeutic relationships create serious barriers for mental health care seekers because client outcomes are dictated primarily by the therapeutic relationship. Lambert and

Barley (2001) found that across 100 studies, 40% of outcomes could be attributed to this relationship. Because researchers are unable to consistently find outcome differences between therapeutic orientations and the therapeutic relationship is one of the few components shared by all approaches, this is considered to be the quintessential variable of effective treatment for persons with mental illness (Horvath, 2001; Horvath & Bedi, 2002; Horvath & Symonds, 1991; Shirk & Karver, 2003; Wolfe & Goldfried, 1988).

Investigators found therapist empathy to have the greatest influence on patient outcomes in reviews of therapeutic relationships conducted within the adult (Norcross, 2012) and adolescent (Karver, 2005) literature. Yet mental health care recipients commonly report feeling misunderstood by the professionals with which they work or they report experiencing a shallow and unsupportive level of engagement (Shattell et al., 2006; Shattell, Starr, & Thomas, 2007). Research also shows that mental health providers' empathy declines as their career progresses (Bellini & Shea, 2005).

A variety of training approaches exist to enhance a mental health care provider's empathy in the fields of psychology, social work, nursing, and psychiatry; these include interventions targeted at providers who are in the middle of their career (Corrigam et al., 2001; Goldstein & Winner, 2010; Hojat, Fields, and Gonnella, 2003; Lenz & Sangganjanavanich, 2013). Almost all of these empathy enhancement interventions are didactic (lecture) based. Although didactic training is effective, in comparison, other non-traditional methods for enhancing provider empathy have proved more effective (Corrigam et al., 2001; Goldstein & Winner, 2010; Hojat, Fields, and Gonnella, 2003; Lenz & Sangganjanavanich, 2013).

An empathy enhancement intervention that is a) more effective than didactic training and b) quicker and easier to use during training and as a refresher throughout a provider's career. It

would also be instrumental in achieving patient satisfaction, improving the therapeutic relationship, and obtaining satisfactory patient outcomes. Alternative and innovative methods such as role-playing, photovoice, and positive contact with persons who have mental health issues have been examined and shown to be more effective than didactic training (Corrigam et al., 2001; Goldstein & Winner, 2010; Hojat, Fields, and Gonnella, 2003; Lenz & Sangganjanavanich, 2013). And to a lesser degree, the experience of playing computer games designed to enhance empathy have been examined (Annett & Berglund, 2015).

Computer games for mental health started for the purpose of patient emotional care alongside medical procedures, and the development of games targeted at mental health issues alone followed later [in 1987] (Redd, et al., 1987). Researchers are developing and investigating computer games, such as Peacemaker, Hush, and Layoff, which are designed to enhance player empathy (Belman & Flanigan, 2010). The prospect of using games such as these offer a unique promise, as games provide an exceptionally accurate and consistent relationship between an individual's in-game behaviors and the rewards and punishments a designer intends (Ceranoglu, 2010). Games facilitate a version of embodied experience in recipients (players) that lies somewhere above "moving images with sound" and below "actual experience" (Bogost 2007, p.34). And computer games are ideally self-contained and may be administered for the purpose of empathy training without expending the time or resources of trained administrators.

The current study examines the experience that practitioners have with four video games designed to enhance empathy for persons with mental and emotional health issues- specifically bipolar disorder (FLUCTuation), obsessive-compulsive disorder (Into Darkness), attention deficit disorder (It's for the Best), and eating disorders (Perfection). These games were inspired by the empathy game research of Belman and Flanigan (2010; Rusch, 2014a; b) and are a part of

a larger interactive transmedia project about understanding mental illnesses entitled *For the Records* (Rusch, 2014). Game designers used visual, procedural, and experiential metaphors to convey a patient's lived experience with this project (Rusch, 2014). The designers developed the games in collaboration with subject matter experts who had lived experience with the disorders (Rusch, 2014).

A secondary analysis was conducted on transcripts collected by Rusch (2014) to better understand the mental health professionals' experience (in current practice and in training) when playing FLUCTuation, Into Darkness, It's for the Best, and Perfection. The original interviewers asked about how playing these games affected the participants' understanding of their clients' experiences, and for feedback on whether and how they might use these games in their practice. This study seeks to further analyze this data to understand how these four games might influence the empathy of mental health professionals regarding the mental illnesses the games model.

Literature Review

Empathy and Community Psychology

In the book *Community Psychology*, Moritsugu, Vera, Wong, and Duffy (2013) offer suggestions about the future of community psychology. They mention that empathy or compassion have yet to be examined as dependent variables in the community literature, though these "would seem to be natural outcome variables for those interested in building community". Cook (2012) suggests that interest in empathy and compassion in the field of psychology is increasing, and emphasis on these concepts may aid community psychology to see problems that others confront as shared public interest. Cook (2012) goes on to suppose that, "the study of compassion at all levels of analysis is the center for community psychology" (p. 225). Empathy and compassion are phenomena that usually occur in concert, with empathy considered a

multidimensional phenomenon that involves emotion recognition, vicarious feeling, perspective taking (Singer & Lamm, 2009), and compassion, defined as "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help" (Goetz, Keltner, & Simon-Thomas, p. 2, 2010).

There are several reasons that empathy is key to overcoming community challenges; the most evident being the preponderance of forces in opposition to empathy found in everyday human encounters. For example, survivors of rape and sexual assault often will not seek help because they (accurately) predict additional distress resulting from disbelief, dismissal, or victim blaming (Patterson, Greeson, & Campbell, 2009). This includes encounters with those tasked with responding supportively in these instances; specifically, research has found that police officers (Greeson & Campbell, 2013), as well as prosecutors, judges, and medical professionals (Campbell et al., 2001) perpetuate victim blaming, resulting in secondary victimization (Campbell et al., 1999). Rappaport (1987) expresses concern that many community mental health programs and preventative interventions "violate the exemplar of 'non-victim-blaming'" (p. 128). Even for experienced community psychologists, Rappaport (1987) suggests the possibility of unwittingly creating or supporting an intervention that assumes the "one down position of many helper-helpee relationships," which is denigrating to the help-seeker (p. 128).

Stigma, in many shades, can build barriers to empathy and understanding for individuals in the community. Persons suffering from chronic conditions such as HIV/AIDS (Parker, & Aggleton, 2003), Myalgic Encephalomyelitis (Jason & Richman, 2007), or cancer (Fife & Wright, 2000), as well as persons who are anything but heterosexual (Rudolph, 1988), persons with disabilities (McDonald, Keys, & Balcazar, 2007), and persons who have been previously incarcerated (Schnittker, 2007) have all experienced well-documented stigmatization. And the

general public disapproves of persons with emotional or mental illnesses significantly more than persons with physical disabilities (Corrigan et al., 2001). Research shows that society perceives persons with emotional or mental illnesses as more in control of their symptoms, and thus responsible for their conditions, when compared to persons with physical illnesses (Weiner et al., 1988). This negative misattribution is an essential focus in efforts to improve the lives of persons with these conditions because, as Corrigan and Penn (1999) state, "stigma's impact on a person's life may be as harmful as the direct effects of the disease" (p. 765).

Empathy and the Therapeutic Relationship

Negative presuppositions about mental healthcare recipients from the mental healthcare community are particularly distressing, because empathy and understanding are specified in the formula for effective therapeutic relationships within the direct patient-provider interaction. The therapeutic alliance is perhaps one of the most vigorously researched concepts in psychotherapy: an electronic database search in 2009 using the keywords: alliance, helping alliance, working alliance, or therapeutic alliance yielded over 7000 articles (Horvath, Del Re, Flückiger, & Symonds, 2011). Dedicated researchers and practitioners from several disciplines and theoretical orientations across the past three decades have, via a variety of methods and measures, determined that the therapeutic alliance is the most important element of the therapeutic process (Martin, Garske, & Davis, 2000). In an estimate derived from 100 studies of predictors of patient outcomes, Lambert and Barley (2001) found that 40% of outcomes could be attributed to the therapeutic relationship. In fact, an inability to find consistent outcome differences between therapeutic orientations, and the recognition that the therapeutic alliance is the one component that orientations and disciplines share, has led several researchers to conclude that the quality of the therapeutic alliance supersedes the salience of treatment type when predicting positive

outcomes (Horvath, 2001; Horvath & Bedi, 2002; Horvath & Symonds, 1991; Shirk & Karver, 2003). For this reason, Wolfe and Goldfried have called the therapeutic alliance "the quintessential integrative variable" (p. 499, 1988).

A review of the treatment outcome literature for adults, conducted by a Division 29 task force on Empirically Supported Therapy Relationships, identified goal consensus and collaboration, the therapeutic alliance, cohesion in group therapy, and therapist empathy as the components of the therapeutic relationship most related to patient outcomes (Norcross, 2002). A meta-analysis conducted by Karver (2005) found that amongst adolescent therapeutic relationship variables, certain therapist behaviors like empathy and warmth have the highest impact on patient outcomes. Lambert and Ogles (2004) note that empathy, positive regard, warmth, and genuineness are regarded by nearly all schools of therapy as necessary for positive patient outcomes.

Mental health literature and textbooks are flush with guidance about techniques for effective, empathetic therapeutic relationships (Bender, 2005; Safran, Muran, Proskurov, 2009; Shattell, et al., 2006). Yet empirical evidence on the effectiveness of these techniques from the providers' point of view has grown disproportionately to that of the patient (Shattell, et al., 2006). In one such study, individuals with emotional and mental health issues describe the difficulties associated with trying to attain a strong and effective therapeutic relationship, and how important its achievement was to their care (Shattell, Starr, & Thomas, 2007). In Shattell, Starr, and Thomas (2007), mental health care recipients report that they often experience interactions in which others attribute all aspects of the recipient's behavior to either their illness or their medication. In multiple studies, mental health care recipients report being seen as less than a "whole person" by their mental health care providers (Shattell, et al., p. 238, 2006;

Shattell, Starr, & Thomas, p. 278, 2007). Multiple care recipients noted experiences of shallow sympathy and consolation exhibited by their mental health care providers; the recipients explained that this form of engagement is inappropriate and unhelpful (Shattell, et al., 2006). From the patient's point of view, being misunderstood in this way is related to "vulnerability, self-doubt, discrimination, loneliness, isolation" (Shattell, et al., 2006).

In an example of these shallower caregiver-client interactions, Ramjan (2003) reports in a naturalistic study that some registered nurses struggle with establishing therapeutic relationships when working with adolescents who suffer from anorexia nervosa. Ramjan (2003) states that the nurses encountered the patients' desire for control over caloric intake in the form of non-compliance with efforts to nourish these patients in the acute care setting. In the struggle for control, nurses perceived some patients as manipulative and deceptive (Ramjan, 2003). Nurses working with these adolescents report a feeling of failure and lack of trust (Ramjan, 2003). Some nurses found caring for these patients to be frustrating, because the nurses considered problem behaviors to be in the patient's control. Thus, the nurses in this study tended to blame patients for resisting recovery (Ramjan, 2003).

