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A Hero's Journey: Experiences Using A Therapeutic Comicbook In A Children’s Psychiatric Inpatient Unit

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A Hero's Journey: Experiences Using a Therapeutic Comicbook in a Children’s Psychiatric Inpatient Unit

A Thesis Submitted to the Yale University School of Medicine in Partial Fulfillment of Requirements for the Degree of Doctor of Medicine

By Idil Yazgan, MD Candidate Class of 2024
Abstract

Children’s mental health care has been on the decline since the start of the century. The COVID-19 pandemic further unearthed this significant worsening of mental health in children with heightened levels of anxiety, depression, loneliness, anger, and fatigue leading to an increase in the number of emergency room visits and inpatient hospitalizations. Art and narrative-based interventions are known to improve patient outcomes and are a crucial component of pediatric inpatient psychiatric care. We discuss the process of adoption of a novel therapeutic comic book that was developed for children admitted to the hospital in a psychiatric inpatient unit at Yale-New Haven Hospital. A Hero’s Journey, a 38-page zine, is a short booklet that was created to demystify the experience of hospitalization, provide scaffolding for skill-building, and promote interaction and socialization. The zine was administered to patients and subsequently, 19 interviews were done with healthcare providers. Using qualitative research methods, a thematic analysis was performed. Three main domains were identified. The main domains of themes were: 1) Implementing or rolling-out of the zine: what worked and what did not work during the process of rollout; 2) Optimizing: the zine was appropriate in length and content for the patient population at hand; 3) Anticipating: the zine has potential areas for growth and development. The zine is a wonderful resource. Yet its implementation faced many challenges including staffing shortages and time constraints. Some ways to overcome these are having a champion for the zine, educating each user on the content, using individual pages of the zine instead of the whole booklet, and exploring avenues for personalization.
Acknowledgments

This research was done with the help of my mentor Dr. Andres Martin. This research was reviewed by QuaLab members at Yale-New Haven Hospital.
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Introduction

The Mental Health Crisis

The mental health landscape for children has seen a concerning deterioration since the turn of the century. Notably, between 2007 and 2016, emergency department visits related to mental health showed a significant surge, with a staggering 329% increase in deliberate self-harm cases (Lo et al., 2020). Furthermore, as per a nationally representative database, the number of pediatric mental health hospitalizations increased by 25.8% between 2009 and 2019 (Arakelyan et al., 2023). In parallel, this increase translated into an escalation in the duration of hospital stays, underscoring the heightened demand for inpatient psychiatric care for children.

The mental health crisis during and following the COVID-19 pandemic has worsened matters. A substantial impact of the pandemic on children’s mental health was seen in increased reporting of anxiety, depression, loneliness, stress, fear, anger, fatigue, and worry (Theberath et al., 2022). The effects of the COVID-19 pandemic were particularly concerning for long-term negative outcomes, especially on the mental health of children and adolescents with underlying psychiatric or developmental disorders (Fegert et al., 2020). Societal changes affected children’s day-to-day, leaving them out of school, at home with parents, and without the structure of a school day. This increased the likelihood of exposure to domestic violence and child maltreatment, which was a significant concern for the mental well-being of children and teens during the pandemic. Other concerns were the absence of peer contact, lack of certainty on what would happen
next, coping with loss, lack of stress regulation, and lack of access to appropriate mental health services (Theberath et al., 2022).

The most drastic representation of this budding mental health crisis in children and teens related to the COVID-19 pandemic was the significantly increased suicidal ideation, self-harm, and suicide attempts (Hill et al., 2021). By the fall of 2020, hospitalizations due to suicide attempts or self-harm increased by 41.7%. This increase was particularly prominent after COVID-19-related school closures (Bonnie T. Zima et al., 2022). COVID-19 not only brought to the surface significant inequalities in quality of life between socioeconomic groups but also showed that children who came from families with lower socioeconomic status were more drastically affected by the mental health crisis. Other risk factors included having parents with low educational attainment, living in small homes, having extended screen time, having sleep disturbances, participating in less physical activity, and having parents with worsening mental health due to pandemic-related stressors (Ng & Ng, 2022). With this increase in demand for psychiatric services, inpatient units are more crowded than ever. During the second year of the pandemic, there were obvious increases in the number of patients presenting to the emergency department due to mental health problems in children ages 5-17. Children stayed longer in the emergency department waiting for availability in the units. This led to increased inpatient psychiatric hospitalizations and increased demand for additional beds (Overhage et al., 2023).

**Surgeon General’s Concern About Teen Mental Health**
As the mental health crisis for children and teens worsened to unprecedented heights, United States Surgeon General, Dr. Vivek Murthy chose to focus on mental health in his advisory. During COVID-19, especially during the lockdown period, children and teens have turned to social media in the absence of school-based socialization. This may have seemed harmless at the time, and maybe even helpful for a short period. However, today we can see the detrimental effects of social media platforms like Instagram and TikTok. By the time COVID-19 had shut the schools down, 95% of teens and 40% of children ages 8-12 were on social media with little to no supervision or regulation. Social media perpetuates body image problems, and disordered eating patterns and very commonly leads to social comparison and low self-esteem (Kelly et al., 2018). In certain cases, there were reports of suicide attempts in response to suicide- and self-harm-related content (Dyer, 2022). As Dr. Murthy reports in his announcement, there is a global worry about the negative effects social media has on children’s mental health. (Surgeon General Issues New Advisory About Effects Social Media Use Has on Youth Mental Health). It is impossible to minimize the effect social media exposure has on the current youth mental health crisis.

**Inpatient Psychiatric Care in the Pediatric Population**

Mental health services remain scarce in the United States. The socioeconomic inequality in the country is mirrored in the care patients receive. The vast majority of mental health care for children and adolescents is provided in the outpatient compared to the inpatient setting. Risk factors for psychiatric hospitalization include lack of insurance, being an adolescent, previous hospitalization, and externalizing symptoms and diagnosis
with conduct disorders, adjustment disorders, and drug and alcohol use disorder (Pottick et al., 1995).

During the COVID-19 pandemic, the inequality in services became more prominent with many providers working from home and choosing to care for those with less severe psychiatric disorders. As hospitals became overcrowded with the then-mystery illness, COVID-19, other services such as inpatient care for children with severe psychiatric diseases became a lower priority. The increase in psychiatric hospitalizations in the latter half of the pandemic shows the crucial role it plays in the maintenance of certain patient populations’ mental health disorders.

