

Playing to Care: Games as Empathy Development Tools in Healthcare Education

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Abstract

Empathy displayed by healthcare practitioners is linked to improved treatment outcomes for patients. Current methods for developing empathy in healthcare students include narrative medicine, an arts-based program used to inform students on how to reflect on and react to the experiences of their patients. An alternative arts-based approach may be through playing digital games, which have been used successfully in healthcare communication education. This research undertakes a review of the academic literature to show the current understanding of the use of digital games to promote empathy towards suffering, illness, or hardship and to outline potential serious game design considerations for this area. We demonstrate that commercially available “empathy games” have potential use in developing clinical empathy, but only one game has been shown to achieve this experimentally. Meanwhile, serious games used in healthcare education to increase empathy do not utilise the same game design elements found in commercial games. The theme of loss in serious games is underexplored, and walking simulators are a genre of game that seems to be particularly suited to the narrative medicine pedagogical framework.

Keywords

Empathy; serious games; healthcare; education; narrative medicine.

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Empathy in Healthcare

Empathy is the innate human ability to perceive and demonstrate sensitivity to the emotional states of others while wanting to care for their well-being (Decety, 2015). Empathy exists as a cognitive or emotional concept or a combination of both: Cognitive empathy is the ability to understand another's point of view, whereas emotional empathy is demonstrated by the sharing of another's feelings (Foster & Yaseen, 2019). Empathy has been considered with respect to its role in healthcare, where the notion of clinical empathy is of relevance to patient care. Clinical empathy has been defined as

a predominantly *cognitive* (rather than an affective or emotional) attribute (brain mechanism) that involves an *understanding* (rather than feeling) of the patient's pain and suffering, combined with a capacity to *communicate* this understanding (behavioural component), and an *intention to help* (outcome component). (Hojat et al., 2023, p. 3, emphasis in the original)

Medics who take opportunities to enhance the expression of empathy and deliver positive messages to patients can improve the patient's psychological and physical condition (Howick et al., 2018) and the therapeutic outcomes (Halpern, 2003). There is evidence that empathy and compassion can be improved (Patel et al., 2019), and empathy changes can be measured using tools such as the Basic Empathy Scale (BES; Jolliffe & Farrington, 2006), the Interpersonal Reactivity Index (IRI; Davis, 1983), and the Jefferson Scale of Physician Empathy (JSPE; Hojat et al., 2001). There has been a rapid increase in research into healthcare student empathy between 2014 (82 publications) and 2023 (164 publications), as shown by Pratiwi et al. (2024). Taking part in empathy training can impact personal growth, professional development, and professionalism and can ultimately benefit the patient (Roberts et al., 2023). Winter et al. (2023) surveyed 28 medical schools in the United Kingdom on their provision of empathy training for undergraduates, and all agreed that empathy training should be on the curriculum. An option for developing healthcare student empathy is via the narrative medicine pedagogical framework (Yang et al., 2018).

Narrative Medicine

Narrative medicine is an approach to the practice of medicine based on specific communication skills where storytelling is a fundamental tool to acquire, understand, and integrate several points of view related to the patient's experience of disease and the healthcare process (Palla et al., 2024). Narrative medicine is described as the "method of fortifying the capacity of the physician to reach, understand, and ally with the patient in care" (Charon, 2013, p. 3). By developing narrative competence—being able to acknowledge, absorb, interpret, and act on the stories and plights of others—medical professionals can practice humane and effective narrative medicine (Charon, 2001). There is evidence that narrative medicine is an effective pedagogical tool with a defined and

reproducible structure and methodology, and has a positive effect on medic attitudes, skills, and knowledge (Milota et al., 2019).

Studying stories of illnesses can fuel the ability to empathise with others (Schneider et al., 2019). Actively teaching creative writing and close reading to medical students can give them the abilities to be more attentive and empathic healthcare professionals (Charon et al., 2016). Therefore, students that learn from story-based arts interventions may have improved perspective-taking skills and increased empathy for patients under their care.