Empathy Induction

It is imperative that researchers identify ways to forge effective therapeutic relationships between stigmatized patients and their mental health care providers. Several studies investigate interventions aimed at inducing empathy in mental health care providers to this end; some are effective while others are less so. In a study of medical students, Hojat and colleagues (2003) found a didactic classroom format to have no improvement on students' empathy for persons with mental health issues. Corrigan and colleagues (2001) compared three different interventions to increase students' empathy for persons with HIV/AIDS; the three interventions were

education (replacing myths with correct information), *protest* (presenting a rebuke against morally untenable positions towards persons with mental illness), and *contact* (a presentation from a person suffering from a severe mental illness followed by a question and answer segment about their life with a mental illness) (Corrigan et al., 2001). They found that participants in the protest condition experienced no changes in empathy or attribution of blame (Corrigan et al., 2001). Participants in the education condition experienced some improvement while participants in the contact condition experienced the most positive changes in empathy and attribution (Corrigan et al., 2001). With Master's level counselors-in-training, Lenz and Sangganjanavanich (2013) compared a group receiving traditional lecture instruction to a group participating in a photovoice intervention, and found the latter to be effective at significantly increasing the quality of their empathy statements. There was no effect for the group who received traditional lecture instruction (Lenz & Sangganjanavanich, 2013). Goldstein and Winner (2010) found that theater-style role-playing to be correlated with increased self-reported empathy.

Serious Computer Games for Health

Evaluations and implementations of computer games as serious tools to facilitate a better life are exponentially expanding fields of study; 76% of reports examining such gaming applications were published in the past decade (Ceranoglu, 2010). Consideration of computer games in this light was spurred partially by the recognition that 97% of teens in the USA between the ages of 12-17 report playing computer games (Lenhart et al., 2008). Various fields report leveraging the built-in advantages that computer games offer. Computer games facilitate an exceptional sense of immersion and control over the course of events they portray, and they offer an unparalleled consistency and repeatability between player actions and reinforcement.

These characteristics are helpful in conditioning new behaviors or outlooks when responding to the physical and mental health needs of patients in diverse contexts (Ceranoglu, 2010).

A number of games presently exist to improve or in some way aid therapeutic relationships. For example, Brezinka (2007; 2008; 2014) describes a computer game designed for use alongside cognitive-behavioral therapy that includes rehearsal of psychoeducational elements of the treatment, as well as inbuilt therapist-elected homework assignments. The vast majority of children who used this game (Treasure Hunt) reported being satisfied with using the game in therapy (Brezinka, 2014). The therapists also considered the game to be helpful in explaining concepts, reinforcing behaviors, and enhancing motivation for children using it alongside treatment (Brezinka, 2014).

Literature suggests that computer games may be particularly suited for strengthening the therapeutic relationship with younger patients (Ceranoglu, 2010). As Freud (1908/1960) said, a child may more readily relate to a therapist who will go along with the way that they usually play. Games may help to bridge the differences in language abilities between the patient and therapist (Ceranoglu, 2010). During sessions, therapists who use computer games have noted the benefits of a provision of structure to their sessions, relationship building, and increasing engagement (Coyle, Doherty, & Sharry, 2009). Computer games can support a non-threatening atmosphere for therapy, making rapport and relationship building easier (Clarke & Schoech, 1994).

Empathy and Understanding through Computer Games

Researchers increasingly utilize computer games as a way to increase empathy more broadly in the interest of addressing various societal issues. Lemmens and colleagues (2011) found that exposure to violence in video games is often related to reduced empathy. Yet

Greitenmeyer et al., (2010) found that exposure to pro-social games is positively associated with empathy and negatively associated with schadenfreude (taking pleasure in the pain of others). Annett and Berglund (2015) propose that a reciprocal relationship exists between playing pro-social games and pro-social behavior, which may yield an "upward spiral" of gaming and behaviors that are pro-social (p. 145; Garland et al. 2010). Annett and Berglund (2015) suggest that video game exposure and training via games is the middle ground between neurochemical means and classroom leaning when pursuing cognitive enhancements; neurochemical means are quick and effective but associated with possible risk, and traditional classroom learning is less risky, but slow and possibly less effective.

Designing games to increase empathy and understanding is no easy task. As Harris, Shattell, Rusch, and Zefeldt (2015) noted in their examination of the barriers to understanding the core metaphor for Perfection (one of the games further reviewed in this study), the therapist-participants' relationship to games, namely unfamiliarity with user-interface characteristics and insecurities associated with technology, hindered their immersion in the game. Harris and colleagues (2015) also noted how important flawless usability was to the gameplay experience; a number of issues and bugs reduced immersion, and also interacted with the existing technology insecurities held by some players causing them further confusion and frustration. Unlike poetry, music, or the visual and performing arts, as a relatively new medium, video games face greater critique relating to credibility as a medium for the metaphorical expression of the human condition (Harris et al., 2015). In the study conducted by Harris and colleagues (2015), some therapist-players incorrectly anticipated that Perfection would be suitable only for children because it was a computer game (Harris et al., 2015). Further, after playing the game, the therapist-players appraised it as not self-explanatory enough to convey the experience of the

disorder it modeled (Harris et al., 2015). It is noted by the authors that this feedback would be less likely if the game's core metaphor was expressed via a more established artistic medium (Harris et al., 2015).

Mechanisms of Effectiveness

Not all games are created equal, and some game designs lend themselves to the induction of empathy and engagement with game meaning for players more effectively than others. Simulations without a predefined "win state" allow the player to explore and delve into what is learned (Charsky, 2010). There is extensive literature on the study of role-playing and simulation in games. In researching embodied experience, Coeckelbergh (2007) establishes an internal model idea of interaction with game content. This model states that books, television, movies, and computer games allow an individual to identify internally with the character of these mediums, which enhances their understanding and empathizing with the character's circumstances (Coeckelbergh, 2007). Coeckelbergh (2007) emphasizes that with computer games, the interaction and level of engagement, combined with the consequences of behavior within the game, elevates the potential for this understanding and empathizing for the player.

Waskul and Lust (2004) examine role-playing games through the lens of symbolic interaction. Symbolic interaction states that people experience reality indirectly through language, social structure, and context (Waskul & Lust, 2004). Waskul and Lust (2004) assert that as long as a player is willing to "bracket," or set aside their natural selves, games can allow an aesthetic experience that provides for partial immersion into the context and experience of another (p. 337). Games, like poker or Dungeons & Dragons, can facilitate such bracketing and make such role-playing easier to accomplish (Waskul & Lust, 2004).

For a game to be effective, Salen and Zimmerman (2005) note that it is imperative for games to create "meaningful play" (p. 80). Salen and Zimmerman (2005) examine how a game may do this. They frame game creation through semiotics, which is the study of signs and meaning, and the process by which meaning is created (Salen & Zimmerman, 2005). For example, an in-game sign in Scrabble might be a word, which in daily life has use in communication, but in the game represents points to be won (Salen & Zimmerman, 2005). When these signs interact with one another in larger sequences, meaning is made in what is called "chains of signifiers" (Salen & Zimmerman, p. 61, 2005). The way in which player and sequence interact determine whether the player has the opportunity to glean the meaning within the chain. To facilitate player understanding, Salen and Zimmerman assert that the meaning of an action must be both integrated, with consequences that apply continuously to the game context, and discernable, so that consequences are evident to the player taking the action (Salen & Zimmerman, 2005). Salen and Zimmerman (2005) outline four levels of engagement that can be found, or designed, in a game context: cognitive and emotional interaction with the system; material interaction with the interface and controls of a system; participation with design choices and procedures; and cultural participation, which is interaction relevant to the game that occurs with relation to what is outside the designed system. According to Salen and Zimmerman (2005), designers must consider all levels of interaction in order to successfully make way for meaningful play.

Empathy and Design Characteristics

Beyond effective meaning-making and role-playing for general engagement, Belman and Flanigan (2010) proffer some design contingencies for the specific purpose of increasing player empathy with pro-social games. They have arrived at four design principles for this purpose:

intentional empathy induction, utilization of outside resources, implementation of cognitive and emotional empathy induction, and use of similarities between the intended empathy subjects and the player.

First, some aspect of the game must induce intentional effort in the players to empathize early in the game (Belman & Flanigan, 2010). Experiments have found that the same content will either inspire attitude and behavior change, or no change at all, depending on whether participants are asked to empathize (Batson et al., 1997; Batson, Chang, Orr & Rowland, 2002). Belman and Flanigan suggest that this is because prompting players to be mindful will engage in meta-level reflection, in addition to focusing on the in-game experience (Belman & Flanigan, 2010).

Second, Belman and Flanigan recommend that the game designer offer some recommendation for what the player can do about the issue outside the context of the game (2010). They explain that empathy without an outlet can be painful and that providing a way out can reduce a player's resistance to empathizing if they anticipate this pain (Belman & Flanigan, 2010). In the case where the player is a therapist, it is safer to assume that the outlet of treatment is available.

Thirdly, Belman and Flanigan (2010) warn that if the objective of the game is to induce significant shifts in players' beliefs, the game must engage both cognitive and emotional empathy. While a player may feel pity or worry for a character or situation, if responding is incongruent with their understanding of what is necessary or what they are responsible for, the player may still make no behavioral or attitudinal changes (Belman & Flanigan, 2010). In addition to engaging their emotions, a game must address players' cognitive understandings of an issue (Belman & Flanigan, 2010). Evidence that some therapists ascribe a patient's difficulty

progressing to a lack of willpower or motivation (Schulze, 2007) indicate that a revision to some therapists' understanding of a patient's experience may be needed for emotional empathy to be effective.

The fourth principle Bellman and Flanigan (2010) outline is the utility of using components of the game to emphasize similarities between the intended subjects of empathy and the player. However, Belman and Flanigan (2010) caution that game designers must be mindful that the invocation of similarity not incite defensiveness in the player as a reaction to their own status being threatened. This would likely be especially true for therapists, who have shown a desire for increased social distance from clients with disorders (such as schizophrenia) they have individually labeled as dangerous (Angermeyer & Matschinger, 2003).

Understanding Specific Games about Mental Illnesses

With regard to the next possible steps in exploring the utility of pro-social computer games, Annett and Berglund (2015) suggest evaluating existing games as a good place to begin. Belman and Flanigan (2010) began this endeavor by examining Peacemaker, Hush, and Layoff (Lim et al. 2011). Peacemaker has its users play as either the Israeli Prime Minister or the Palestinian President; the objective is to come up with a "two-state solution" to the conflicts between the two countries (Belman & Flanigan, 2010). In Hush, one plays as a Tutsi mother hiding her child from the Hutu during the Rwandan genocide (Belman & Flanigan, 2010). In order to keep the baby from crying and giving the player's hiding spot away, the player must sing a lullaby by pressing designated notes in rhythm with the song (Belman & Flanigan, 2010). In Layoff, the user embodies corporate management and is in charge of laying off what seem like interchangeable employees, but each time the player selects one to remove they are presented

with the biography of the employee (Belman & Flanigan, 2010). This leads a player to react to the impact that being laid off would have on the employee's life (Belman & Flanigan, 2010).