Still, inpatient psychiatric care is a mainstay for patients with severe psychiatric disorders or acute problems such as suicidality or suicide attempts. Those admitted to the hospital present with severe psychopathology, trauma history, and risk to self or others (Calhoun et al., 2022). Unfortunately, there is almost twice the need for inpatient psychiatry services for children and adolescents than there are beds available in most states (Krishna, 2016). On top of that, recent financial and political pressures have led to decreased use of inpatient services and a reduced length of stay (Zambrowicz et al., 2019). This mainly affected children who initially presented with severe psychiatric symptoms, with minimal improvement of symptoms leading to the conclusion that optimal outcomes can be expected when tailoring psychiatric inpatient length of stay to each patient in a case-by-case manner (Zambrowicz et al., 2019). As inpatient psychiatric care continues to play an important part in mental health services, we can work to optimize the outcomes through different interventions.

Art as a Teaching Tool in Medicine
Art has been used as a tool for teaching, a therapeutic medium, and a way of communication with individuals from diverse backgrounds. Drawings have been used to communicate and teach since the beginning of early humans. Pictorial representations of concepts are older than writing. In human history, humans used pictures to communicate long before they used writing. They used illustrations as a way to communicate a concept or a problem with groups of people or even with future generations. As humans, we have a long history of using drawings as a medium for storytelling. One of the oldest depictions of the anatomy of a living being comes from a cave painting from about 15,000 BC. This drawing depicts the location of the heart of a mammoth (Figure 1), which may have been useful to know, especially in hunter-gatherer communities (Lyons & Petrucelli, 1978). This cave painting was likely used to teach the young how to hunt and where to aim to kill a mammoth by depicting the heart in its anatomical location. This also shows that they deduced the fact that a no longer beating heart was associated with death and a successful hunt.

Figure 1: Cave-drawing of a mammoth with a smudge that may represent the heart. (Photo Source: Lyons AS, Petrucelli RJ. Medicine: An Illustrated History. New York. Harry N. Abrams Inc:1987.)
Art has continued to be used in medicine throughout history. Ancient Greek philosophers used drawings to understand the mind-soul relationship and wrongly equated the mind to the heart. Later, during the Renaissance, Leonardo Da Vinci (Figure 2) and other contemporary artists and scientists made anatomical drawings, likely depicting what they saw through discreet dissections that they performed on cadavers (Hajar, 2011).

Figure 2: Anatomical drawings of the lower extremity by Leonardo Da Vinci. (Photo Source: Clayton M. Leonardo Da Vinci. The Anatomy of Man. Drawings from the Collection of Her Majesty Queen Elizabeth II. Houston. Museum of Fine Arts, Houston and Bulfinch Press: 1992)

Their representations initiated the comprehension of the human body and revealed the true location of the mind – residing within the brain. Maybe the most famous of them all within the medical community, Dr. Frank Netter, who illustrated many anatomical dissections (for example Figure 3) has changed how anatomy was taught. He was dubbed “The Medical Michelangelo” by the New York Times in 1986 (Hajar, 2011). Art has always played a role in solving communication problems in medical education, helping
students and patients understand the intricacies of the biological pathways that lead to disease, or even concepts like how to talk about difficult news with patients.

As long as there are students and teachers, the use of illustrations will be present in education. As Hajar puts it “Visualization is the key to understanding; hence visual aids are fundamental to the learning process” (Hajar, 2011).

**Art as a Therapeutic Tool**

Art is not only used as a teaching tool in medicine but also as a therapeutic tool. People have been using art as a medium of self-expression. With this self-expression through art, there is an expectation of healing, better communication, and improved mood. Art therapy is based on these ideas. Art therapy became a formal form of treatment around 1940 when doctors noticed patients with mental illness who were having trouble communicating through words were expressing themselves through drawing and other
forms of art. As communication through language can be more difficult for some than others, there was an expressive communication function that art took on. The subjective and symbolic characteristics of art make it a wonderful tool to help patients communicate their feelings and their needs to their providers (Shukla et al., 2022). Art therapy can holistically benefit patients.

In caring for children, art can play an important role. A child-centered care approach in healthcare focuses on the understanding of children’s rights and their liberty to be involved in their own care. Child-centered care puts the child and his or her interests first when it comes to healthcare plans. This approach actively involves children in their care, listening to them, getting their views, and empowering them as decision-makers in their healthcare (Ford et al., 2018).

Using art as a therapeutic tool with pediatric patients is a way of enhancing child-centered care. Creating art, in any form, can be crucial to developing children’s understanding of difficult topics. Patients who are not able to fully verbalize their symptoms can even divulge how they are feeling through art (Deboys et al., 2017). Using art can be useful in situations where it is harder to engage patients using language-based approaches, especially in younger children or children with learning or developmental differences. Similarly, using art, for emotional expression or fine-tuning newly learned skills, can be a way for those who are new to working with patients, such as students, to navigate the difficult topics discussed in an inpatient psychiatric unit (Hasselmo et al., 2023).
Symptom burden in children with childhood cancer less than age 8 is not well understood. In such scenarios, it is crucial to understand symptoms. Through drawing children can appropriately relay how they’re feeling physically and psychologically, and where they are feeling physical symptoms (Hyslop et al., 2018). Similarly, art-based therapy has been shown to be beneficial in children who have experienced trauma and abuse. Art provides a safe space to share their stories (Akthar & Lovell, 2019). Art can make the therapeutic experience meaningful for children who are non-verbal or have different verbal abilities. Art therapy can be fun for children. When therapy is perceived as fun children are more closely involved and gain more from their time with their therapists (Deboys et al., 2017).

Art for Communication

Cartooning is a form of art that is used to communicate ideas to its audience. Whether it is political, educational, comical, or medical cartoons, it is highly effective in engaging people.

According to a study done on the use of cartoon illustrations to better communicate information to patients and increase adherence to discharge instructions in the ED, those who were given instructions using cartoon depictions were more likely to read and engage, compared to only written instructions. They were also more likely to correctly respond to questions about discharge instructions when tested and follow the instructions from the ED visit more often. In this study, the subset of those with lower educational attainment showed an even more drastic difference between those who received the cartoon illustrations and those who received written instructions (Delp &
Jones, 1996). All in all, using cartoon illustrations increased patient engagement in therapy.