Games as Texts

Games can be considered a type of text, where empathising with others through the characters, story (Schrier & Farber, 2021), or other elements like sound (Collins, 2011) is possible. Walking simulators often contain detailed writing and extensive worldbuilding and use literary devices such as meta-awareness and genre subversion (Frank, 2019). Walking simulators are typically first-person games but feature slower movement speed, reduced user interface (UI), and a reduced number of keyboard or controller interactions in comparison with traditional first-person shooter (FPS) games. Consequently, player attention is directed to the audio-visual elements of a walking simulator (Muscat et al., 2016). Documents, voice notes, and personal effects become points of interest for the player to explore and investigate, while ambiguity of meaning encourages players to use interpretive thought to fill in gaps in the narrative and relate to the game (Muscat et al., 2016). This is not entirely unlike reading a piece of text and taking the time to synthesise meaning. Kagen (2017) compares the meandering pace instilled by the design of walking simulators to the way a passage full of digressions works against fast reading. Colthup (2018) argues that a critical analysis of *Dear Esther* (The Chinese Room, 2017) is more appropriately undertaken with literary means due to the lack of traditional game qualities, meaning that the story alone is to be analysed.

With that in mind, we argue that games can serve as an alternative to literature for teaching narrative medicine and that walking simulators may be especially useful. We aim to identify and describe suitable empathy games by presenting key discourse in the literature. This literature review aims to answer the following research question: What is the current understanding of the use of digital games to promote empathy towards suffering, illness, or hardship?

Method

To explore the scholarship around empathy games that detail experiences relevant to the field of healthcare and inform further work in this area, we undertook a review of the literature. We found literature via database searches on APA Psycinfo, Embase, Google Scholar, JSTOR, OVID Medline, and Web of Science using the terms "empathy AND video game\$" or "empathy AND digital game\$" within publication titles,

abstracts, and keywords. The search was limited to articles published between 2013 and 2024 to provide literature from the previous ten years only. The search was expanded via snowballing techniques (Wohlin, 2014).

Only publications in English were included. Duplicate articles were excluded. Titles and abstracts were read to exclude publications that did not discuss the use of digital games. Publications that did not focus on digital games or games to develop empathy towards those undergoing personal hardship, illness, or marginalisation were excluded. This was an iterative process as is common with narrative reviews. Six hundred and four publications were retrieved, and after filtering, thirty-six publications were included for discussion in this review (see Table 1). We differentiate serious and commercial games based on the purpose for which the game was designed, the former being for training or educational purposes (Michael & Chen, 2005). For the purpose of this research, the latter term “commercial game” encompasses free-to-play games as well as paid-for titles that have been developed for the wider public with no designer-specified educational outcome for players.

Publication	Games Discussed with Relevance to Research Question	Commercial or Serious Games
Anderson (2020)	<i>What Remains of Edith Finch</i> (Giant Sparrow, 2017)	Commercial
Auxier (2018)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
Buijs-Spanjers et al. (2019)	<i>Delirium Experience</i> (Ludible, 2014)	Serious
Chen et al. (2018)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
Coward-Gibbs (2020)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
D’Anastasio (2015)	<i>Dys4ia</i> (Anthropy, 2012)	Commercial
Danilovic (2024)	<i>Depression Quest</i> (Quinn et al., 2013)	Commercial
Eum et al. (2021)	<i>Spiritfarer</i> (Thunder Lotus Games, 2020)	Commercial
Faith (2019)	<i>Gone Home</i> (The Fullbright Company, 2013)	Commercial
Gallagher (2019)	<i>Tacoma</i> (Fullbright, 2017)	Commercial
Hoffman (2017)	<i>Actual Sunlight</i> (WZOGI, 2014), <i>Depression Quest</i> (Quinn et al., 2013)	Commercial
Hudson, (2016)	<i>Firewatch</i> (Campo Santo, 2017)	Commercial
Jerrett et al. (2020).	<i>Firewatch</i> (Campo Santo, 2017),	Commercial

