Narrative communication in comics: Can comics provide information about medical treatment in families with a sick child?

Inga Nedrebø Søreide
Department of Design
Norwegian University of Science and Technology

ABSTRACT

The purpose of this paper is to argue for the use of comics as a provider of medical information, examine medical comics as a form of narrative communication and to develop indications for a medical comic with the goal of improving its use as a form of narrative communication. Two methods have been used to accomplish this: a literature review and a content analysis of medical comics. In conclusion, several moderators for enhancing character identification and sequence coherence in relation to narrative communication in comics was identified. The use of narrative communication capabilities in three different medical comics was examined as well.

KEYWORDS: Narrative communication, medical comics, cancer, children

1.INTRODUCTION

"Knowledge is power. Information is liberating. Education is the premise of progress, in every society, in every family" as stated by Annan ("Kofi Annan Quotes, n.d.). Information can empower, create understanding and liberate humans, although some topics can be very hard to approach. For instance, information about serious illness between a sick child and their parents. Parents often want to shield their child from undesirable information about the disease, believing they are doing the child a favor by not upsetting them further, although the truth is most children (age 8-17) want this information (Ellis et al., 1993). Not knowing what will happen can cause more harm than good, making the child feel anxious, lack of trust in parents and loss of control (Beale et al., 2005). How can the wall of silence be broken down, providing the family with medical information adapted towards sick children and their families?

Research suggests comics can be a good provider of information in general (Caldwell, 2012). In addition, as stated by McNicol (2014):

"comics … have many advantages over patient information leaflets, particularly in the way in which they can offer 'companionship', helping patients to address fears and negative feelings". In this context, "companionship" means the patient being comforted by reading of other people's experience with illness (Williams, 2012). The most common type of cancer in Norwegian children is leukemia (Oslo Universitetssykehus, n.d.), thus this article will focus on articles involving child patients with leukemia. In this article, "comics" refers to still images put together side by side in a sequential order to tell a story, not animations of any kind. The purpose of this paper is to argue for the use of comics as a provider of medical information, examine medical comics as a form of narrative communication and to develop indications for a medical comic with the goal of improving its use as a form of narrative communication.

Three research questions will be examined in the article review:

1. How can character identification be enhanced?
2. How should medical information be presented visually to enhance

comprehension for parents and children?

3. How should medical information be presented verbally to enhance comprehension for parents and children?

2. BACKGROUND

2.1 Comics

Comics consists of several elements, put together correctly they can create a lasting experience. These elements are icons, panels, text, speech bubbles, symbols and color to name a few. Icon in this context means a picture representing either a person, a place, a thing or an idea. Icons are simplified version of the reality they represent (McCloud, 1994). This makes it easier for the readers to identify with them. Usually panels are square shaped, but as proven by Will Eisner (2008), shaping them differently can make the reader more involved in the story and add a new layer of feeling. By using different fonts and styles, text can be made to look like a voice or a sound, for instance the sound of a door bell. Likewise, speech bubbles can also convey a voice, whether it is someone thinking, screaming or whispering. Symbols are a way for artists to make the invisible visible, such as a lightbulb over someone's head to illustrate they have come up with an idea. Comics have traditionally been a medium in black and white, although currently most comics are printed in colors (McCloud, 1994). Comics are often stigmatized for being children's literature (McNicol, 2017), although several comics have been used to tell dark stories of holocaust (Spiegelman, 1986), war (Tezuka, 1983) and both physical and mental illness (Fies, 2006; Lee, n.d.). The dark stories usually have adults as target group. For medical comics, there exists a specific sub-genre of adult comics called "graphic pathographies" (Green et al., 2010) meaning graphic biography focusing on a person's illness. "Medikidz", a series of medical comics, is a global initiative to spread medical information to kids, covering difficult topics such as kidney transplants, multiple sclerosis and leukemia ("Medikidz", 2017). For adults, there exists websites such as graphicmedicine.org ("Why graphic medicine",

n.d.), offering reviews and links to medical comics, such as "Mom's cancer" (Fies, 2006).