Cartooning has been used to disseminate information for a long time. Members of oppressed groups such as queer individuals used this medium to distribute their work in political circles. In 1989, cartoonist Garry Trudeau created an openly gay character, Andy Lippincott, and wrote about his experiences of being diagnosed with HIV/AIDS in hopes of challenging the public’s stereotypes (Kois, 2022). It is important to point out that cartooning in psychiatry is not a new concept. *The New Yorker* magazine has been publishing cartoons about therapy since the time it was founded in the 1920s. Emma Allen, *The New Yorker*’s cartoon editor says “Therapy and cartooning may very well be symbiotic professions, at this point. For the cartoonist, the doctor serves as both muse and captive audience. Also, it’s a medical fact that, if you shrink a brain enough, its contents are reduced to a single punch line. And how would therapists know how to arrange their offices, were it not for the definitive décor outlined by cartoonists: couch (check), plant (check), framed degree (check)? Since the earliest days of this magazine, when psychoanalysis was a relatively new shtick, analysts and their patients have been a cartoon staple” (*Cartoons About Therapy from the Past Century (Well, Almost)*, 2023). The humor aside, it is as powerful as ever and continues to work to make medicine more accessible to patients and fight stigma around mental health.

**My Experience with Cartooning in Medicine**

As a future psychiatrist who grew up in a household where cartooning was an important part of relaying information, making a commentary on daily politics, or
explaining difficult concepts, I am a big proponent of Graphic Medicine (Green & Wolf, 2023). Growing up with a father who is both a psychiatrist and a professional cartoonist (Figure 4), I have always found cartoons to convey emotions and stories better than written material.

![Figure 4: Cartoon by Dr. Yanki Yazgan (my father). (Source: Yanki Yazgan’s Archives)](image)

With the stroke of a pen, one can easily show whether a character is sad or happy, or whether they are waving at someone excitedly or kicking something angrily. In psychiatry, we grapple with difficult questions, sometimes even dipping our toes into philosophy territory. Human behavior can be challenging to describe but many of us are able to recognize emotions in a fraction of a second (Martinez & Du, 2010), making a short cartoon provide more information than we initially thought.

The house I grew up was full of pocket notebooks with each page telling a different story. I remember my dad carrying a small unlined notebook in his back pocket. I have now adopted his philosophy on how I should always have a pen on me, in case a
daily encounter sparks curiosity and inspiration. Whenever we sat down to grab something to eat, his pocket notebook would come out and he would draw something he saw during the day. Psychiatry and daily life are intertwined as human behavior is everywhere. It was a medical education cartoon that drove my passion for graphic medicine. It was on the topic of birth control and sexual health, one of the few to openly discuss reproductive health topics and work to educate people using a public platform in Turkey in 1984 (Figure 5).

Figure 5: Informative cartoons about birth control in Turkish by Dr. Yanki Yazgan, published in 1984. (Source: Yanki Yazgan’s Archives)

In the past couple of years, prestigious journals have finally discovered the power and beauty of the use of cartoons and drawings in medicine. For example, the JAMA Network has a feature on “The Arts and Medicine,” which dedicates space to Graphic Medicine and chooses the best of graphic medicine each year (*The Arts and Medicine*). This increases access to alternative ways of telling stories in medicine.
“Hero’s Journey” Zine as a Transitional Object

The *Hero’s Journey* zine (Hasselmo et al., 2023) was created as a result of overwhelmed inpatient child psychiatry units and with the hopes of helping children boarding in the emergency room while waiting for a bed understand what awaits them in the inpatient unit. This is a small booklet that includes an introduction to the inpatient child psychiatry unit at Yale-New Haven Hospital as well as therapeutic and engaging, child-friendly activities. Although there is easily available information for parents to access regarding what to expect emotionally and logistically when their child is hospitalized due to a mental health crisis (Johnson Attaway, 2023), no such thing is available for children that is accessible and easy to understand.

The zine can be used as a transitional object for children in the inpatient psychiatry unit. Quite literally, the zine guides children through their transition into the unit by providing information about the unit structure and staff that they will meet. A “transitional object” is a concept that Donald Winnicott, a British pediatrician and psychoanalyst, introduced in 1951. The “transitional object” concept is central to understanding his theory of early childhood development. A “transitional object is an inanimate object, often comforting in character such as a soft blanket, teddy bear, or special toy with which the child has a strong emotional bond, which guides the child to navigate the transitions of early childhood stages (Litt, 1986). The “transitional object” is not shackled to early childhood, but can be used in significant times of transition, such as starting college (Markt & Johnson, 1993), and admission to an inpatient psychiatric unit in the case of “The Hero’s Journey” zine. “The Hero’s Journey” zine attempts to not only
familiarize children with the inpatient unit but also to help guide them through the unknown of being a patient in a psychiatric hospital through its therapeutic activities.

**Foundations of Zine Content**

**Hero’s Journey**

*The Hero’s Journey* is built on underlying therapeutic and clinical foundations. The name of the zine alludes to the common narrative archetype that involves a hero who goes on an adventure, where he experiences challenges and by overcoming them, becomes a better version of him or herself. This term was initially coined by Joseph Campbell in *The Hero with a Thousand Faces* (Campbell, 2004) but the construct of a journey in a story, also called the monomyth, has been around since early storytelling. Homer’s Odyssey is the archetypal example of the cycle of the hero’s journey. The hero starts in the known world and stumbles into the unknown world before returning to the familiar (Figure 6).
The journey begins with the call to action as the hero is pulled towards a “quest”. After a long road of trials within the unknown world the hero experiences an event that will change them forever, also known as the revelation. Once the hero is able to overcome this ordeal, he or she will return to the known world with lessons learned along the way (Campbell, 2004). Drawing parallels to patients in the psychiatry unit, children will leave their known world after a crisis, entering the unknown world of being hospitalized. They then go through therapeutic exercises and gather skills to help them in their world outside the hospital. Once children are stable enough and are equipped with skills to control crises in the known world, they return home. In naming the zine *The Hero's Journey*, we empower the patients to see themselves as protagonists and fight the stigma around hospitalization due to mental health crises.

**Reflective Practice and Narrative Medicine**

A reflective approach brings about curiosity about stressors, thought patterns, and behaviors that lead to their hospitalization. Reflection can help patients develop cognitive, behavioral, and social skills that can help in the path of healing. By anticipating potential stressors at home, the patient can be prepared to cope with most challenges life brings. Similarly, adopting reflective practice as the caregiver (whether nursing staff, medical student, or physician) can be more productive when it comes to appropriate care (Mulik & Gawali, 2023).