Our interests include the utility of computer games to enhance the therapeutic relationship between mental health professionals and their clients. To this end, our study will investigate the cognitive and emotional reactions of mental health professionals who have played four games about specific mental illnesses. These reactions will serve to indicate to what degree the professionals encountered empathetic embodied experience in the games, and whether they felt an increase in understanding for persons who experience the disorders depicted. The four games are Into Darkness (about obsessive-compulsive disorder), It's for the Best (about attention deficit disorder), FLUCTuation (about bipolar disorder), and Perfection (about anorexia nervosa). These games are a part of the *For the Records* interactive transmedia documentary and inspired by the empathy game research of Belman and Flanigan (Rusch, 2014a; b).

Into Darkness is about obsessive-compulsive disorder, and creates an experience of the relationship between compulsive ritual and anxiety for its sufferers (Rusch, 2014). Players take the form of a hooded figure attempting
 to escape an inescapable maze, which represents the disorder itself. As the player explores, shadows encroach from the periphery and enclose on the character, representing anxiety. These shadows will recede and reveal the maze again, temporarily, if the player performs their ritual of walking in a circle 4 times. Unbeknownst to the player, an exit to the maze will only appear if they continue exploring without stopping to perform the ritual.

The second game, It's for the Best, is modeled after the experience with attention deficit disorder had by a member of the game development team (Rusch, 2014). The pivotal element of the game is the feeling of helplessness associated with reliance on medication in order to focus

experienced by persons with Attention Deficit Hyperactivity Disorder (ADHD). It's for the Best depicts the player as a student who has ADHD. Papers flutter across the screen, and in order to complete the game the player must click on the fluttering assignments. These assignments pile up if missed. A pill also sits at the center of the screen, which when clicked will eliminate all the built up papers the player has missed, and will progress the player to the next "grade." This feels less rewarding compared to the excitement of clicking the papers on one's own. Yet these assignments begin to fly towards the player at a rate that is too quick to manage and the pill increasingly becomes an inevitable necessity to complete each grade. This game has no "win" or "lose" state, and ends after a set period of time.

FLUCTuation is a game that emulates the movement of persons with bipolar disorder through periods of mania and depression. The player begins on a platform with other non-playable character avatars and leads the group in jumping together. Soon, however, the player jumps higher and leaves the group to bounce along platforms, progressing upwards. As the player bounces, each platform shatters, representing the consequences of poor decisions made in the manic phase. Some platforms have other characters on them, who fall when the player bounces on their platform. As the player reaches higher and higher, a fractal pattern in the background broadens and player movements amplify, signaling the grandeur of the manic phase. At a certain point, the player runs out of platforms and plummets down into an oceanscape. There, the player finds the broken platforms and people who fell into the ocean as a result of the player's mania. When the player attempts to rise slowly out of the water, these people send balls of light, representing well-meaning but overwhelming contact, towards the player. If the player touches the orbs or platform shards, the game drags the player down further into the water. The

game models how a person suffering from bipolar disorder struggles with manic and depressive phases, decisions, and with communicating the experience of the disorder to people they love.

The game Perfection models the struggle encountered by individuals with anorexia nervosa. The game models the experience of competing absolutes in control, "beauty" and nutrition. The gamespace takes the form of a garden, which must be managed by the player. The centerpiece is a heart-shaped flower that represents life. Weeds pop up, representing unwanted physical features. Slugs infiltrate the garden, representing unwanted feelings. Game controls include scrubbing the slugs away (exercising), clicking dead weeds to remove them, and controlling the garden saturation level. Garden saturation emulates eating by showing that weeds die and slugs are kept at bay when saturation levels are low but the heart-plant suffers as well. The player reaches complete perfection only by destroying the heart-plant, but the player may reach a hidden win-state if they find a balance between watering to support the plant and accepting some weeds and slugs that come along with the healthier saturation level.

Rationale

The isolation and sense of being misunderstood that is endured by persons with emotional or mental health issues indicate a need for continual development of available methods by which therapists and other mental health service providers may connect with the patient's experience empathetically. For many with mental and emotional health issues, mental health care professionals are the representatives of society with whom they have the closest contact. The therapeutic relationship is crucial to realizing a patient's best possible outcomes. Unfortunately, this relationship is highly vulnerable and an ideal connection is not always achieved (Lambert & Ogles, 2004).

A history of exploration with interventions aimed at strengthening the therapeutic relationship between mental health care recipients and providers have yielded helpful evidence weighing in on what works and what is less effective (Corrigan et. al., 2001; Goldstein & Winner, 2010; Hojat et. al., 2003). Interventions aimed at maximizing empathy and drawing attention to the similarity between the provider and the recipient are more effective than interventions that treat mental health care recipients as "different others," who are to be understood by their differences from, rather than similarities to, mental health providers (Corrigan et. al., 2001).

Research indicates that computer games have a high potential for establishing a helpful degree of empathetic engagement concerning the experience of a person suffering from a specific emotional or mental health issue (Garland et. al. 2010). Investigators are hopeful about the promise of computer games (Annett & Berglund, 2015). Early studies of gaming efficacy indicate that games may provide an unparalleled combination of vivid and deep embodied experience that is also easy to disseminate (Annett & Berglund, 2015). Annett and Berglund (2015) recommend that additional research be conducted to examine how mental health care professionals actually experience these games. Mental health care professionals' reactions may provide insight about the therapeutic utility of specific games for empathy induction, as well as potentially provide an understanding of the broader characteristics of this medium and where future games may improve.

The proposed current study will consist of a secondary content analysis of transcripts from qualitative interviews with mental health professionals in order to explore how they experience four games – Into Darkness, It's for the Best, Perfection, and FLUCTuation – designed to induce empathy in players. After playing each game, researchers asked the

participants about how they felt during gameplay, the points in which they had the strongest emotional reaction, their thoughts on their gameplay strategy and progress, their interpretation of each game, and how well the gameplay corresponded with their ideas of the issues modeled in each game. Researchers also asked the participants about how game play affected their understanding of their clients' experiences, whether participants would use these games in their work, how and why the participants would utilize the games, and what would make the participants potential application of the games in their work more likely. This proposed study seeks to assess these domains to better understand how these four games might influence the cognitive and emotional perspective of mental health professionals regarding the mental illnesses they model (obsessive compulsive disorder, eating disorder anorexia, bipolar disorder, and attention deficit hyperactivity disorder).

Research Questions

Research Question I: How useful do mental health professionals describe the core metaphors in select video games about mental illnesses in helping them understand the experience of the disorders depicted?

Research Question II: How do mental health professionals discuss change in attitudes about the disorders depicted during and after playing video games about select mental illnesses?

Methods

Participants

Researchers applied a secondary content analysis to the transcripts for interviews conducted with twelve practicing mental health professionals recruited from a large Midwestern metropolitan area. Participants needed to be over 18 years old, as well as able to speak English.

Six of the study participants disclosed having experiences with mental health issues in their own lives.

Participants were therapists, social workers, nurses, and counselors. Nine participants were female, three were male, and one participant chose not to report their gender. Nine participants were between 36-60 years old, and 3 participants were between 26-35 years old. Eleven participants were white, and one participant was multiracial. Seven participants reported their sexual orientation as heterosexual, four identified as homosexual, and one identified as bisexual. Eight of the participants reported a doctoral degree as their highest education level attained, while four reported a masters' degree was their highest education level attained. Five participants had personal experience with mental health issues, three had significant others with mental health issues, 11 had family with mental health issues, and 12 had friends with mental health issues. Participants reported the number of years they were a mental health provider; the mean was 15.67 years.

Original Study

This study involves secondary analysis of research originally designed and collected by Rusch (2014). In collaboration with content experts including individuals with lived experiences with the disorders, Rush designed four games (Into Darkness, It's for the Best, FLUCTuation, and Perfection) to facilitate the embodied experience of a prevalent mental health issue (obsessive-compulsive disorder, ADHD, bipolar disorder, and anorexia nervosa). These games are a part of a larger transmedia project called *For the Records,* which also includes film, animations, photo romans, and written interviews (though participants in their study experienced only the game component) (Rusch, 2014). The designers of these games targeted the use of three

types of metaphors, visual, procedural, and experiential, to convey a patient's lived experience

(2014)

Materials and Procedures

The study used a convenience sample and participants were recruited from the original

study investigators' personal and professional networks. Researchers contacted mental health

providers via email to invite participation or to request assistance in passing on the study

information to persons living with the issues of interest. Fliers were attached to the emails for

distribution. Researchers conducted the interviews in individual mental health providers' offices.

Interviews were semi-structured and conducted at three points in time; before, during and after

gameplay.

After consent, participants completed a short interview about their previous experience

with computer games and their thoughts on the experiential understanding of a client's mental

health issues. Next, participants accessed and played each of the four web-based games, which

took them an average of 60 minutes to complete. During gameplay, researchers prompted

participants to vocalize their thoughts and reactions to the game and to request help if they

encountered a technical problem. The interviewers were present to provide hints in response to

these requests and to troubleshoot any potential technical issues.

After the last of all four games were played, interviewers conducted a debriefing

interview with participants, which took approximately 30 minutes. Interviews focused on the

participants' interpretation of the games ("What is your interpretation of the game?"), the

reactions participants had during the game play experience (such as, "Tell me about the point(s)

in the game where you had the strongest emotional reaction?"), how the participants' perceptions

interacted with their understanding of the emotional and mental health issues portrayed in each

game (such as, "Overall, do you believe the experience of playing the games increased your understanding of your clients' / patients' experiences?), and participants' conclusions regarding the potential therapeutic benefits of experiential games (such as, "Would you use one or more of these games in your work with clients?") (See Appendix A for complete interview protocol).

Analysis

Interview transcripts were analyzed across all four games for each participant using thematic content analysis, where the coder identified themes from the common ideas that relate to a study's research questions (Saldaña, 2012). The investigator identified themes through an inductive process, with themes originating from the data, rather than by applying preconceived themes deductively (Braun & Clarke, 2006). The investigator, based on previous research with this data (Harris et al., 2015) entered into the current study anticipating that players' unfamiliarity and insecurity with games would be a significant barrier to their gaining understanding via the four games. In order to address this assumption, the investigator briefed the secondary coder about it prior to analysis, and the coder and the investigator looked for disconfirming cases for this assumption. The second coder was in a uniquely suitable position to watch for this bias after briefing, because the coder was less familiar with the preexisting publication with these data referring to technological unfamiliarity.