	<i>The Walking Dead</i> (Telltale Games, 2012), <i>That Dragon, Cancer</i> (Numinous Games, 2016)	
Jiao (2024)	<i>Before Your Eyes</i> (Goodbye-World Games, 2021)	Commercial
Kagen (2018)	<i>Firewatch</i> (Campo Santo, 2017)	Commercial
Katsarov et al. (2020)	<i>uMed: Your Choice</i> (Kobold Games, 2019)	Serious
Ma et al. (2021)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
MacKeil (2024)	<i>Gone Home</i> (The Fullbright Company, 2013)	Commercial
Mekler et al. (2018)	<i>Depression Quest</i> (Quinn et al., 2013)	Commercial
Motz et al. (2018)	<i>VANESSA</i> (Motz et al., 2017)	Serious
O'Hern et al. (2020)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
Olivier et al. (2019)	<i>The World of EMPA</i> (Sterkenburg, 2018)	Serious
Poole et al. (2024)	<i>SPENT</i> (Mckinney, 2011)	Serious
Roussos & Dovidio (2016)	<i>SPENT</i> (Mckinney, 2011)	Serious
Ruberg (2020)	<i>Dys4ia</i> (Anthropy, 2012), <i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
Ruberg & Scully-Blaker (2021)	<i>The Walking Dead</i> (Telltale Games, 2012)	Commercial
Salchert (2020)	<i>Gone Home</i> (The Fullbright Company, 2013)	Commercial
Schott (2020)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
Smith et al. (2016).	<i>SPENT</i> (Mckinney, 2011)	Commercial
Spellman (2019)	<i>What Remains of Edith Finch</i> (Giant Sparrow, 2017)	Commercial
Sterkenburg & Vacaru (2018)	<i>The World of EMPA</i> (Sterkenburg, 2012)	Serious
Timpane et al. (2017)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial
Tong et al. (2020)	<i>AS IF</i> (Tong et al., 2019)	Serious
Tseng & Thiele (2024)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial

Wagner et al. (2021)	<i>Spiritfarer</i> (Thunder Lotus Games, 2020)	Commercial
Wells (2016)	<i>That Dragon, Cancer</i> (Numinous Games, 2016)	Commercial

Table 1. Publications included in the review.

Commercial Games and Empathy

Commercial empathy games can immerse players in a particular experience, potentially letting them develop empathy with the protagonist or situation described in the game (Johnson, 2019). Inhabiting the roles of others fosters empathy development (Belman & Flanagan, 2010), helping players to see how other people exist (Schrier, 2020). Well-designed games can encourage players to evaluate decisions and consequences, allowing for a critique of the systems represented in games (Henriksen & Owens Boltz, 2015). For players, this can aid the development of the cognitive skills needed to relate to others through understanding the circumstances that shape lives, resulting in a sense of closeness for people they would otherwise not have contact with (Henriksen, 2018). These immersive gaming experiences can induce attitudinal change and increased empathy as a result (Shliakhovchuk, 2024). Jerrett et al. (2020) set out to demonstrate an empathy spectrum to classify specific games in a manner that describes how players engage with the game. Their spectrum ran from pity to compassion (see Figure 1).

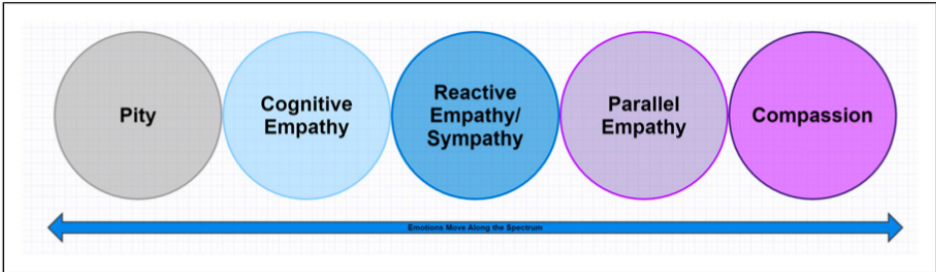


Figure 1. Empathy spectrum for games (Jerrett et al., 2020, p.640).
Used with permission.