Narrative medicine is at the intersection of humanities, art, and medicine and incorporates narration-based practices such as close reading of literature and reflective
writing. Narrative competence includes the ability to acknowledge, absorb, interpret, and act on other’s stories. Narrative medicine reflects on the relationships between physician and patient, physician and self, physician and colleagues, and physician and society. It helps physicians be better empathizers and recognize patient journeys as well as their own in medicine (Charon, 2001). The principle of co-construction is the collaborative story created between the healthcare provider and the child. By using the collaborative approach of Narrative Medicine, the therapeutic comic book becomes a tool in therapy. It helps patients express and understand their feelings in a way that is tangible and suitable for their age. By untangling the layered stories of the child’s past, the comicbook can allow the space for transferring the patients' feelings, emotional baggage, and future hopes onto paper (Hasselmo et al., 2023).

**Clinical Foundations**

The zine is informed by principles of Collaborative Problem Solving (CPS) and Cognitive Behavioral Therapy (CBT).

CPS is an intervention designed to manage explosive behaviors in children by building frustration tolerance, problem-solving skills, and flexibility (Greene, 2005). When used in the inpatient setting, CPS treatment reduced rates of seclusion and restraint use in the child psychiatry unit (Martin et al., 2008). Per CPS theory, maladaptive behaviors and frustration stem from lagging skills (social, language, mood, executive, cognitive). These lagging skills can be strengthened by tailored interventions and regular practice, and the zine plays a role in this practice.
CBT is a type of psychotherapy that focuses on the idea that thoughts, feelings, physical sensations, and actions are interconnected (Overview - Cognitive behavioural therapy (CBT), 2022). The creators of the zine focused on four core principles from CBT: “a) Connecting thoughts to feelings and behaviors through a developmentally appropriate exploration of the cognitive triad (thoughts-emotions-behaviors); b) Identifying anger triggers and teaching positive behavioral coping skills (e.g., the “take-a-break plan”); c) Identifying Automatic Negative Thoughts (“ANTS”) and counteracting them with a “STOP” plan (Situation, Thoughts, Other thoughts, and Practice of Calming thoughts); and d) systematic problem solving through a “SOAP” plan (Situation, Options, Assess options, and Pick a safe plan)” (Hasselmo et al., 2023).

The Hero’s Journey zine was created to be implemented in the real world. The zine is available to download and print for free. The Hero's Journey is available at https://tinyurl.com/yc46e9uj as individual pages. We aimed to understand the daily use of the zine. Our question was: "How might the implementation of the zine be explored and integrated into the daily operations of an inpatient child psychiatric unit?"

Methods

Student Contribution

With the help of my supervisor, I formed the research question. With the help of my supervisor, I recruited a team of four individuals, two psychiatry attendings (including her supervisor), one person from the nursing staff, and one person from the therapeutic recreation team. Each guided me in finding times to speak with them and their staff. I arranged monthly meetings that included all involved in the research study. I
I used the help from the rest of the team to schedule time with people who knew about the zine. I created a set of questions to ask individuals who are being interviewed as primer questions during the interview. I interviewed 19 individuals. Most interviews were in person, and 5 were on Zoom. I recorded, transcribed, and coded the interviews. I wrote a manuscript. I discussed themes with members of the QuaLab, a qualitative and mixed methods research lab in psychiatry at Yale-New Haven Hospital.

**Ethics Statement**

This research was done keeping in mind the ethical and responsible conduct of research. There was no harm to participants if they chose to participate in the research. Their anonymity was protected. An Institutional Review Board application was submitted and approved as exempt from full review prior to starting the research study. Each individual who participated in this research was presented with informed consent, which was explained by the researcher. All participants verbally approved or physically signed a consent form.

**Study Design**

This is an explorative qualitative study exploring the uses of a zine-based intervention in the children’s psychiatric inpatient service at Yale-New Haven Hospital. This study was completed over a 6-month period, with data gathering occurring over a 3-month period.

*A Hero's Journey* is a 38-page zine, designed as an activity booklet by Yale Medical School Alumnus Simone Hasselmo (Hasselmo et al., 2023), with activities ranging from
coloring to identifying therapeutic coping skills. The purpose of the zine is to demystify the hospitalization experience and provide guidance starting at admission to the hospital. Its primary objectives are to foster interaction and socialization, offer scaffolding and skill-building opportunities, and prepare patients for their journey beyond discharge (Hasselmo et al., 2023). The booklet provides a developmentally appropriate account of emergency room and inpatient psychiatric care, tailored specifically for school-age children and young adolescents. It aims to support their comprehension of the therapeutic environment. The intention is for this booklet to be regularly utilized within inpatient settings with the help of professional staff such as nurses, social workers, recreational therapists, teachers, as well as physicians, fellows, residents, and medical students. Our goal is to gain insight into reflections and experiences using the zine within a pediatric inpatient unit.

**Study Setting**

The inpatient pediatric psychiatry unit at Yale-New Haven Hospital, also known as Winchester 1, is a unit with multidisciplinary care. Staff at the unit include but are not limited to nursing staff, recreation therapy staff, milieu counselors, teachers and school personnel, psychologists and psychology trainees, social workers physicians at different levels (residents, child and adolescent psychiatry fellows, and attendings), as well as medical students. Patients in this unit present with various mental health problems and range from ages 4 to 13 years old. It is an inpatient unit with 16 beds. The days in the unit parallel a typical structured day outside the hospital with planned activities including school, therapeutic groups, recreational therapy, meal and snack times, and free time.
Study Sample

Study participants included all professionals in the children’s psychiatric inpatient service, as well as medical students rotating at the time. Professionals included nurses, social workers, recreational therapists, residents, fellows, attendings, and milieu counselors. Anyone who had any exposure to the zine met the inclusion criteria. Participants all spoke English and worked or rotated as a student at the inpatient unit. The sample size was 19. Two were part of the nursing staff, three were residents, six were students, two were attendings, one was a senior psychologist, three were part of the therapeutic recreation team, and two were milieu counselors. The sample size was set according to prior research showing data saturation is typically obtained after 9 to 17 interviews (Hennink & Kaiser, 2022). Data saturation was reached when team members consistently identified recurring themes.

Recruitment Strategy

Participants were invited to participate in this study in an entirely elective and voluntary way. Everyone working on the unit received a presentation about the Hero’s Journey prior to the distribution of the zine. After the utilization of over 100 zines by children in the inpatient unit, adults who had familiarity with the zine and working with patients in the unit were approached and asked about their exposure to the zine. If they had any exposure, they were asked whether they would like to participate in the study. Children were not interviewed.