The first author and an undergraduate research assistant read and re-read the data a number of times during different stages of analysis. To begin, the investigator read the transcripts to familiarize himself with the data and to become immersed in the respondents' text (Burnard, 1991). After becoming acquainted with the data, the investigator employed open coding. Open coding refers to description and summary of all transcript content in headings as the coder goes

through the material (Burnard, 1991). The investigator used NViVo at this time to apply labels and annotate the transcripts.

Next the investigator scrutinized the codes to develop a codebook. Codes identified at this point were evaluated to determine whether codes should be eliminated, combined, and/or structured as sub-codes. The investigator then used these codes to identify themes; themes are broader than the codes, and exclusive of one another (Patton, 2002). At this point, the investigator identified subordinate and superordinate themes (Braun & Clarke, 2006). Themes derived from the codes were exclusively semantic, rather than latent; that is, the coder did not attempt to infer ideologies and assumptions underlying basic description and interpretation (Braun & Clarke, 2006).

After the initial open coding for the development of the codebook, the investigator re-read the data and re-coded all transcripts using the finalized theme structure (Ryan & Bernard, 2000). At this stage, a research assistant participated in the re-coding process, first coding the same transcripts as the investigator to train in codebook application. This includes the research assistant providing feedback on the codebook content and structure, aiding in its refinement. After the research assistant was trained in applying the codebook, inter-rater reliability was checked using Cohen's Kappa, resulting in a coefficient of .89. Once reliability was achieved, the remaining transcripts were divided between the investigator and the assistant for coding. Both parties coded independently, and then spot checked one another's transcripts. Below, major themes resulting from this analysis are presented, along with representative extracts from the practitioner participants.

Findings

Domain 1: Impairments in emotional function

All participants reported multiple instances of experiencing emotions that mapped onto symptoms associated with the disorder during the game. These experiences broke down into 4 categories: demoralization, anger or frustration, anxiety or fear, and isolation.

Demoralization

All of the participants reported feeling demoralized during gameplay, in ways consistent with the disordersportrayed. Participants articulated feelings of helplessness, desperation, of being paralyzed, out of control, stifled, overwhelmed, disheartened, lost, and of sensing that their efforts were futile. These feelings aligned with the emotions that are a part of the mental illness portrayed. This does not include reactions to glitches or flaws in the game, or reactions based on the player's familiarity with games or computers in general.

The feeling of demoralization was reported by 11 participants for FLUCTuation , 11 participants for Into Darkness, 12 participants for It's for the Best, and by 8 participants for Perfection. Speaking about It's for the Best, one clinician explains the sense of futility they felt when confronting their in-game performance in school as a person with ADHD, and the expectations other characters in the game had for them:

> Yeah, there's just a sense of futility that no matter what you do it's not good enough. Take too much of the meds, that's counterproductive, don't take enough, then you're letting everybody down, and that gets overwhelming, um, trying to find some happy medium with it, there's still an overwhelming impact of assignments piling up and performance and grades going down, um, not being able to measure up to what everybody else seems to be able to do a little bit more easily, and feeling that there's got to be a better way, you know?

Another practitioner, referring to the depressive phase of bipolar disorder represented in FLUCTuation, described how the demoralization they experienced might explain why persons with bipolar disorder "give up":

> And then I think as far as the depressive phase of just really not being able to do anything kind of captures that. And I think the sense of-- I was trying really, really hard, but getting nowhere, and I think that represents why people do just kind of give up, because they try so hard and feel like they're not getting anywhere. So I think maybe even if that played out a little longer, it would...get a little bit even more frustrating, and have that sense of the depressive part, too.

Finally, one practitioner commented on the suitability of their demoralizing experience in the game Perfection, with relation to the disorder anorexia nervosa:

> P: It is exhausting because it feels sort of unrelenting.
>
> I: Attending to the garden?
>
> P: MmHm. Which is kind of a nice outcome for this.

Anger or frustration

All practitioners (12) felt frustrated or angry, in a way that was akin to what is expected for the disorders portrayed. This anger, when experienced, was largely connected with the sense of futility found in the previous code, according to the participants. This domain did not include reactions to glitches or flaws in the game, or reactions based on the player's familiarity with games or computers in general. The feeling of frustration or anger was reported by 7 participants for FLUCTuation , 6 participants for Into Darkness, 7 participants for It's for the Best, and by 8 participants for Perfection. When discussing their experience playing Into Darkness, one participant recounted the frustration and anger they felt with the tediousness of a life where

compulsions have a strong influence over one's behavior, even when a person with OCD wishes

they were not:

> They do a masterful job because I was frustrated, sick of it, like from jump, I was sick of
> it. So, that was great. Um, yeah. Just how ridiculous…because people have that
> recognition that this is stupid, this is awful, I don't want to do this, but. The one thing
> that I wanted slightly more is that that I desperately want to do this, but I desperately
> don't want to do this.

One player expressed the especially frustrating experience of the destructive

consequences of manic behavior on FLUCTuation, which they perceived as the only element of

the bipolar experience they had direct influence over. "Umm, from an emotional perspective it

was a little frustrating because there's very little I could do. The only thing I have any control

over was really leading to destruction. So…" Another FLUCTuation player added commentary

about a dimension of aimlessness associated with the same manic behavior, and their attendant

frustration. "don't know where to go because I can't reach the next level up. Now I'm feeling a

little frustrated. I can't get it up there. I'm just bouncing and not knowing where to go."

Perfection especially elicited feelings of frustration. One player pinpointed the creepers

(undesirable slug-like creatures which represented undesirable aspects of one's body image) as

an especially anger-inducing element of the core metaphor in Perfection, saying, "Uh…yeah

there was a sense of kind of underlying chronic, um, annoyance at the creepers and…attending to

them and getting after them. Um, 'fuck, there's another one.' 'Ah god, why won't these things

go.' So, kind of low grade anxious, low grade frustration, um, kind of through out." Another

player made the connection that many clinicians did between demoralization and anger, saying,

"I think it portrayed well that you could never really achieve perfection and that it can be very

frustrating to try, because it's just not possible. So if that's the goal.. I think it did that really well." One participant simultaneously expressed open hatred for the experience, and praise for its accuracy and utility, "[laughter] I would grow to hate this game. Which in some ways is probably perhaps useful. Because I'm sure that people with eating disorders hate the eating disorder."

Finally, a clinician reflecting on playing It's for the Best resulted in their experiencing similar feelings of hatred and praise, but more immediately, recounts their frustration:

I: What was your strongest emotional reaction to this game? Or the point that you felt like you had a strong emotional reaction?

P: Pretty much from the beginning. Frustration and amusement at my frustration, going right on, this is exactly what it's like and, boy, I hate this game! [Laughs]".

Anxiety and fear

Eight clinicians described moments where some aspect of gameplay relating to the portrayed disorder made them feel anxious, frantic, scared and afraid, weird, uncomfortable. In fact, some clinicians described moments where they desired to stop the game based on these types of feelings. The experience of anxiety and fear was reported by 3 participants for FLUCTuation , 6 participants for Into Darkness, 4 participants for It's for the Best, and by 3 participants for Perfection. One clinician articulated the anxiety that impelled them to complete OCD rituals regularly in the game Into Darkness.

I like this part where I feel like I want to go as far as I can, like I feel a certain amount of anxiety and want to go as far as I can before I have to start doing the things again. This circle pattern. In part because I suck at it. But that's a nice, action, OCD, trying to get

through stuff as quickly as possible to do the ritual. I imagine they're much better at rituals than I am.

Another clinician articulates the importance they feel towards Into Darkness representing the anxiety associated with OCD, and added that the game should go even further with that emotion to accurately portray OCD.

P: I feel like the anxiety is critical. Um, in fact, I don't know if I felt anxious enough. Like, I, I…like I just didn't care. The lights went out. Great! So, now I'm done. It didn't…it's difficult to I think capture that sort of the panic and the intense sense of, the chronic anxiety, the building acute anxiety that occurs. Um…

I: So it's more panic than anxiety then would you say? It sounds like that's what you are saying.

P: Well, I think that it's probably both. In OCD there's sort of a low to mid-level kind of chronic anxiety that's just sort of there. And that ritual is meant to subdue that and it really doesn't. That as a person gets sick of doing the ritual whatever rituals are, the anxiety sort of begins to really grow and it can become quite acute.

Finally, when describing their experience playing FLUCTuation, one participant explained that when the limits of the grandiose manic phase were reached and the player plummeted into the depressive phase, they felt exceptional fear:

Another part where I had a strong emotion was the jumping, in the mania or colorful phase, and I couldn't reach the next level. When I couldn't get up there. And then I came crashing down, and I thought 'Oh I can jump on them again' but I felt really scared in that moment.

Isolation

8 participants reported feeling isolation when playing FLUCTuation. These players commented that some aspect of the game design made them feel disconnected or isolated, whether in general or from the other characters portrayed in the game. This emotional experience was identified solely with relation to FLUCTuation, in which the player encounters several non-player characters, but cannot interact with these characters, despite their prominence in the player's attention and wide distribution throughout the game.

When asked about the social scene at the beginning of FLUCTuation, one participant commented on the utility and effectiveness of depicting the felt costs of the euphoria and goal-orientation associated with bipolar disorder on one's relationships.

I: How about that party scene in the very, very beginning? It's right before the platforms started.

P: Right, um…Eh…I didn't have any real thought. It was just sort of an opening scene. I mean, separating that kid from that scene was sort of…perhaps a bit evocative in the sense that you are no longer part of that crowd. You feel separate. They did sort of a nice job of eliciting the idea that kind of euphoric sort of super goal oriented associated with different types of mania. Makes sense.

A second clinician corroborated this dynamic, and adds that the fact that alienation occurs at one's own hand in the manic experience portrayed in FLUCTuation exacerbates the feeling of isolation.

I: Um, if you are trying to get across the idea that it may be enjoyable for this person, but in the meantime they're alienating everyone around them, how important would you say that is to relate on a scale of one (1) to five (5)?

P: Um…I would say close to a five (5).

I: Okay.

P: And not only alienating, but I think the idea to that it can be quite seductive which makes the alienation part all the more painful. It's very enticing. "Wow look how great, this is amazing! Wow, wow, wow!" And then realizing that this is not at all amazing. It's a big fall. So. Painful.

In contrast, one clinician describes how the depressive phase contributes to isolation in a different way, as in this phase it feels harder to reach people or connect with very present non-playable characters.

Something that seemed so dramatic: you could just sort of float in and out of it and you and you weren't really feeling it in the same way, or being able to reach people in the same way….although throughout it all seemed to be somewhat of a theme of umm, disconnection...until maybe the end again because i wasn't very able to find a way myself maybe on the other side of the game, to umm connect with all those other little people so…

Domain 2: Embodied cognitive experience

All practitioner-players reported experiencing perceptions and reasoning that mirrored those known to be a part of the disorders portrayed. Participants discussed how pathological behaviors felt rewarding and healthy behaviors felt counterintuitive, and yet how eventually adapting to more healthy behaviors was a relief.