Jerrett et al. (2020) use games like *The Walking Dead* (Telltale Games, 2012) to demonstrate how players begin developing cognitive empathy, followed by reactive empathy, and then affective (or parallel) empathy as they become emotionally engaged with the characters. Jerrett et al. (2020) describe cognitive empathy as a detached reaction where people understand someone else’s emotions but do not have an emotional response. They describe affective empathy as awakening emotional affects in the observer resembling those of the observed. As highlighted by Hojat et al. (2023), cognitive empathy is more relevant than affective empathy for healthcare workers. Additionally, clinical empathy is associated with an “intention to help” (Hojat et al., 2023, p. 3), a

prosocial action that Jerret et al. (2020) associate with compassion. It is hard to intentionally design games to generate compassion in players (Jerrett et al., 2020). Therefore, recommending games to increase clinical empathy may result in players making the desired prosocial actions that are difficult to engender.

The game *That Dragon, Cancer* (Numinous Games, 2016) is a foremost example of a commercial empathy game. This “unwinnable” game (O’Hern et al., 2020, p. 1379) tells the story of Joel Green, who was diagnosed with terminal cancer at 12 months old. His parents, Ryan and Amy, began designing the game to share Joel’s story, completing it after their son’s death at the age of five. The game has been described as “the culmination of productive grief and a powerful memorial for the thousands both touched by Joel’s story and cancer the world over” (Coward-Gibbs, 2020, p. 222). The game shows players that not all battles are winnable but that there is courage in the journey and acceptance of fate (O’Hern et al., 2020). The game’s content was appropriate for educating theology students on how to offer more empathetic pastoral care to the families of terminally ill children and to introduce grief and loss issues (Auxier, 2018). The game affords players affective empathy by remaining with the family and developing attachment to the terminally ill Joel, while witnessing the strong emotions of the parents with the knowledge of impending loss (Schott, 2020). In addition, the game uses changing perspectives to gradually embed the player in the story (Tseng & Thiele, 2024). Initially, the player is a duck observing the family at a lake; they are an outsider. The perspective changes to Joel’s brothers, side characters. In the middle of the story, details of Joel’s illness are revealed, while the player can take the perspective of healthcare workers and Joel’s parents. The perspective of Joel’s father becomes central as the player tries desperately to comfort the sick and crying Joel. According to Tseng and Thiele (2024), tracking character development and moments in games when perspective is evoked is a way serious games can develop empathetic responses. Jerrett et al. (2020) state that the way players relate to the game on the empathy spectrum is deeply personal. When nursing students took the perspective of the healthcare workers in the game, their empathy was higher than when they took that of the parents (Ma et al., 2021). Although lay persons experience affective empathy when playing *That Dragon, Cancer*, healthcare practitioners could develop more cognitive empathy due to their prior professional experience.

Furthermore, researchers have presented the perspective of a healthcare professional on the game *Depression Quest* (Quinn et al., 2013). Mekler et al. (2018) conducted interviews with 19 gamers of varied backgrounds about their experience of reflection while gaming. One of the interviewees was a clinical psychologist. They describe how playing the game was beneficial to their understanding of depression as experienced by their patients:

It's really hard to get into the shoes of somebody, who is suffering from depression. . . . I think *Depression Quest* gets you to feel these things a bit. Which is different from just reading [clinical] criteria. And it's allowed, because when you're with the patient you shouldn't identify with them. Because that's not your place, your place is to do diagnostics or to do therapy. (Mekler et al., 2018, p. 321)

The interviewee describes the cognitive process of understanding but not feeling the emotions of their patients. In an analysis of player discussion about *Depression Quest* and another game themed around the symptoms of depression, *Actual Sunlight* (WZOGI, 2014), Hoffman (2017) suggests that players made cognitive effort, which led to understanding and empathy for those with depression. Some players even reported feeling a sense of community with sufferers of depression, and one suggested they would be "more compassionate" towards others in the future (Hoffman, 2017, p. 883). Playing *Depression Quest* might also disrupt harmful stereotypes about mental illness by showing personal experiences of these conditions (Danilovic, 2024, pp. 40–41). Playing these games may assist in the development of clinical empathy as players have demonstrated gaining the intention to help, understanding, and the ability to communicate that understanding.