Inclusion Criteria
Those who had any exposure to the zine were eligible for recruitment. Participants were individuals who worked in the inpatient unit at some point in their careers or had participated in a rotation as medical students in the inpatient unit. The individuals were greater than 18 years old.

**Data Collection and Management**

Data was collected during individual interviews. Interviews were semi-structured with sensitizing questions around the following topics: reflection on using the zine alongside or with patients, reflection of profession and self through using the zine, eliciting structured zine use, patient interaction with the zine. Interviewers led the questions depending on the main interests and expertise of the interviewees.

Researchers recorded the conversations with the participants with their consent. Five interviews were done using the Zoom videoconferencing platform. These conversations were transcribed by the Zoom transcription software service and kept for 160 days on the Yale University Secure Zoom Cloud. Fourteen interviews were conducted in person. The interviews were recorded using a recording device and transferred to the Yale University secure drive. They were transcribed using DeepGram. All audio files were numbered and had no identifying information. Only the interviewer has access to all of the audio and transcription files. Thematic analysis, in which the researcher closely examines the data to identify common themes – topics, ideas, and patterns that come up repeatedly, will be done. The transcription files will be coded and organized on the software, NVivo 1.7.1.
Results

When asked about the use of the *Hero’s Journey* zine to participants, three domains recurred across each interview: implementing, optimizing, and anticipating.

**Domain 1: Implementing**

Implementing, or rolling-out of the zine in a children's psychiatric inpatient unit, was one of the main topics of discussion. The main themes were structured around what worked or didn’t work on an individual level and on the level of the unit when the zine was being implemented for use in the unit (Table 1). The zine was overall seen as a positive that could add to the unit’s activities. The zine was deemed well-thought-through when created, keeping in mind the population it would serve once it started being utilized in the inpatient unit.

“[The zine] looked professional and I feel like the kids would like it. In terms of being developmentally appropriate, I think, even though the unit is for 13 and under, there could be something for any child there, whether it's just a coloring page or the therapeutic parts of it.”

Overall, the zine appeared appropriate for the patients in the inpatient unit, across developmental levels. However, not every patient in the unit was drawn to using the zine. Children who appeared to be more artistic and who were more willing to talk about their feelings enjoyed using the zine more than other children who did not see themselves as
artistic. Similarly, the zine served as a tool to discuss difficult topics for children who were struggling to do so.

“Some children were more comfortable just talking about their feelings and what they were going through. Other patients who were there for behavioral outbursts, or ADHD-related problems, were less likely to sit and talk to you about their feelings. It became helpful to have a tool to help. It created a space where we would be doing a shared activity and coloring before launching into difficult questions. And the kids could focus on coloring or drawing while talking. So, I think for the patients who have trouble sitting still and talking about boring stuff like feelings, it was particularly useful.”

In addition to the therapeutic benefit of the activities, the zine also provided support through storytelling. The narrative of being a hero on a journey while being a child in a psychiatric hospital helped empower them.

"Just the nature of the story in the zine being a kid in the hospital, I think there's a level of relating to it from the patients' side, and it is comforting that the pages do in some way demonstrate the story of what the kid is going through. So, I think whether or not the patients realize that they're picking up that information, I think all of the kids are getting some of that comfort from having that. "

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Even though children overall found the zine fun, it wasn’t always easy to have them engage with it fully. According to many participants, children preferred the coloring activities over the therapeutic activities. Some children, especially the younger ones or those with different verbal abilities needed increased support to understand and fill out certain pages.

For providers, the zine served as a great tool to reach children. Medical students especially benefited from the zine since they are caring for patients for the first time and report that they have found the zine to help start difficult conversations.

“I think the Zine could be a cool way for medical students to work one-on-one with the patients a little bit more because it allows you to start a conversation. I don't have to think up these questions on my own.”

At a unit level, the zine provided some structure. During morning free time, staff reports that there was a period of time when the zine provided structure. This structure allowed the children to have a good start to their mornings and also permitted staff to be able to respond to children’s needs. However, staff shortages and competing needs made it difficult for children to receive adequate guidance when it came to filling out the zine. For the zine to be adopted into the daily structure, it needed a champion, someone on the inside to lead the charge. One of the participants agreed with the importance of having a dedicated leader.
“Whenever you do something new, certainly in an inpatient unit, you need a champion. We did have a champion in nursing, but this became one of many competing demands, it just did not take. It probably had to do most with how much staff time they had at that moment. If a staff member was really invested, involved, knowledgeable, curious, and sat with the kid, then those kids likely got much more out of the zine. But our staff have very limited time.”

Having a champion in the unit helped jump-start the use of the zine. However, many competing demands got in the way of adequate use of the zine at times.

Table 1 – Implementing: Roll-out of the zine in a children’s psychiatric inpatient unit.

<table>
<thead>
<tr>
<th>THEME</th>
<th>Sub-theme</th>
<th>Explanation</th>
<th>ILLUSTRATIVE QUOTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual / child level</td>
<td>What worked</td>
<td>Children use the zine to process their emotions in a fun way.</td>
<td>&quot;A very fun way, I think, for kids to try to go through their emotions.&quot;</td>
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<td></td>
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<td>Some children carry their zines with</td>
<td>&quot;We do have some kids that have been really interested and have their zine with them throughout the day.&quot;</td>
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<tr>
<td>What didn't work</td>
<td>Young children prefer coloring than the therapeutic activities.</td>
<td>&quot;Young and very hyperactive kids will be just coloring on the pages. This is really all we're going to get from some of them, especially the young.&quot;</td>
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<tr>
<td>Both the kids and the staff have benefited from the structured zine activity in the morning.</td>
<td>&quot;[The zine] provides the patients with a certain level of protected time that they have to decompress during the morning, which I think has been really useful not only for the staff but also for the kids as well.&quot;</td>
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<tr>
<td>The zine provides children with a structured task while they express their feelings.</td>
<td>&quot;Some kids are more task oriented. They do better with very structured tasks compared to just talking about their feelings. And I think in the inpatient setting, that's really where our kids excel.&quot;</td>
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<tr>
<td>Them all day because they are interested.</td>
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Children may be concerned about the things they write in the zine being held against them when deciding discharge. "One patient knew that whatever he says and whatever gets written in the notes plays into when discharge would happen. And so he didn't want to be too honest in the zine."

| What worked | Using the zine and working on it in parallel may be beneficial to reach a child who is not willing to open up by talking. | "If we want to have a way of talking with a child who's quieter or more interested in drawing and not as interested in chatting with us, we'll use the zine as a way of opening up a dialogue. I color in my own zine and I work on my own pages kind of next to the kids. And then they can we use it as a way of talking about emotions."