Clinicians experienced rewarding dimensions of pathology

All participants described experiencing how natural and attractive they found behaviors that are considered pathological for the disorder portrayed when engaged in gameplay. Every respondent indicated either that a pathological behavior was exciting, or that such behavior reduced a stress

they were feeling. The perception of reward associated with pathological behaviors was reported by 11 participants for FLUCTuation , 9 participants for Into Darkness, 1 participant for It's for the Best, and by 5 participants for Perfection. In the case of FLUCTuation, one clinician deftly demonstrates the feeling of euphoria they consider characteristic of the manic phase of bipolar disorder:

I felt like it was some sort of euphoria that I was trying to get to. Searching it somehow, almost like recklessly, right? And I think that's kind of typical of mania as well, sort of, "ah, that looks great! I'm going to get there! Just kind of jumping all over the place! Things are shattering, friends are falling, but I'm going to get to that euphoria!"

Another practitioner mentioned how the manic phase of the game contributed to the development of a sense of confidence:

P: Umm...the first phase, and the colors made it fun. So like the brightness. It had a more, it did have more of a happy kind of sense to it and the jumping around, and the feeling as though, even though I felt like my character was a little out of control, it was almost a sense of, okay, I could get better at this. You know? It's like that. More confident.

I: Okay. More confident.

P: Yeah, and that's interesting, because I feel like that's probably the case with bipolar disorder too, that feeling of confidence. Even though there is an out of control sense to it, "I can get this!"

And another clinician playing FLUCTuation articulates how the positive general feeling of mania combines with a sense of accomplishment, and how this operates in the game and in

patients' lives with relation to being out of control, the depressive phase of the disorder, and their opinion of the most common outcome of manic behavior:

> Um, I think pretty well. Yeah. I mean, as far as the devastation of that switch, you know, from clients that I've worked with, that can be such a huge struggle, because sometimes the mania feels pretty good, even though it is, can feel out of control, you know, and then when the depression comes, it's pretty awful. So I think that part was captured well, at least for me, because I felt really kind of bummed out when it shifted like that. And then I think just as--you know, the first kind of manic part where even though you are a little out of control and crazy, it still did feel fun and you're working toward something, which I think, but then never really getting there too, which is true. It's not like mania is often this productive, you know, thing...I mean, sometimes it can be, but often it's not.

In the case of anorexia nervosa with Perfection, players indicated motivation for pathological behavior coming both from avoiding negative feelings via compulsive image maintenance and withholding nutrition, and from increasing positive feelings associated with a sense of progress and with receiving praise. [fake name] poignantly characterized their association between fighting unsightly parts of their garden in Perfection and the compulsive motivation to get rid of bodily imperfection they've seen in anorexia nervosa.

> Right, right. Um…because I just want to kill the creepers and I want to rip out those vines and everything else becomes a little less important. Um, in some ways that's a really great metaphor and I think it cultivates similar feelings to having an eating disorder.

And later:

Um…But, it did do a fine job of sort of cultivating feelings because there is a bit of a compulsive feel to it. Get rid of these things, get rid of these things. And it's a nice stage, I think, for setting up the emotions where I feel good getting rid of things that I think of as being imperfect. Whether they are in fact imperfect or not is irrelevant. It just feels good to get those fuckers out. Pardon my polish as my grandma would have said.

At the same time, participants indicated how Perfection characterized the sense of progress and praise that may often contribute to persons with anorexia nervosa initiating or continuing pathological behavior:

P: I think in the beginning I did, I think that was good and key about how eating disorders can start, like the "yeah! I'm making progress", you know, and I think that that's really typical, I've heard that from a lot of people, like, oh, I started actually to get positive comments, and praise from people, and I think that was well portrayed in the sense of, "oh, yeah, let's keep on going with this" and on the right track, but then it was not getting the same results anymore.

As with Perfection, with Into Darkness and obsessive compulsive disorder, participants identified further examples of the double-sided coin of avoiding negative feelings and being attracted to positive feelings when it came to motivating compulsive behaviors. One clinician nicely highlights how practitioners may miss out on the pleasure that comes from completing OCD rituals:

Um, one of the things that I probably never really gave much attention to, or thought about until this game frankly in some ways was the enjoyment that comes with sort of completing the rituals and "ah-ha!" I got that done. Um, even regardless of how short lived it is it's still there and it's still reinforced. Um, so yeah. That's all part and parcel.

Additionally, [fake name] exemplifies the pressure to escape germs that was simulated in Into Darkness:

P: Yeah, I viewed it as weird germ-y things. I don't know. [Laughs] I had to get it off of me.

I: You felt the need to get it off of you.

P: I did!

Healthy behaviors as counterintuitive

Ten clinicians endorsed the recognition that they, either briefly at the beginning or enduring throughout, overlooked or avoided what would be the healthy behavior option in their situation. In most cases, the clinicians articulated a degree of recognition of what the healthy options were in the situation, and yet this realization was not enough to prevail over competing symptomatic motivations for these clinicians, at least at the beginning of the games. The feeling of relief when adopting healthy behaviors was reported by 6 participants for FLUCTuation, 3 participants for Into Darkness, 9 participants for It's for the Best, and by 4 participants for Perfection.

This experience was widely shared by clinicians during their playing It's for the Best, regarding the adherence to medication use. Several clinicians reported alternating between the desire to function without the medication, and then taking the medication in higher doses later in an attempt to compensate;

I: Was there a point in the game where you had strong emotional reaction?

P: I just want...when it was like, the pill, it was like trying to wait first a little bit, 'oh let me wait, have some control, and then it'll build up, and I'll take the pill.' And then it was just so much, I was just like, 'Give me the pill! Let me take it a million times!'

One participant shared how their rationale when transitioning between that temptation and the regular use of their medication:

> Um, it seems like it did a really nice job of um, oh sort of challenging, sort of setting up a dynamic where it was fun to see how many of the things you could get, how long you could go before you hit the button and sort of reset everything. And how, in so doing invariably some things got past me.
>
> Um, and that seems really consistent with my time with kids, adults, adolescents with ADHD where they're trying to find how little medication can I take versus, uh, sort of doing it on my own. Um, and some things just slip through the cracks. So, I enjoyed that. And so after a while I just got tired of things slipping by me, it was just easier to hit the pill, just do the pill regularly. Um, and then I would get curious. 'I wonder how fast things are going now?' I would stop and again things, it all felt pretty consistent with people taking medication kind of wondering 'well, what if I stopped taking it.'

Participants also experienced overlooking the intended healthy behavior when playing Into Darkness, when the primary task of the game, getting through the maze, is impaired or made impossible by the degree to which the player is attending to their compulsive rituals:

> Well, it's not fun to be in the dark. And then I can't see where I'm going. I'm mostly not paying attention to where I'm going, because I'm so focused on the [ritual], so I'm probably just walking around in circles. Ugh, okay. It's getting really bad.

And:

> I: So, how would you describe your progress within the game then?

P: I have no clue because I was, I couldn't see the whole maze to know where the

end was. Um, and I think I was too focused on making the darkness go away that I didn't

really care about my progress.

Relief of adopting healthy behaviors

Every clinician commented that some aspect of the game design rewarded them with a

feeling of relief or triumph when they elected to enact a healthy behavior in the game with

reference to the disorder depicted. These could include avoiding giving in to compulsions, in the

case of Perfection and Into Darkness, or adhering to regular use, but not abuse of ADHD

medication in It's for the Best. The feeling of relief when adopting healthy behaviors was

reported by 2 participants for FLUCTuation, 11 participants for Into Darkness, 6 participants for

It's for the Best, and by 10 participants for Perfection.

One clinician, who disclosed their personal experience with ADHD, shared their

realization of what the healthy behavior choice was in It's for the Best. They shared that previous

conversations helped them identify the allure of pathological behavior, and that overcoming this

behavior was a relief.

I: What part of the game felt best for you?

P: I think in the end when I just sort of surrendered to it and said oh this game is

probably trying to do what every therapist has told me to do which is that the, you know,

the compulsions are, seem to create some sense of security. But, they don't, they don't

really. And so what would happen if you just didn't do these things anymore. Um, and

so I think that was a relief. Yeah, and then, and then the light was there about the time

that I said, uh…I'm just going to let go. And the light was there and it was kind of like

oh okay what I need to do is just get around and try to get to the light and that's all there is.

Another clinician explained how they decided to adopt to the medication regime in It's for the Best after first trying to navigate the game without the virtual medicine.

Um…so, the papers started coming. I sort of wanted to see how well I could manage without taking the pill. [laughter] Without clicking on the pill. Um, but eventually, it just started to really, you know, uh, sort of come very quickly. And then, um, and then I realized if I click on the pill more regularly, I was able to kind of manage this flow of information and stimuli and things sort of coming at me. Um, so yeah, eventually I think I just started clicking more consistently and it felt more manageable.

Finally, referring to Into Darkness, a clinician recounts how they arrived at the decision to "just let go" after being driven by compulsions.

Um, and then I think that towards the end, I felt like, I was, I kind of anticipated maybe what the game was trying to do, the point the game was trying to make about the compulsions really don't do anything. Um…and I think when I realized I couldn't keep up the momentum of pushing the buttons in the right order or fast enough that that was probably the point of the game to get me to realize that. So, I think my strategy did change from beginning to end. It was very frantic in the beginning. I think at the end I was like, oh maybe it's alright. Maybe I'll just let go. [laughter].

Domain 3: Games' Utility as Tools for Understanding

All but one participant indicated that they thought these games would be useful to increase understanding for one population or another. Six participants credited at least one game for making them understand something they did not previously realize about the experience of

the disorder depicted, and articulated what it was about the game that lead to their realization.

Two of the participants who made that attribution also emphasized their extensive exposure to

persons with the disorders in the games as a possible reason why the games might not have had a

greater effect on their understanding, and another two clinicians who did not credit the games for

increasing their understanding at all gave the same reasoning. When referring to other possible

benefactors of increased understanding from playing these games, clinicians suggested clinical

trainees, a patient's family or friends, and patients themselves.

'**Games changed my attitudes or beliefs'**

Six clinicians claimed that some aspect of a game design, or a game in general, or all the

games in general, helped them understand the experience of a mental illness. This category

applied especially to cases where the participant suggested that a game or games helped

understanding in a way they hadn't thought of before, or in a way that might be unique to

gameplay or could only be accomplished by extensive contact otherwise. When referring to all

the games collectively, one participant credited their increased understanding to the evocation of

feelings, and to the use of metaphor to help the player experience what the disorder is like:

> I: Okay, so overall, do you believe the experience of playing these games here today
>
> increased your understanding of potential clients lived experiences with the mental health
>
> issues that were modeled in the game?
>
> P: Yes, overall. Yes, overall.
>
> I: What, what…why do you, why do you think that?
>
> P: I think that the, that most of the games evoked the feelings, and the common
>
> feelings, um, associated with having the different conditions. Um…you know and

portrayed, portrayed the experience in a metaphor, in a metaphorical way that, that made it kind of easy to understand the different elements of the different conditions.