In *Spiritfarer* (Thunder Lotus Games, 2020), the player takes on the role of a caregiver for the spirits of the dead. The game shows aging, illness, and death to players through interactions with the spirit characters in an empathetic fashion (Wagner et al., 2021). For example, some players are made to question their assumptions on age-related mobility issues when the game confronts them with the consequences of their in-game actions towards one spirit (Wagner et al., 2021). Moreover, in a thematic analysis of questionnaire answers by players of the game, Eum et al. (2021) found that players had unique bereavement experiences. In confronting stressors related to real-life loss, players were able to reflect on the deceased and loss in their lives (Eum et al., 2021). Through the interactivity of the game world, *Spiritfarer* allows players to cope with personal loss in a way not possible with other media (Eum et al., 2021). As a game that has the player character act as a caregiver, it may offer healthcare practitioners a relatable perspective that could aid empathy development as Ma et al. (2021) found with *That Dragon, Cancer*. We might expect healthcare workers to have a more cognitive empathetic reaction to *Spiritfarer* than a layperson.

Firewatch (Campo Santo, 2016) is a game that Jerrett et al. (2020) identify as straddling cognitive empathy and sympathy on the empathy spectrum. The player character, Henry, is a man escaping from the pressures of living with a wife with early-onset dementia. Described as a "talking simulator" (Hudson, 2016, para. 13), *Firewatch*'s story is driven by the radio-based dialogues between Henry and his supervisor, Delilah,

and is likened to talking over Henry's emotional problems with a therapist (Kagen, 2018). Some players may have developed cognitive empathy towards Henry and Delilah as they learn about their respective issues, which progressed to reactive empathy as their relationship deepens under the threat of a third party (Ned) that is observing them and may be involved with the death of a child whose body Henry finds (Jerrett et al., 2020). At the end of the game, Henry escapes through a forest fire to Delilah's watchtower, only to find that she has left, thus quashing any chance of a relationship that Henry, and possibly the player, felt would be the outcome of the summer in the forest (Faith, 2019). Jerrett et al. (2020) suggest that Delilah's inability to commit can lead the player to develop affective empathy with Henry's disappointment at this ending. The value of playing *Firewatch* for healthcare practitioners may rest in its insight into how some people deal with psychological trauma and how it affects their interaction with others.

Before Your Eyes (GoodbyeWorld Games, 2021) won the BAFTA for Games Beyond Entertainment in 2022. This award is for games that

deliver a transformational experience beyond pure entertainment—whether that is to raise awareness through empathy and emotional impact, to engage with real world problems, or to make the world a better place. (BAFTA, 2017, para. 3)

The game's novel mechanics utilise a device's camera to track blinking and make the story proceed. It is through this perspective that the player witnesses firsthand the life of Benny Brynn, a recently deceased child. Jiao (2024) argues that by portraying the perspective of a dead child, the game offers an unknowable experience, and players undergo an epistemic transformation. In the game, Benny is initially convinced that he has let his family down by being unable to fight his illness. Often, in medical culture, death is portrayed as an enemy which must be fought, but Jiao illuminates that the game challenges this notion, presenting the absurdity of burdening a dying child with the expectation of triumph. It is this expectation that leads to Benny's depression, where he believes he is "the worst Brynn to ever live" (Jiao, 2024, p. 10). By recognising the depression that Benny suffers, the game addresses an under-discussed part of childhood illness (Jiao, 2024). Jiao notes that games can open windows to unknown experiences and perspectives, and that *Before Your Eyes* may be of relevance to healthcare providers due to its "artful depictions of illness, pain, and grief" (2024, p. 3). Playing this game could help healthcare practitioners cognitively relate to the hardships of physical and mental illness. However, *Before Your Eyes* presents only a singular perspective and, as it is viewed through the eyes of a deceased child, it is not immediately as relatable a perspective for healthcare workers as that found in *That Dragon, Cancer*

or *Spiritfarer*. This could affect the ability of *Before Your Eyes* to increase empathy in comparison to those titles.