| What didn't work | Giving children the ability to choose from | “The difficult part was choosing the page to work on. For example, I would choose a therapeutic page, and then my patient, having the entire 38 pages in front of her, would want..."
| What worked | Children benefit from the zine most when there is enough staff to help them through the activities. | "Mornings used to be a downtime that would be a lot of chaos when the kids were getting their medications or, you know, it was just a lot of opportunity for arguments, fighting, agitation amongst the kids because of that lack of routine. The staff has been telling us that this change has been helpful" |
| What didn’t work | The zine may have not worked | "I think that sometimes if we don't have enough staff, patients do not get as much of the side by side help. It's not as much of the explanation of this page, but it's just coloring." |

38 pages, they tend to choose the game-like activities. to do one of the fun ones, so would want to go to the word search or just do coloring even if I suggested a different page, and I felt that was difficult to navigate."
I don't know if it was too much labor, and by that, I mean the physical labor of carrying the box with the zines or the physical labor of maybe they're too big and too complicated to talk through.”

**Domain 2: Optimizing**

The zine content was created with great care and research. To make it appropriate for the inpatient unit, experts came together to make sure the content would work for patients in a child psychiatry inpatient unit. When creating the zine content, they built upon previous projects that had been successful at the same time touching on the stigma of being a child who has been hospitalized and preparing the children for what they will encounter.

“In brainstorming the content, there was a component of demystifying what coming to an inpatient unit is about. Unfortunately, there's a lot of stigma and bias about inpatient psychiatric care as well as exaggerations and negative portrayals. For example, in movies, etc., so a component of the content for me had to be just factual. What do you see in an inpatient unit? Who are the people that are there? What does it physically look like, where will you sleep? What are the activities that you do there? Just the facts were really important to have upfront in the first pages of the zine (Figures 7, 8, 9).”

The zine was envisioned as a medical education tool as well.
“In some ways, it is like a medical education tool. It helps to be prepared for example, when you go to the MRI machine. Who are you going to see there? What's going to happen? So that tradition of medical education about a procedure in this case becomes being admitted to an inpatient unit.”

Figure 7: Single-panel image of the introduction of the heroes from the zine A Hero's Journey. (Source: Hasselmo et al., 2023).

Figure 8: Single-panel image of introduction to healthcare workers in the inpatient child psychiatry unit from the zine A Hero's Journey. (Source: Hasselmo et al., 2023).
In addition to the education component of the zine, there was desire to include therapeutic content that could teach or reinforce the skills that children may develop during their inpatient stay.

“Then I thought it was important that we include some therapy content. So, in addition to coming to this unit and going to school and participating in activities, what will you learn there? We thought of some skills that we can preview for the kids that they will learn as a result of being on the unit. My thought was that there are numerous ways to introduce the kids to CBT and the zine could be one way they become more acquainted with it.”

Many participants of the study found the zine to be long enough. They reported that it was appropriate for the patient population including the age range and patient profile at the inpatient unit. Some participants had concerns regarding different verbal abilities of patients and the support each would receive. Overall, the zine was appropriate in length and content to be used in an inpatient psychiatry unit.

Figure 9: Single-panel image of the representation of the inpatient child psychiatry unit from the zine *A Hero's Journey*. (Source: Hasselmo et al., 2023).

When they arrived they looked around. They saw where they would eat, sleep, play, and learn.
The zine was envisioned to be given out in the pediatric emergency department (PED) with the hopes that the children would take their zines with them when they left for their homes. At the height of its daily use, the zine was being introduced to children who had been transferred to the inpatient psychiatry unit by either nurses or the therapeutic recreation team. Every morning, during a previously unstructured time, children started working on their zines independently.

“I had hoped that it would be used individually, not in a group format because there's a lot of the content that needs explaining. The artwork is gorgeous but there is content that you can't just intuit by looking at the pictures. It's not self-explanatory. You need an adult to explain some of the content.”

As zine use became more widespread the need for individual attention for the children who were struggling to understand the content. It became difficult to reach each child when there were staff shortages, so there was a drive away from using the zine as a therapeutic tool but became an activity book.

“After the summer there were some nursing shortages and a lot of staff changes. So a lot of times the zine was disregarded as something extra to do.”

Within its delivery, the zine was presented as a whole booklet rather than individual worksheets.
“We really have not tried, even though in the original article it’s talked about, is using, not the whole zine, but just select sheets of paper.”

The vision of using individual pages can allow the children to be released from the pressure of choosing which page to focus on and puts that responsibility on the provider.

Finally, the zine was designed for children to take home with them as a reminder of their time in the inpatient unit and as a token of the skills they have developed. However, children have not become as attached to their zines as expected.

“We also had this idea that when kids left, they would leave with their zines all filled and they would use it as both a reminder of the good things and the things that they learned. But also of the skills that they had built. But the proportion of kids who were discharged with their zine is low.”

The zine was liked by all who used it. It is pretty, it is entertaining, and it is also a good therapeutic tool. However, there has been difficulty in implementing it into the routine of the inpatient unit and the main issues appear to be staffing shortages, using the zine as a whole rather than individual pages, and introducing the zine to children too late in their hospitalization.

Table 2 – Optimizing: Aspects ripe for improvement based on initial roll-out

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<th>THEME</th>
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<th>Explanation</th>
<th>ILLUSTRATIVE QUOTATION</th>
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<tr>
<th>Zine</th>
<th>Too long, too this, too that? Giving in pediatric emergency department (PED), sending home with it?</th>
<th>Children with different levels of verbal functioning may be able to do different activities.</th>
<th>&quot;I think not everyone can do the word search and some of the other activities, …, There might be kids that are in different levels of their verbal functioning.&quot;</th>
</tr>
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<tbody>
<tr>
<td>Delivery</td>
<td>Embedding into activities? Using coloring activities</td>
<td>The zine was envisioned to be given while children were in the PED.</td>
<td>&quot;I envisioned it kind of being given to kids while they're in the PED, so that they'd have a chance to look through it, interact with it whatever way they want, but that there could also be opportunities for more structured use&quot;</td>
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<tr>
<td></td>
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<td>The zine is appropriate for the inpatient unit regarding its length and content.</td>
<td>&quot;I think the zine is just enough and appropriate for the inpatient unit. I don't think that there's any issues with the length or the content.&quot;</td>
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<td></td>
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<td>&quot;During the time frame, I've seen just the whole group coloring in the morning.&quot;</td>
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<tr>
<td>single sheets rather than booklet?</td>
<td>in the zine in the mornings.</td>
<td>&quot;I think the zine is really important to have around. It's not necessarily about always the content but rather using it as a tool to engage the kids.&quot;</td>
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<tr>
<td>The zine is a tool to engage children.</td>
<td>&quot;I think that the kiddos who struggle a little bit more, staff will be with them to help.&quot;</td>
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<tr>
<td>Staff help the children who are struggling with the zine activities.</td>
<td>&quot;They [the unit staff] specifically dedicate a certain time throughout the day for the zine.&quot;</td>
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<tr>
<td>There is a dedicated time for zine use.</td>
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**Domain 3: Anticipating**

The zine is a wonderful resource on paper, however, there is always potential areas for growth and development (Table 3). The zine can be improved by collaborating with other sites to adjust its use. For example, another way of using the zine is in the outpatient setting. Some participants suggested that they have patients who will benefit from the zine in the outpatient setting.