2.2 Why use comics as a source of information?

Comics can offer powerful images and metaphors to explain experiences, terminology and medical science in a plain manner for all family members to understand (McNicol, 2014; Green et al., 2010). Examples of this can be found in both children's (Chilman-Blair et al., 2009) and adults' (Fies, 2006) comics. Furthermore, different points of view can be presented in the comic, offering insights into the struggles of the patient, family members, health professionals, friends etc. (McNicol, 2017). *Figure 1* for instance, can help family members of the patient better understand how the patient feels after receiving an abundance of information about their treatment. Additionally, most studies related to the use of comics for knowledge transfer are positive (Caldwell, 2012), suggesting comics could be a more efficient way to convey information compared to written information only. Yang also states comics would prove especially useful to people with low reading abilities (Yang, 2008), which indicates children could greatly benefit from them. Lastly; patients can relate to and feel less isolated by reading of other patient's experiences (Williams, 2012).

Figure 1: Picture illustrating the confusion a patient faces after receiving information about her diagnosis (Fies, 2006)

2.3 Narrative communication

According to Hinyard et al. (2007), in terms of narrative communication, narrative refers to:

"… any cohesive and coherent story with an identifiable beginning, middle, and end that provides information about scene, characters, and conflict; raises unanswered questions or unresolved conflict; and provides resolution". Narrative communication has been researched as a tool for providing medical information (Kreuter et al., 2007; Hinyard et al., 2007). Currently the dominant paradigm in health communication is statistical evidence, such as probability (Hinyard et al., 2007). However, in an article review, it was found that 13 out of 19 studies comparing statistical evidence to narrative evidence, found narrative to be the most persuasive (Baesler et al., 1994). Research into entertainment – education suggests a combination of narrative and statistical evidence may be the most effective (Hinyard et al., 2007). Hinyard also found evidence which indicates narrative communication may be perceived by audiences as more personal, realistic, believable and memorable compared to non-narrative communication. In Kreuter et al. 's (2007) paper on narrative communication, they identify four capabilities for this type of communication specifically for cancer patients:

- (a) Overcoming resistance. In this context, overcoming resistance refers to a reaction in which the patient opposes treatment procedures. This could for instance be MRI-scanning or getting an injection. This is also related to resisting cancer related messages, such as information regarding percentage of survival. It is theorized narrative communication can reduce resistance to these messages, because it is a subtle form of persuasion (Dal Cin et al., 2004) and may be perceived as less threatening compared to non-narrative forms of communication (Kreuter et al., 2007).
- (b) Facilitating information processing. This refers to strategies to enhance attention to and comprehension of cancer information. Kreuter et al. (2007) argues there are good reasons to assume narrative communication has potential to: "facilitate attention, comprehension, and recall of cancer-related information".
- (c) Providing surrogate social connections. This refers to the relationships people form with characters in literature, stories, news etc. This is called a para-social relationship (PSI), para-social meaning: "identification with media personalities, real or fictional, and a sense of friendship, attraction, and involvement with the person or character" (Rubin et al., 1987), according to Kreuter et al. research on non-health topics suggests PSI can be as emotional and informative as real social relationships (Picirillo et al., 1986). According to Kreuter et al., a considerable amount of research indicates social relationship have a positive impact on people's physical and psychological wellbeing.
- (d) Addressing emotional and existential issues. Cancer is a scary, life-changing event, and people may face several emotional and existential issues facing it. By studying literature by Carlick and Biley (2004), Kreuter et al. found ways in which narrative can help cancer patients dealing with these issues, for instance narrative's structure can create a sense of order in the chaos and it can provide patient with distance and perspective to cancer.

According to Kreuter et al. (2007), these capabilities can only be realized when the story is "told well", if a story fails to do this, the mentioned abilities of narrative communication will diminish or at least decrease. Kreuter et al. describe several moderators to ensure a story is "told well": sequence (coherence, plot development, theoretical adherence), character (character development, character's eloquence, emotional intensity), structure (suspense, canonical violation), bounded in space and time (realism, imagery, cultural appropriateness) and production techniques (production values).

2.4 Comics and narrative communication

Kreuter et al. and Hineyard et al. do not use a specific format for narrative communication, however most of the presented evidence and research stems from written narratives. McNicol (2017) states "Narrative, characterization and images are key features of comics that may be important when using this medium (comics) for health information purposes". Several other articles also recommend using comics to provide medical information due to its narrative abilities (McNicol, 2014; Green et al., 2010; Williams, 2012). This suggests narrative communication methods could be applicable to comics. By using the methods of narrative communication in comics, the narrative of comics could be improved and the mentioned abilities of narrative communication for cancer patients could be applied to comics.