What Remains of Edith Finch (Giant Sparrow, 2017) explores the themes of death, loss, and the meaning of life as experienced by the Finch family through their varied perspectives. One section of the game is narrated by the character of a psychiatrist describing the mental illness of Lewis Finch, and this familiar perspective may assist healthcare students in empathy development, as was suggested with *That Dragon, Cancer* (Ma et al., 2021). Players also witness the contrasting approaches to grieving taken by Edith's great-grandmother and mother. Edie, the great-grandmother, memorialises each family member by preserving their rooms, while Edith's mother, Dawn, later seals these rooms and moves on. The game communicates complex meaning and engages with a range of emotions, creating a space for players to ponder death and their own relationship to it (Spellman, 2019). This shares some similarities with the bereavement experiences that players of *Spiritfarer* experience, as described by Eum et al. (2021). Lewis's story provides an interactive, empathic look at mental illness as his detachment from reality is demonstrated by the gradual overlay of a fantasy world on the game's screen (Anderson, 2020). Like in *Depression Quest* and *Actual Sunlight*, symptoms of mental illness are presented to players, which could help healthcare practitioners understand and relate to their patients and promote the development of clinical empathy. Gallagher (2019) argues that the player reconstructs the narrative by interacting with the Finch family's personal objects, and this promotes empathy, understanding, openness, and transparency. He also applies this argument to the presentation of the narrative in *Gone Home* (The Fullbright Company, 2013).

Gone Home is a walking simulator where the player's exploration of an empty family home reveals the story of the queer relationship of Sam and Lonnie. Players take the role of Katie, the sister who had been overseas on a gap year. The player learns about the absent family members through the scattered ephemera of their lives. According to Faith (2019), the strength of *Gone Home* lies in the "use [of] level and artifact design to conceptualize a narrative that the player must actively engage with affectively" (p. 296). In their doctoral dissertation on developing empathy for the Other through games, Salchert (2020) asserts that while some of Sam's story can be learnt through her journal entries, Sam is guarded with some of the details of her relationship with Lonnie (p. 102). This hints at a secrecy that means one cannot absolutely know what it is like to be someone else (Salchert, 2020, p. 102). MacKeil (2024) argues that by playing Katie, players are not "dressing up" as a queer character but instead gain the ability to feel solidarity for a character who has recently found out their sister's sexuality. Playing as Katie therefore leads to cognitive empathy for Sam, rather than affective empathy as the gameplay is not a parallel representation of her experience.

Similarly, *Tacoma* (Fullbright, 2017) has the player piece together the puzzle of what happened to a space station crew from digital recordings, observing the diverse characters but not experiencing the events as them. Gallagher (2019) argues that the game shows the crew of sexual and ethnic minorities to be open to exploitation in the future that the game imagines. As with *Gone Home*, there is the potential to develop cognitive empathy for the crew, without the affective empathy that could occur if the events were happening to the player character.

Serious Games for Developing Empathy

In addition to the discussion on commercial empathy games, we have found limited research into the potential of serious games to train empathy in healthcare education. The paucity of literature in this area is demonstrated by the brevity of this section in comparison to the previous part of the review. Serious games are created to educate, train, or inform (Michael & Chen, 2005). They offer players the opportunity to develop skills that they could not practice in real life due to concerns over safety, cost, or time, and have the potential to positively impact these skills (Susi & Johannesson, 2007). Unlike the discussion in the previous section, where the benefits of commercial empathy games are speculative, the studies on serious games present experimental evidence of their effects on player empathy levels. One exception to this is *That Dragon, Cancer*, whose effects have been tested experimentally (Chen et al., 2018; Ma et al., 2021).

In *The World of EMPA* (Sterkenburg, 2012), players watch animated scenarios about disability and are asked how the character should react to demonstrate empathy via multiple-choice inputs. Researchers showed that carers who played the game saw a slight increase in affective empathy immediately after playing (Sterkenburg & Vacaru, 2018). The game requires players to take the perspective of a caregiver, and this active engagement may promote empathic understanding of the scenarios (Sterkenburg & Vacaru, 2018). Olivier et al. (2019) used the same game in their study with psychology students and found that players had a small, short-term increase in cognitive empathy after playing the game. This may be due to the imaginative contact players had with disabilities (Olivier et al., 2019).