"I have, actually, a patient who's on the autism spectrum who's outpatient with me and he loves drawing and he loves kind of this writing. He loves these types of..."
activities. And to almost use it as an activity book in an outpatient setting, I think would be really amazing."

In addition to use in other environments, the zine can also be adapted to the needs of the patient population. Some participants recommended creating individual zines for different age groups or verbal abilities.

"I wonder if we had multiple versions of zines that were split by age group, maybe it would help motivate kids to use it more."

Adapting it to different cases may be beneficial and it might be a place where artificial intelligence (AI) use in psychiatry comes in. With the help of AI each zine could be individualized to patients without the need of the original artist.

“In the time of AI, I wonder if personalization of the zine for each patient, for example, a little cartoon of the patient on there would make the zine more attractive. That would be useful for engagement. Something to think about in the future, maybe.”

The zine is a great resource to be used in the inpatient unit to help children get used to being away from home and being at a place that is unknown but also provides therapeutic support through fun activities. However, the implementation has not been perfected and has a lot of ways to improve and this study is the beginning of it.
Table 3 – Anticipating: Potential areas for growth and development in zine's development

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>With other sites to adjust, learn together, etc</td>
<td>In an outpatient setting, a zine could be valuable for children who are reluctant to engage, offering an engaging tool to facilitate therapeutic interaction.</td>
<td>&quot;I think I imagine in an outpatient setting, a zine would be just as helpful, in terms of sometimes our kids are just a little bit shy and they don't really want to engage.&quot;</td>
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<tr>
<td></td>
<td></td>
<td>Patients in the outpatient setting who have similar symptoms to patients in the inpatient unit can</td>
<td>&quot;I could see how my outpatients who struggle with similar disorders but more in a chronic, less acute realm would actually really succeed from using a zine-based intervention.&quot;</td>
</tr>
</tbody>
</table>
benefit from the zine.

The zine is a valuable resource for creating informative PowerPoint presentations by utilizing individual pages to communicate the nuances of inpatient care for children to staff and others.

“Another very beautiful use of the zine is that they're amazing for power point so that if you want to teach staff or kids you can use individual pages. If you want someone to understand what inpatient level of care is about what kids go through. You know, it's great.”

| Diversify | Adapting to the needs of patients | Children who spend an extended period in the psychiatric unit and complete the zine may create their own book, "Some kids who stay for a long time and finish their zine can start making their own book in some ways. If they're done with the whole zine progression, then kind of taking the next step and..." |
| Electronics | Development of an e-zine, adaptation to iPad, etc | Paper activities will soon evolve into electronics. And the zine must evolve with them. | “I am ambivalent about paper, because, on the one hand so many of the things being done in inpatient units are paper based and worksheets based. But that feels just so old.” |

**Discussion**

The *Hero’s Journey* zine holds great promise. It is conceptually and theoretically well grounded. However, a psycho-educational tool like this in a short-term, acute crisis-
oriented unit with a lot of staff turnover and resident turnover can be challenging. The key could be identifying those stakeholders or champions who are invested, who will adapt the zine to be part and culture of the unit. In order to understand best ways to introduce a concept into routine clinical usage, implementation science can help. Implementation science or implementation research is a relatively new field of study that focuses on understanding and enhancing the adoption, implementation, and sustainability of evidence-based practices in real-world settings. It seeks to bridge the gap between research and practice by investigating the factors that influence the successful integration of interventions into routine use (Proctor et al., 2009).

**Implementation Successes and Challenges**

The zine was created with many hopes in mind. As a wonderful resource, the zine portrays a hero’s journey, alluding to the heroics of improving oneself through the therapeutic effects of the inpatient psychiatry unit. A place that comes with a lot of stigmas, becomes a place of comfort through the zine’s storyline and through its preparation to come to a psychiatric inpatient unit for children.

“Just the nature of the way it's kind of put regarding being a kid in a hospital being, I think there's a level of relating to it, and there's a kind of comfortability to the fact that the pages do in some way demonstrate the story of what the kids are going through. So I think whether or not they realize that they're picking up that information, I think all of the kids are getting some of that comfort from having that.”
The hero’s journey may not have an obvious benefit to children but even the premise is benefiting the patients who receive the zine.

The zine, although not without its challenges, has several successes. Perceived appropriateness of the zine for the patient population, its positive impact on patients who enjoy artistic activities, and the structured mornings it provided are only some of those. During its initial roll-out, the circumstances were appropriate and there was adequate staffing. The zine was handed to children when they arrived to the unit by therapeutic recreation or by a nurse if it was after work-hours or on weekends. Therapeutic recreation staff would go over the content of the zine and do their intake. Children were free to access their zines whenever they wanted by asking a staff member, but the zine was also adapted to the daily schedule. Every day, the staff brought out the zine box while the children were filling out their daily menus. This was a previously unstructured time frame which allowed for confrontations and decompensations within the group of children in the unit. The nursing staff found this particularly helpful as it made their day to day more controlled in the mornings.

With enough staff during the roll-out, each child was able to get personalized attention and help with the pages of the zine. “I think that the kiddos who struggle a little bit more, staff will either be with them.” Unfortunately, with staffing shortages, the personalized attention from nursing became less available. “I think that sometimes if we don't have enough staff, it's not as much of the side-by-side situation. It's not as much of an explanation of each page, and it's just coloring. But we do have a lot of kids that do appreciate the zine.”
The zine had therapeutic and educational benefits including its role in providing a structured therapeutic space, supporting storytelling, and helping children express their feelings. By using a different medium to express feelings, the zine allowed children to write or draw during their therapeutic journey. It facilitated conversations about emotions and served as a valuable tool, especially for children struggling to communicate verbally. As an educational tool, the zine relayed information about the unit itself and various coping strategies. Similar examples can be seen in preparing children for an endoscopy (Kose & Arikan, 2020), in teaching people about diabetes management (Alyami et al., 2022), or in preparing people for an MRI (Szeszak et al., 2016).