One participant, when referring to Into Darkness, gave an example of one aspect of the disorder portrayed that they did not appreciate on a deep level until playing the game and experiencing the associated emotions and cognitive experiences:

Um, one of the things that I probably never really gave much attention to, or thought about until this game frankly in some ways was the enjoyment that comes with sort of completing the rituals and "ah-ha!" I got that done. Um, even regardless of how short lived it is it's still there and it's still reinforced. Um, so yeah. That's all part and parcel.

Another participant, reflecting on the game FLUCTuation, described how their emotional response to the experience of bipolar disorder changed their awareness and helped them understand the place persons with this diagnosis are in when they feel like giving up:

I: Okay. So overall, do you believe the experience of playing the games has increased your

understanding of clients' or patients' experiences?

P: Uh, yes.

I: So, if yes, what are the main insights you gained?

P: Umm...I think particularly Fluctuation, I did actually have a very kind of emotional response to that. And so I think, I think that just heightened my awareness to the switch, you know, from mania to depression and then remembering to...and even in depression, how hard it all is, and why people do give up.

And finally, another clinician playing FLUCTuation credited the visceral, experiential knowledge gained from the game as benefits that are unique to playing the game:

I: So, overall, do you think the experience of playing, like, this game has increased your understand of a client with bipolar disorder?

P: Probably in the sense that it had me think about things..umm..in a more visceral level than I have done in quite a while. Sort of walking through something that's experiential, that is also very different from my normal day-to-day so it had me think about things… umm in a way that I just never would have otherwise. So that was probably quite good.

'I have enough exposure'

Four clinicians articulated that their personal degree of exposure to and experience with clients/patients who experience symptoms of each depicted disorder was the reason for their understanding, not the effects of gameplay. In these cases, the participants regarded the games as effective at eliciting an embodied experience of emotions, perceptions and reasoning relating to the depicted disorders, and many went on to suggest these games would be of utility for a number of populations with less exposure than themselves:

I: Overall do you believe that the experience of playing the games increased your understanding of your client's or patient's experiences?

P: Probably not, only because I have a lot of exposure so umm… maybe a little bit (laughs).

Even though one clinician is most experienced with the disorder portrayed in Into Darkness, their experience playing the game, though tempered by their clinical exposure, still elicited emotion and got the player to identify a crucial element in the reasoning of someone with OCD:

I: So how did it all make you feel?

P: Umm...I probably work most with anxiety disorders, so I have a pretty thorough

understanding of that, and constantly kind of helping people to face and challenge their

fears. So that was--that aspect was kind of a little second nature to me to, like, okay, I'm

just gonna let it come, and stop doing these rituals, and...but you know, there was

actually, even within the game, and even me thinking that that's probably what I should

do, and even understanding the purpose of the game, you know, and knowing obsessive

compulsive disorder, there were still moments of fear, of oh, but maybe the darkness will

just overtake me, and my game will be over.

And this is just a game, so it's just like, okay, that's not that big of a deal, but I

guess in reality, in the bigger sense, if it was, you know, something more serious, like if it

was actually my life, I...it's hard to take that risk. So I understand that that's the

motivation, too, with OCD, is...but this ritual works! I know it's keeping the darkness

away, I'm not so sure I trust you enough to take that risk and let the darkness in, you

know, or tolerate the anxiety, or tolerate the fear or trust that can leave a germ on my

hand and I won't die. Because I know whatever I do keeps me safe.

Games could be used with trainees

Five clinicians suggested that a game, or the games they played in general would likely

help change attitudes towards or understandings of a disorder held by less experienced mental

health professionals, especially trainees. One such clinician provides some reasons why they

believe this to be the case, including the fact that trainees may not always have the opportunity to

interact with persons with the disorders portrayed, and that the game would provide the trainee

with a good jumping off point for understanding how to help, in ways that just talking about a

disorder might not allow:

Yeah. I think what they really do well, which is not able to be done unless otherwise you're working with someone in the same way, is to have you feel an emotion that perhaps you weren't expecting to feel that ties you in to what their experience might be and you can't do that as well just talking about an illness, and not of course everyone who's in their internship for our social work students would come across someone...so okay, hopefully this week you can meet someone who is this, --I think they can bring up the emotions and really help, be a great jumping off point for discussion about both the manifestations of an illness as well as how to help someone.

Along those same lines, another clinician articulates how these games would be good for framing the early conceptions that trainees have about the portrayed disorders:

I: Okay. Is there anything else that you want to tell me about your experience playing these games today?

P: No, I think it's a really, really, they're really potentially powerful tools and I think they're definitely useful in…I can see them being very useful in training settings, in training clinicians, um, who perhaps are seeing some of these issues for the first time to kind of give them a better sense of like, okay this is what a client might be experiencing. Um, then I also do think that they'd be really useful in the actual clinical setting. Um. Yeah.

And finally, one clinician enthusiastically recommends the games for changing the way trainees think about their clients during supervised clinical practica:

P: Well like I said, what I do right now is so specific, I work primarily with those who are working with survivors of trauma, and so mostly what we see is a lot of PTSD and may or may not see other things, it depends, but from my vantage point I would use it

to help those I was trying to teach, so if I came across a social worker, a counselor, who was working with someone who had one of these, I could imagine they were at my disposal, to be like 'oh my goodness, you should get supervision...have a go at this, see how this relates to what you're client is feeling or struggling with, would you think about it differently'.

Games could be used with family and friends

In addition, 8 clinicians recommended that one or more of the games be used to help increase the understanding that loved ones -friends and family- of the patient have of their experience. Patients addressed their belief that these parties often misunderstood certain disorders, to the detriment of their loved one with that diagnosis. Speaking about anorexia, one practitioner said:

Even using it in a way where I could--say you're having friends of somebody who has this diagnosis, or family members--this could give them a little bit of insight into kind of the emotional or thought process that someone with anorexia would experience.

Another practitioner highlighted how they feel a commonly-held, detrimental conception of ADD/ADHD could be combatted by the use of It's for the Best:

P) Well, I know I said this earlier, but I think the one--I can't remember the name of it, but the one pertaining to ADD, I think it would be really eye-opening for a lot of parents. Because I think parents don't understand what that experience is like for a kid, and they think, oh they're just being a kid, or just being lazy, but I think that one could really give them some additional insight into what it's like.

Games could be used with patients

Finally, ten clinicians advised that they would consider using one or more of the games they played with the patients themselves. The prevailing rationale was that the self-contained experiential reproductions of the experience of certain disorders could provide insight in cases where the patient does not completely understand their diagnosis, and it that it could also provide a validating experience. Referring to It's for the Best, one player articulates the former:

I: Would any one come to mind or any specific ones?

P: Um…I think the, the, we see a lot of kids with ADHD, you know, who've been diagnosed for the first time here at the center and also in my practice. So I think that the ADHD one definitely. Um…I would definitely use that one. Um…

Another illustration of this rationale is provided by a second clinician's assessment of Into Darkness and of FLUCTuation as examples:

I: Do you think you could potentially use this game with clients?

P: I think it could be a tool, yah. Because I think you know, if someone is experiencing OCD they would probably play it a lot differently that I did and the levels of anxiety and what they felt, I could, of course it would be different for each player, but someone who is experiencing these symptoms would be able to talk to their own experience of the disorder. Just because you have depressions or whatever doesn't mean you know anything about it. You may not even realize you have it. It could be something that comes out later, something that someone doesn't seem therapy for. This game could be a tool, one of several.

Lastly, a clinician mentions how these games would be validating, for two reasons. First, learning that their private experience with the disorder is not theirs alone might provide validating comfort. Secondly, the clinician explains that because of how they would implement it

-requesting and honoring the patient's reflections and evaluations of a game's representativeness of the disorder they experience, thus allowing the game to act as a medium of expression from the patient to the practitioner:

> I think, one of the things that I like about this and that I would use with clients is that I think it would be a way for them to…it would potentially be validating for them to know there is a game out there that simulates something that they experience. And that by my utilizing it as a clinician, that I am validating their experience by using it as a tool. And they could, I could kind of have a conversation with them after doing the game to say how closely does this match some of the experiences that you have had? It would be an interesting tool to use that I have, just to check my own understanding of something that I feel like I'm...um…don't have as much personal connection to.

Domain 4: Games fell short in their depiction

While the majority of clinicians had positive things to say about their experiences playing the games, and the utility they perceive the games to offer, just as many clinicians levied valuable critiques of the game designs in their current form. Some were small recommendations for the addition, removal, or modification of small features, while others were more relevant to the efficacy of the core metaphors of some games as a whole.

Didn't elicit enough emotions

Four participants appreciated the intention of certain games with respect to the idea that eliciting emotions that parallel certain diagnoses would enhance a player's understanding of persons with that diagnoses, but their criticism was that the particular game designs did not go far enough to accomplish this for them. In the case of one clinician's account, this was because the encroaching darkness in the game Into Darkness, which was intended to induce dread and

anxiety as a consequence when player becomes more and more dirty while going through the maze, was not long enough to make their anxiety last:

> I don't know, like I…I did feel that the, the darkness it was very fast. Like, uh…Like when it went away it sort of almost immediately started over. Um…I just wonder what it would feel like if there were maybe a, maybe slightly longer periods of like not feeling…like it might, eventually you sort of, at least for me I kind of, I kind of got over feeling anxious at a certain point. And I wonder if having some, some more times where, where the darkness wasn't so prominent like right after I just did this thing, this ritual, that I might have…the feelings of anxiety might have continued longer. If…I don't know if you know what I mean.

In addition, another clinician noted that the ritual element of It's for the Best lost it's emotional impact over time. Their suggestion for improving the game so that it elicited the intended emotions more effectively was adding nuance to capture the distress that comes along with the ever-increasing complication of rituals practiced by some persons with OCD. They further suggested that this escalation of ritual complexity would contribute a truer depiction of the relationship someone experiencing OCD would have with their ritual process:

> I would consider making the ritual a little bit more elaborate, and not necessarily cluing in about that. Not only do you have to walk the circles maybe you have to reverse on one, trying to figure that out, or maybe you have to walk more and more circles for it to happen, you know? Like maybe one or two would work, then you increase it to three or four, then five or six or whatever, and then throw a monkey wrench, you have to actually reverse, do a reverse circle at the end of one...I don't know. That would be like what an

obsessive compulsive individual does, as their rituals become more and more based on some serendipitous discoveries.