Student attitudes towards poverty were improved immediately post-test by playing the game *SPENT* (McKinney, 2011), where the focus is on budgeting for a low income (Smith et al., 2016). In addition, both playing *SPENT* and undergoing poverty simulation in person using the Missouri Association of Community Action (MACA) simulation kit were associated with increases in empathy (Poole et al., 2024). Other research found that playing *SPENT* lowered negative attitudes towards poverty, confirming a more developed empathy (Roussos & Dovidio, 2016). Understanding the effects of poverty from the perspective of those affected by it is a cognitive process. A similar cognitive process was seen by Buijs-Spanjers et al. (2019) in their study using *The*

Delirium Experience (Ludible, 2014). This game presents the symptoms of delirium from both the sufferer's view and that of the nurse caring for them. Buijs-Spanjers et al. (2019) found that the change of perspective from patient to nurse was important for generating empathy in players.

We found examples of prototype serious games related to empathy. Motz et al. (2018) demonstrate that professionals in obstetrics were able to recognise the emotions of the titular *VANESSA* (Motz et al., 2017), a virtual patient avatar, and offer empathic responses to her questions. This demonstrates cognitive empathy in the participants. Players of *AS IF* (Tong et al., 2019), a virtual reality (VR) game on experiencing chronic pain, demonstrated improved affective and cognitive empathy (Tong et al., 2020). The increase in cognitive empathy was associated with the game's perspective-taking capability.

Lastly, the game *uMed: Your Choice* (Kobold Games, 2019) was developed to assist the instruction of medical ethics to students. Players encounter patient scenarios and are scored on "Empathy," "Integrity," and "Efficiency" as they make choices related to care of the virtual patients. The game aims to increase players' empathic concern and their intention to help by getting them to adopt the perspective of the patients under their care (Katsarov et al., 2020).

Discussion

Both commercially available and serious games have the potential to increase clinical empathy. Commonalities exist in the approaches that some commercial and serious games use, such as showing an experience from the perspective of an individual experiencing suffering, illness, or hardship, or through that of a caregiver. However, differences exist in playstyle and narrative themes between commercial and serious games, and this may impact their effectiveness for increasing clinical empathy.

Limitations of Empathy Games

Commercial empathy games are usually not designed with measurable learning outcomes in mind. Some creators state that the emotional story their games tell is not an educational or cautionary tale (Wells, 2016, para. 15). Van Eck (2006) notes that it can be difficult to successfully integrate commercial games into curricula as they cover limited areas and their content may be incomplete or inaccurate. Additionally, if players find the game to be too simulated or fictional, then they will not relate their in-game experience to the real world and learning transfer is unlikely to occur (Khaled, 2018).

A more general limitation of empathy games (both commercial and serious) is that the player's experience cannot represent the real experience of the person or group portrayed. In *Gone Home*, players take the part of Katie, and not Sam—they are removed from the experience of the Other. Anna Anthropy, the designer of the

game *Dys4ia* (Anna Anthropy, 2012), rejected the assertion of players stating that they now understood the experience of a trans person thanks to her game: "If you've played a 10-minute game about being a transwoman, don't pat yourself on the back for feeling like you understand a marginalized experience" (D'Anastasio, 2015, para. 11). Describing games by and about marginalised groups as empathy games can wrongly assume that the developers made the games to educate privileged audiences on an aspect of their lives (Ruberg, 2020). Additionally, according to Ruberg and Scully-Blaker (2021), when games about marginalised people are designed by those without lived experience, the designers are pushing those with the experience to the side and not letting them tell their own stories. The label of empathy game has been blanketed across any game that includes marginalised groups, tackles difficult subjects, or asks players to interact in more socially acceptable ways (Ruberg, 2020). Therefore, it is not a descriptor that indicates a game's suitability for increasing clinical empathy in players. The original intention of the game designers should be considered, and educators need to be wary that some modification of the game or tutoring on its use may be required if they intend to use a game in healthcare teaching.

On the other hand, a limitation of the effects on empathy of playing the previously discussed serious games is that the measured changes in empathy were only observed in the short-term, and no long-term follow-up investigations were carried out. Finally, changes in player empathy levels have been measured using validated scales, but aside from *That Dragon, Cancer*, no commercial games have been tested in this manner. However, there is no evidence to suggest that the other commercial titles discussed would be ineffective at increasing player empathy. Healthcare educators could save time and effort by using these titles instead of designing their own serious games.