Overall, children enjoyed having the zine as an activity book. Some children enjoyed it more than others. Children who identified as being more artistic and thoughtful were more likely to engage with the zine, whereas other kids did not enjoy working on the zine. “Don't know if the kids necessarily take it very seriously,” says the staff. Engaging each child equally and fully has been a challenge. “I try to direct kids to be mindful of the activity they are doing. For example, if you're doing a coloring page or something similar I want them to put the effort in and stay in the lines.” Sometimes the zine was used as an activity book but the zine is more than a recreational item. It is a therapeutic tool disguised as a coloring book. Therefore, the content needs to be explained to both the patients and the caregivers and unfortunately, competing responsibilities took precedence when it comes to the staff’s time.

Finally, the zine has been a particularly helpful tool for healthcare providers and medical students who found the zine as a great tool for communication and starting difficult conversations. Medical students reported better patient interactions and less
anxiety when approaching patients with the use of the zine. The zine ultimately played the role of a prop, which allowed easier conversation starting and better recall of the conversation later on (Nigro & Wolpow, 2004). The zine was used actively by medical students as long as they were introduced to it formally and reported that later generations of medical students would benefit from zine training upon starting their rotation.

**Anticipated Areas for Growth and Development**

Stakeholder engagement is crucial in the implementation (Jagosh et al., 2012). The zine has many different stakeholders, including healthcare providers, nursing staff, and medical students. To fully engage stakeholders, it is important to provide education about the zine and the usefulness of it. During the initial roll-out of the zine, the presentation given beforehand equipped the stakeholders with information that helped them engage children better. Knowing what each page of the zine means, understanding the theory behind the activities, and being familiar with the day-to-day logistics of the zine (such as but not limited to where the empty zines are kept, how to easily access coloring pens, and where each individual page can be found in the online drive). As it will take a significant amount of time for the experts in the zine, such as senior attending physicians or psychologists, to present on the zine each time a new group of residents or medical students are onboarded, other ways of introducing the zine can be considered. One way to present the zine to the stakeholders is to have a detailed guide and a video explanation of the zine pages including the theory behind it and expectations from each activity from the experts that will be provided during each onboarding process. As this frontloads the work, and doesn’t rely on the availability or the presence of the zine.
experts. Implementation science emphasizes the importance of planning for sustainability from the beginning (Scheirer & Dearing, 2011). Staffing shortages are out of the control of individual caregivers in the unit and the ultimate goal is to create and intervention that can work independently of uncontrollable events. Creating an introductory video and drive with all relevant information is also an intervention that will not be affected by staffing shortages and hence considers the potential rise of sustainability issues.

Moreover, the introduction of a new intervention necessitates the presence of a dedicated “champion” assigned to oversee and execute specific responsibilities associated with the intervention. Clinical champions are individuals who spearhead an implementation initiative, support its adoption into clinical practice, overcome the resistance that may occur at the organizational level, and troubleshoot any road bumps along the way. These individuals are described to be leaders in the workplace or community, have strong communication and mentorship skills, collaborate well with others, and advocate well for change by negotiating with others (Morena et al., 2022). Having a champion in the inpatient unit will allow for each new class of residents or medical students to receive the appropriate information as well as keeping the information up-to-date and being a resource in case questions arise. As new problems arise in implementation, the champion can also guide changes that need to be made according to the current ecosystem of the inpatient unit. It will be the champion’s responsibility to keep information updated as well as to train the next champion in the event of change. Clinical champions overall are thought to reduce implementation barriers and promote behavioral change (Morena et al., 2022).
**Future Directions**

Design thinking is a problem-solving approach centered on understanding and addressing the needs of end-users, in this case, the patients. The process involves several key steps. The first step is empathizing, where one will try to understand the experience of patients by putting themselves in their place and gaining insight into their perspectives. The next step is to define the problem and understand what kind of problems a certain population faces. The ideation stage is when creative solutions are brainstormed (Bender-Salazar, 2023). The zine was founded due to unmet needs in the inpatient unit and to make the patient experience better. Subsequently, in the prototyping stage, tangible representations of ideas are developed for testing. The zine was prototyped and tested in the child psychiatry unit. As the zine is tested, the areas that need development are identified. This leads to the iterative stage where another version of the zine is created, and it is improved upon. This human-centered methodology is flexible, allowing teams to revisit and adjust each stage as needed while problem-solving. The zine was prototyped in the inpatient unit at Yale-New Haven Hospital. As the zine was being implemented, the team experienced many challenges that can be addressed for better adoption of the zine and another prototyping experience. As discussed above, a champion to oversee the zine use is an important part of implementation studies. In addition to having a champion, each individual needs to receive education about the zine as *the Hero’s Journey* zine is not an activity book but a therapeutic tool.

The zine has a lot of potential for improvement and diversification. Per participants' suggestions, other versions of the zine may benefit patients in different settings. Patients in the outpatient setting can benefit from an alternative version of the
zine that follows them through their journey as well. Another way to diversify the zine is to create several different versions for different age groups and verbal abilities. Finally, with the rise of technology use in psychiatry there is potential for artificial intelligence (AI) driven personalization. Prior uses of AI for personalization have been found to promote learning and well-being. Personalization, such as using an AI-generated replica of the artist Salvador Dalí for the ‘Dali Lives’ exhibition helped viewers connect with the artist and his work more closely (Pataranutaporn et al., 2021). The zine can also be personalized to increase engagement from the patients by using AI to create cartoons of the patient in the same style within the zine and choose specific content in a case-by-case basis.

**Study Limitations and Implications**

Our attempt to implement the use of a zine-based intervention has not been entirely successful. Even though the material we have is valuable and well liked, the implementation attempt has failed due to many reasons. One of the reasons that made the adoption of the zine difficult is staffing changes. However, having a champion to lead the efforts in training new staff and inspiring the existing staff can be beneficial during this time. Other limitations are that additional iterations cannot be created without the original artist who is no longer part of the study. However, once AI is more widespread, with the approval of the artist, iterations of the zine can be created, and it can be personalized easily. Finally, as a booklet, the zine may be overwhelming. In this case, individual pages from the zine can be used.
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