And one player, in a reversal of the above scenario, said that the feeling of relief they were intended to experience when letting go of compulsions in Perfection did not occur. The participant made note of an imbalance between elicited emotions across countervailing motivations within the game:

> Eh…but if the goal is to sort of celebrate imperfection as a result and sort of learn something like as a tool for someone who has an eating disorder, I don't think that is achieved at all. In fact I still think that the weeds suck, I want them gone and, eh…you know, there you go.

While the game elements designed to drive the player to exhibit perfectionistic tendencies about the garden, according to this participant, elicited strong motivating emotions, the game elements designed to elicit relieving feelings and to motivate the cessation of these behaviors were weak, and did not impact the player to the same degree:

Didn't capture the whole disorder

A second criticism that five clinicians made regarding some games was that the designs and/or core metaphors did not capture enough of the many dimensions of a disorder to be an appropriate representation, or they included dimensions that did not belong in the experience of the disorder being depicted.

One clinician highlighted the fact that the primary element of the core metaphor in It's for the Best represents but a small proportion of the experience of ADHD. I The participant noted that medication management, the key focus of the core metaphor in It's for the Best, is not universal to the circumstances experienced by people with the disorder. Further, the clinician

noted that the key elements that they would use to characterize the experience of ADHD were

omitted from the game design, and that this made the depiction of the disorder in It's for the Best

too narrow:

> P: I don't think it really captured what it's like to have ADHD.
>
> I: Okay.
>
> P: I mean, completely, there are aspects of it, of the feeling of overwhelmed, but I
> really think it was narrow of, there's the pill to help, you know? Not everyone with
> ADHD even takes medication.
>
> I: What are some of the other aspects of ADD or ADHD that you would have liked
> to have seen? Or that are out there?
>
> P: Yeah. Difficulty focusing, distractability, impulsivity...

Another clinician brought up the omission of representation for concrete consequences of

manic behavior; though they felt positive about the game's portrayal of the impact of bipolar

disorder on social relationships, the abstract way in which other types of behavioral

consequences were represented fell short:

> I: It seems like you're identifying particularly in the way, the relationships with
> others. In that sense, the relationships might be different.
>
> P: I mean everything. Your relationship to money, your relationships with
> people. And I'm just, not so much in the game, I was just thinking about bipolar in
> general the consequences of an episode either up or down there.

Finally, a clinician pointed out that they did not experience the high-stakes nature they

associate with the compulsion for a perfect image, and also that there are other cognitive

experiences that are absent in Perfection:

I was really wanting to give up, and I think with anorexia, specifically, like, with that

disorder, individuals don't really get close to giving up so easily. That is ingrained in

who they are. That is, it becomes their identity. So I think that aspect didn't, it didn't

represent that for me, and I mean, maybe it's because I don't have the disorder, but it

didn't like create that feeling for me of like, "oh, I really need to keep my garden perfect

no matter what." So I think, like, the payoff of...I don't know. There's something missing

too about the distortions that really exist in anorexia…

This was important to the participant because, with the omission of the elements they

noted as integral to the experience of anorexia nervosa, the depiction found in Perfection was not

accurately representative of the disorder, and might result in further misunderstanding.

Depiction was not distinct to disorder

Finally, in corollary with the above critique, five clinicians remarked that certain games

exhibited experiences that were not distinct to the disorder depicted. Of the two games that

received this criticism, Perfection was assessed as the vaguest. One participant mentioned that if

they were not made aware that the game was about anorexia nervosa, they would not have been

able to guess. This indistinct depiction was a result of the game's emphasis on compulsion,

rather than focusing more closely on the attention to self-image or the dilemma between

experiencing food as essential nutrition or a tool for the maintenance of this self-image:

P: I think you can get lost in the metaphors. For me, this one was more

representative of OCD or ADHD. I think this would be better representative of

something else.

P: It does a decent job of emulating how people with this disorder have a desire to

look and feel perfect. Ways it could better represent, I'm not sure if I would use a garden.

There might be a way actually using food. Not sure how, it could be still capturing the desire to be perfect, but how... food is everywhere. Maybe pulling in metaphors around feeling glamorous or something. Perfection is so mechanistic, so honing in on what people are trying to look like. Also at the same time, displaying how hard that would be because food is a biological need. Differentiating that experience from other disorders.

I: How well do you think did this game corresponded with the experience of the disorder?

P: Beyond the feeling of some sort of desirable look, but I don't think that, if you had not told me this was for an eating disorder I wouldn't have gotten that.

The second game to receive this critique, It's for the Best, did so because of the off-screen voiced characters included in the gameplay. Four practitioners interpreted the characters' dialog as auditory hallucinations, which these clinicians found to be a unsettling and "creepy" experience, and possibly more representative of psychosis rather than of ADHD.

I: Ok... from your experience so far it sounds like this seems to be a different, it doesn't seem to match the ADD experience.

P: The voices matched a person having psychosis

I: Oh yah... ok. And that was...

P: I mean, the papers everywhere, possibly, yes. But the voices were definitely, you know, symptoms of psychosis.

While players reported emotional and cognitive experiences congruent with those typified by the depicted disorders to varying degrees, there was less uniformity between participants with relation to their assessing the utility of the games. The majority of players indicated that they thought the games would be useful for at least one prospective subgroup

(family, friends, patients, clinicians). However, many noted shortcomings in the depictions provided by these games, and reported varying impacts of these shortcomings.

Discussion

Introduction

This qualitative thematic analysis sought to investigate how useful practitioners found the core metaphors of the games Into Darkness, FLUCTuation, It's for the Best, and Perfection to be in helping them understand the experience of the disorders depicted, and to learn how these practitioners discuss attitude changes about the disorders depicted after having played these games. Several themes emerged from the data that illustrate participants' experiences with increased understanding about disorders and client empathy through gameplay. The first layer of the practitioner's experience playing the four games comes from their emotional reactions to elements of these games designed to elicit feelings that are consistent with the diagnoses they represent. Practitioners discussed feeling demoralization, fear, isolation, and anger. Practitioners who played these four games additionally experienced diagnosis-consistent reasoning and perception, including the rewarding nature of some pathological behaviors, the counterintuitive nature of some healthy behaviors, and the relief that accompanies eventual adoption of those healthy behaviors. In many cases, practitioners associated their demoralization and anger with an appreciation of the difficulty of achieving resolution via pathological behaviors, the challenge of deciphering what the healthy behavior would be in a given situation, and difficulty overcoming the desire to continue pathological behaviors once healthy options were understood. According to participants, fear was often related to game design elements intended to add urgency, such as enclosing darkness, expanding color schemes, or suspenseful music. Isolation was also mentioned when there was a non-player character (NPC) present, but the player was unable to

interact with that character. Each of these elements, while abstract to varying degrees, were included in the core metaphors to evoke the feelings reported by these practitioners. The practitioners' comments connect these elements to the emotions and cognitions expected with each disorder, and support their general appropriateness and accuracy to the disorders.

Practitioners reported that these elements of embodied experience were generally efficacious, yet they also reported shortcomings in the games designs that inhibited their embodied experience and empathy. Primarily, these consisted of criticisms relating to the accuracy, intensity, or completeness of the games' portrayal of the subject disorder.

Finally, with the effective and ineffective aspects of the game considered in balance, practitioners reported their positive regard for the utility of these games for increasing understanding. Practitioners reported that these games increased their own understanding, and suggested that the games can serve the same purpose for patients themselves, for persons training to become practitioners, and for a patient's family and friends.

This research supports the previous work of Salen and Zimmerman (2005), Charsky (2010), Coeckelbergh (2007) and Belman and Flanigan (2010). Participants provided reflections that add evidence for and nuance to these researchers' postulations about what game design elements would most effectively elicit empathy, which are discussed below.

Critical Engagement: Theory

Salen and Zimmerman (2005) demonstrate examining games through semiotics, which is the study of the use of symbols to communicate meaning. Semiotics has been applied to the use of computer games to induce empathy and understanding by these authors, and they offer two requirements for how games must employ symbols to accomplish this end. Salen and

Zimmerman (2005) assert that the meaning of a player action must be integrated, meaning that

consequences apply continuously, and discernable, meaning that consequences are evident to the

player. In the case of the four videogames investigated here, all actions were programmed with a

continuously scheduled relationship to their consequences, a design strength made easily

available by the use computers, according to Ceranoglu (2010). This helps the meanings of these

actions to be integrated (Salen & were Zimmerman, 2005), and this close connection is likely an

integral contributor to the vivid embodied emotions that the majority of practitioners

experienced.

However in the experience of a few player-practitioners in this study, not all design

consequences helped increase their understanding, and it could be that those specific

consequences were not completely integrated. In Into Darkness, it was the game designers'

intention that the player feel dread and anxiety as a consequence of the darkness encroaching and

dramatic music playing, following the player becoming more and more physically dirty, while

going through the maze. One player, however, reported that they eventually "got over" the

anxiety, possibly because the darkness and music were not sufficiently powerful at evoking

dread. In this case, the waning, and thus disintegrated consequence of evoked affect for the

player could have contributed to the limited attitude change they experienced.

Additionally, while the impact on most in-game actions were straightforward, not all

consequences were so clearly discernable. In many cases, such as with Perfection and Into

Darkness, obfuscated potential outcomes were an intentional aspect of the core metaphors. With

these games, it was not immediately evident based on the rewarding elements of in-game

compulsive behaviors that the cessation of these behaviors would result in relieving

consequences- though in both games there was a framework for a player, especially one who is a

therapist, to reason this reward as a possibility. More crucially, in both games, it takes some time and repetition before the relieving consequences of avoiding compulsions are realized by the player, so one could experience a consequence without associating it with the causal action. Yet the designers of Perfection and Into Darkness may have considered the omission or obfuscation of actions required to reach these games' win-states necessary to the core metaphor.

Indeed, for a good proportion of practitioners, the dormant nature of the relieving consequences of resisting pathological behaviors complemented the depiction of the disorders, and aided their appreciation of the core metaphors. However, many (5) of those practitioners reached the healthy-behavior win-states of Perfection and Into Darkness only after researcher prompting, and 2 practitioners reach the win-state by accident, whereas only 3 arrived by their own decisions. This required prompting reveals the flaw unique to these two games; the tandem indiscernibility of consequences for healthy behaviors, and the extremely rigid way in which the player can reach the end- of the game and embody the experience of choosing healthy behaviors. Charsky (2010) explains that games without a pre-defined "win state" allow the player to explore and develop a greater understanding and connection with what is learned. With It's for the Best and FLUCTuation, players explore the experiences of ADHD and bipolar disorder while being guided through the core metaphors, and there were no unseen conditions to the player being able to experience the entirety of what those games offered. Thus, this study supports Charsky's (2010) recommendation that these games don't have rigid "win-states", and illustrates how this design choice is actualized using indiscernible consequences, supporting Salen and Zimmerman's (2005) assertion the likely detriment of such consequences in games.