Games for Narrative Medicine Teaching

Depression Quest is an example of a commercial game that uses storytelling to support creative mental health activities and disrupts stereotypes about mental illness (Danilovic, 2024, pp. 40–41). This aligns with the notion that storytelling allows for understanding oneself and connecting with others (Charon, 2006, p. 40) and that narrative can be disruptive and deconstruct norms (Charon, 2006, p. 219). The serious game titles *AS IF* and *SPENT* offer insights into personal experiences in a similar manner and have potential to fit into narrative medicine teaching by disrupting the norms of learners. While *Depression Quest* resonated with psychologists with its accurate portrayal of depression symptoms (Mekler et al., 2018), *SPENT* was not completely successful in increasing empathy for those affected by poverty. The game's design removed the agency of the character, meaning players experience poverty without the ability to control the situation (Roussos & Dovidio, 2016).

The Delirium Experience, *uMed: Your Choice*, and *VANESSA* offer simulated patient interactions for healthcare students to practice scenarios related to their profession. Similarities can be found with *That Dragon, Cancer*, which includes a level representing a discussion between healthcare workers and the parents. Writing in the *Journal of Palliative Medicine*, Timpane et al. (2017) recommend the game to professionals in their discipline, noting how it “may have developed a potent method to teach communication skills” (p. 308). The safe environment of a serious game where making an error does not have real world consequences could provide a space for individuals to practice communication with the grieving.

Future Directions

That Dragon, Cancer has demonstrated the ability of games to be successful at developing the empathy of healthcare students (Chen et al., 2018; Ma et al., 2021). Playing this game in VR increased spatial presence and empathy (Ma et al., 2021), and this mode of play should be considered by designers of future serious games. As a counterpoint, however, there is criticism of the belief that VR is an “empathy machine” (Bollmer, 2017) and accordingly, some have pointed out that there is currently not enough evidence that VR elicits empathy any more than other media (Sora-Domenjó, 2022). While research has demonstrated that playing VR games can increase both positive (Pallavicini et al., 2019) and negative emotions (Lavoie et al., 2021), there is a need for more research into measuring empathy changes after playing VR games (Somarathna et al., 2023).

Many of the commercial empathy games discussed previously include themes of death, terminal illness, and grieving. *What Remains of Edith Finch* demonstrates how people cope with grief differently. It also offers insight into mental health issues through Lewis’ story. *Spiritfarer* allowed players to relate their personal experiences surrounding loss to the gaming experience. The themes of terminal illness and insight into Benny’s mental health as he struggles with the pressures of fighting an unconquerable illness in *Before Your Eyes* are another example. Including these themes in future serious games could give healthcare students the experience of patient stories that can improve empathy (Schneider et al., 2019).

Another consideration for future serious empathy game development is exploring the potential of walking simulators. In contrast with the serious games described above, walking simulators feature narratives that must be revealed by interaction, reconstructed, and reflected on. The gradual reveal of Henry and Delilah’s problems in *Firewatch* allows players to relate to these characters, developing cognitive empathy for them. The slowness of *Gone Home* and *Tacoma* further allows players to experience a scenario at their own pace, giving them the agency to reflect on narrative clues at their preferred speed. This need to synthesise meaning constructively from the game environment—i.e.,

from journals, artefacts, and environmental storytelling within the game world, for example—allows for the development of narrative competence (Charon, 2001) required for empathetic practice in healthcare.

Conclusion

Developing the clinical empathy of healthcare students is desirable to improve outcomes for patients. A novel approach for increasing empathy is playing games, a type of text comparable to the literature currently used to teach narrative medicine to medical students. This review aimed to ascertain the scholarship around empathy games that detail experiences relevant to the field of healthcare and inform for further work in this area. Firstly, criticism of the notion of empathy games exists and designers should bear in mind that the descriptor does not mean a game can increase clinical empathy. However, there are commercially available games that may be of use in developing clinical empathy. Serious games have been used in healthcare education to increase empathy in students and are a useful reference for educators wishing to design games for their own programs. Serious games for empathy development in healthcare education have not yet fully utilised the means that commercial games use to successfully develop player empathy, either in terms of themes or game design. More research into the ability of commercial games to increase empathy in healthcare students and practitioners is recommended. Additionally, serious game developers in this area should investigate whether using commercial game design elements has a beneficial effect on player empathy.

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