Coeckelbergh (2007) also identifies the ability to tailor consequences to decisions as a strength of games, but also adds that the depth of interaction and engagement is a main

contributor to the potential for a player to empathize with and understand a person or situation. In the author's examination of embodied experience, Coeckelbergh (2007) asserts that computer games are especially suited to help players establish an internal model of the experience of someone else, even when compared to books, television, and movies. Indeed, practitioners playing the four games studied here echo the ability for computer games to immerse themselves in the experience of persons with mental illness; especially with the emotion and perceptions/cognitions associated with the depicted disorders. This depth of interaction can likely be credited for the testimony of those practitioners regarding the impact these games had on their own conceptions of the disorders, or their internal model, as well as their recommendation that the games be used with patients and those in the patient's network.

  Further, Belman and Flanigan (2010), in the research that inspired the design of the four games investigated here, established that a game must engage both a player's cognitive and emotional empathy if it is designed to induce significant shifts in their beliefs. Belman and Flanigan (2010) especially underscore the possibility that emotional empathy, such as pity or worry, without a corresponding understanding of who is responsible and what is necessary in a situation, may not lead to the desired behavior changes- in this case, an improved therapeutic relationship. As noted by Schulze (2007), one stigmatizing cognitive conception held by therapists is the ascription of a patient's difficulty making progress to a lack of willpower or motivation. When playing the games, several practitioners noted that they previously underestimated how difficult counteracting the compulsions, manic motivations, and desires to thrive independent of pharmaceuticals can be, because they had overlooked how profoundly influential these motivations are, and thus the degree of possibility that one could overcome them via willpower alone.

Indeed, not only did players feel demoralization, fear, frustration, and isolation, but they understood the seductive potential of such pathological cognitions, and how an alternatively healthy behavior option, while obvious to the players as clinicians, seemed anything but intuitive while they embodied the experience of someone with a mental health disorder. This cognitive experience was perhaps the most unexpected part of the process for the practitioners, and, in support of Belman and Flanigan's postulations (2010), was the phenomenon most cited when practitioners credited the games for changing their perspectives and increasing their understanding of persons with mental health issues.

Limitations

This study was limited by its convenience sampling method; though common in qualitative research because such findings are intrinsically not generalizable, twelve practitioners is nonetheless a small group from which to draw themes. Further, the sample was almost exclusively white, and almost exclusively female. Additionally, this study derived support for the use of games with persons other than the participants (family, friends, patients) based on these participants' opinions, but it does not provide empirical evidence of this extended utility.

Additionally, while some participants suggested that these games as increasing their empathy, this endorsement could be influenced by selection bias. It is conceivable that clinicians who are empathetic would be more likely to agree to participate in a study about empathy. Indeed, in response to the questions about the importance of empathy in the therapeutic relationship early in the interview protocol, only one participant advocated for "professional distance" as a balancing element alongside empathetic towards clients. Thus, it is not likely that this study was able to speak to Bellman and Flanigan's (2010) assertions that the induction of

empathy through commonality can cause defensiveness for individuals who harbor negative perspectives toward certain disorders.

Finally, this study endeavored to offer practitioners a chance to reflect and comment on games for understanding and empathy generally speaking, in addition to providing feedback on the individual games, and so it was decided that they play multiple examples in one sitting, during the interview. This resulted in a brief period for participants to reflect, and for they and the interviewers to explore their experiences in depth. However, conducting the bulk of the interview as it relates to the practitioners' regard for the games' utility after they had played four such games results in richer and more generalized and applicable feedback than if the practitioners played only one. Further, conducting the interviews during and immediately after gameplay allowed for a vital view into the emotional and cognitive experiences of practitioners in situ.

Implications

While there is no doubt that computer games are not the sole solution to the variety of issues relating to empathizing with those who have mental illness, they could be a vital force-multiplier in a number of applications. In cases where, as a Bellini and Shea (2005) state, mental health practitioners experience burnout and a decrease in empathy, these sorts of games could be an easy and resource-light way to reinforce empathy for patients, alongside self-care measures to alleviate burnout. In practitioners' early training, computer games could be used to supplement existing, less effective didactic methods as well as actual contact, in cases where, as one participant mentioned, "not (of course) everyone who's in their internship for our social work students would come across someone [with each disorder]."

The evaluative reflections offered by the practitioners in this study give cause for game designers and researchers to consider the use of these sorts of games with wider audiences. Participants suggested that the games be used with a patient's family and friends, who could be invited by the patient to play these games. The ease of delivery for computer games might offer particular utility to a circumstance in which, due to stigma about the disorder or about therapy, the family member or friend is resistant to attending a therapy session with the patient.

Further, practitioners suggested some value in having the patients themselves play these games. In situations where patients find cognitive distortions difficult to identify or conceptualize, having an external, and metaphorical representation of these distortions could provide a valuable reference point for reflection. And beyond the participant recommendations, because of the ease of online distribution, these games could be used to raise awareness for mental health, and their popularity could help inspire contribution to mental health advocacy organizations, and inspire individuals to become involved in advocacy and the influence of relevant policies.

Further research could employ pre- and post-game assessments of empathy towards the disorders portrayed. Not only would this aid in understanding basic impact of gameplay on empathy, but this design could be useful to investigate the reverse-of-intended effects of empathy induction for those whose identity would be threatened by such comparison, as suggested by Bellman and Flannigan (2010).

Additionally, conducting game tests alongside qualitative interviews with the family members, friends, and patients would help address the hypothetical recommendations of the clinicians in this study. These facets would further be invaluable when assessing the degree to which depicted experiences are congruent with those of persons with the topic disorders. The

ability to compare evaluation and impact across these groups could shed new light on specific sources of misunderstanding between patients and their loved ones and helping professionals.

Future studies could contribute to Charsky's (2010) suggestion that games without predetermined win-states allow players to develop greater understanding compared to those with close-ended win-states. For Perfection and Into Darkness, this could mean implementing multiple avenues to discovering healthy behaviors. Alternatively, employing more explicit guidance towards a defined endgame, as with Soteria: Dreams as Currency (2016), might prove more effective when emphasizing specific salient consequences and potential outcomes for certain behaviors and with certain mental health issues.

Finally, in order to compare the relative influence of emotional and cognitive types of engagement on empathy induction, future research should make this distinction in research design. Future qualitative protocols should include questions relating to attribution of agency around controlling pathological behaviors to understand participants' cognitive empathy, and also prompt players to name emotions explicitly and spontaneously as they are experienced during gameplay. In addition, games could be designed with alternative narratives that support different loci of blame for managing pathological behaviors to assess whether cognitive and emotional engagement are both necessary for empathy induction.

Conclusion

As one of the first examinations into specific games for increasing empathy, and the first to do so with psychology practitioners, the findings herein help to illuminate the status of computer games as tools for such a purpose, as well as offering insight into the execution of Its for the Best, FLUCTuation, Into Darkness, and Perfection specifically. The therapeutic relationship is a fundamental contribution to the outcomes practitioners are able to achieve, and

yet it is fragile, especially in the case where those practitioners harbor stigmatizing expectations of their clients. Participants in this study claimed that playing the games examined here facilitated their contact with the emotional and cognitive facets of a patient's experience with each of these disorders, and Six clinicians credited the games with increasing their understanding through this exposure. Sartre (in Scriven, 1994) said, "The real resources that we have at our disposal to reach the potential public are the press, radio, and cinema. […] there is a literary art to radio broadcasting, to film making and news reporting…. We need to learn to speak in images, to transpose the ideas contained into our books into these new languages." Bogost (2007) suggests that computer games are beyond moving images, and the next closest thing to actual experience. This study supports the idea that games are viable means for communicating lived experience to a degree, when properly executed, could supersede didactic training for empathy induction for practitioners, and could serve a similar function for other persons, including patients, their loved ones, and the public at large.

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Appendix A: Interview Protocol

Gameplay Experience (before playing the games)

- How many hours did you play last week?
    - ☐ Not at all
    - ☐ Less than 5 hours
    - ☐ More than 5 hours
    - ☐ More than 10 hours
- Is this a typical amount of hours for you?   Yes ☐   No ☐
- (if not typical) How many hours would you say is typical for you?

Game preferences:
- Tell me about a recent game that you played and enjoyed.
    - o What did you enjoy about it?
- Tell me about a game you didn't like at all?
    - o What did you dislike about it?
- List some other games that you have played
    - o Rate how much you like each/this game (5= "love it", 1 = "no thanks!")

Please rate your level of disagreement / agreement with the following statements:
Some games can be used for serious purposes that go beyond entertainment:
- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

Experiential understanding of mental health issues:
On a scale from 5-1 (5 being very important, 1 being irrelevant), how important is a mental
health care practitioner's experiential understanding of his / her clients' mental health issues?

Can you elaborate on your choice (why it's very important / irrelevant?)

Do you ever find yourself struggling to fully understand your clients' lived experience with their mental health concerns?

> If yes, can you describe this struggle and in how far it impacts your attitude towards your clients' and their treatment?

Debriefing Interview (after playing each game)

- How do you feel right now?

- Summarize what happened in the game for me (content).

- What was it like to play the game?

    o Follow up probe for each game, if participant does not volunteer: was it confusing, irritating, insightful? Can you elaborate?

- Tell me about the point(s) in the game where you had the strongest emotional reaction?

    o Probes:

    o What was that reaction?

    o What brought it about?

- How did your approach to the game (i.e. your gameplay strategy) and your gameplay experience change in the course of the game, from beginning to end?

    o Probe:

    o was there a point in the game when you changed your gameplay strategy? If so, when was that and why?

    o What did you try to do in the beginning and how did that changed over time?

- How would you describe the experience of progress in the game from beginning to end?

    o Probe if needed:

    o What brought this sense of progress (or lack of progress) about?

- How did progress / lack of progress in the game make you feel?

- Which part(s) of each game was / were the hardest for you? In what way? Why?

- Which part(s) of the game felt best to you? In what way? Why?

- What is your interpretation of each game?

  - Probes:

  - Go through individual game elements of each game to understand their meaning

    in the context of the game and their relationship to the emotional experience of

    the disorder the game represents.

- How well did the game capture the struggle of the mental health issue portrayed in the game?
  - On a scale from 1-5, how crucial would you say are these aspects of the experience? 5: crucial; 1 irrelevant.

- Did the game correspond with your idea of the emotional/mental health issue modeled in the game? Please select the option that best fits your opinion:
  - Close correspondence
  - Mostly accurate
  - Somewhat accurate
  - Missing the point completely
    - Probe: why do you think that? What was missing / inaccurate / misrepresented?

General Questions (to be asked once all games have been played)

- Overall, do you believe the experience of playing the games increased your understanding of your clients' / patients' experiences?
  - If so, what are the main insights you gained in that regard?

- Would you use one or more of these games in your work with clients?
  - If so, which one and why?

- Can you describe how and for what purpose you would use this / these game(s)?

- What would make a potential application of these games in your work with clients more likely?