3. METHOD

Two types of methods have been used in this article, a deductive content analysis and a literature review.

3.1 Medical comics content analysis

Kreuter et al. (2007) introduces four different ways narrative communication can help patients suffering from cancer: (a) overcoming resistance, (b) facilitating information processing, (c) providing surrogate social connections and (d) representing emotional and existential issues. By performing a deductive content analysis, the content of three comics will be analyzed in terms of Kreuter et al.'s capabilities. Their use of these capabilities will be identified and analyzed.

Three medical comics were chosen: "What's up with Richard? Medikidz explain Leukemia" (Chilman-Blair et al., 2009), "Ghosts" (Telgemeier, 2016) and "Mom's Cancer" (Fies, 2006). These comics were chosen because they depict illness, use narratives and have received good feedback as medical comic (Wolf, n.d.; "Mom's cancer", n.d.; "What's up with Richard, n.d.).

3.2 Literature review

The literature review was completed to determine how some of Kreuter et al.'s moderators for narratives can be optimized for use in comics. Among these moderators,

character and sequence was chosen, more specifically how to optimize for character identification and sequence coherence. Character identification was chosen because identification can help the reader perceive the message as more useful and clear, and makes the message more persuasive (Hinyard et al., 2007). Empathy has also been examined. In this context, empathy refers to the ability of "understanding and acknowledging the validity of other people's emotional reactions and states" (Malt, 2009). Since empathy according to this definition is a form of identification (identifying with another person/character's emotions), it was chosen to examine how both identification and empathy could be enhanced. Sequence coherence was chosen because it is needed to create an understandable story, and it is hard to imagine how a reader would benefit from a story if they do not understand it. There is a lack of research regarding comics on these two subjects, which is why several different fields were consulted, such as game design, visual communication and pictograms. The author deemed these articles to be applicable to the research.

4. RESULTS

4.1 Medical comics using narrative communication abilities

"What's up with Richard? Medikidz explain Leukemia" is a children's comic focused on explaining the illness leukemia and the treatment. The comic helps the reader overcoming resistance to chemotherapy by explaining the benefits of the treatment, and displaying chemotherapy as the "good guys" protecting your body from the dangerous cancer cells. By using metaphors, such as depicting the white blood cells as knights or "defenders", it is easier for the child to imagine and remember their function, thus facilitating information processing. To make it even easier to remember the information, songs about the illness are "sung" by the characters in the story, to the tune of famous children's songs, such as Aladdin's "A whole new world". Medikidz also provide social connections, displaying the child patient, the hero of the story, as a kid aspiring to be an actor, and at the end of the story, successfully becoming one and beating the

cancer. This is a positive role model for kids, showing someone who accepts his illness, but do not let it shape him. It describes hair loss, which for many patients can be an emotional issue. In this case, it has been portrayed positively, the child patient is not concerned about losing his hair because he can wear wigs and hats, and eventually his hair will grow out again.

"Ghosts" is a children's story about two sisters, where one of them is suffering from cystic fibrosis. By depicting procedures such as digestion by tubes in a positive manner (the patient participates in the procedure and treats it as an everyday ritual), the resistance towards medical procedures are overcome. Information about the illness is told by the healthy child to explain why the family is worried about the sick child. By providing the information through storytelling, it is easier remember for the audience (Hinyard et al., 2007). This story provides social connections for both sick children and their siblings, and shows the dynamics between the two, both arguments and protective behavior. It represents existential issues by having the siblings discuss death, and by projecting death as a new form of being, not something to fear. It also depicts emotional issues, the dynamic between the two sisters and their problems communicating with each other.

"Mom's cancer" contrasts with the other two a comic for adults based on real life events of the writer. It tells the story of when his mom was diagnosed with cancer. It helps pre-disposed patients stop smoking, by showing the dire consequences (the patient in the story most likely got cancer due to smoking). The comic facilitates information by telling about mom's cancer procedures and how she went through the treatment in broad strokes. Amongst others, chemotherapy, MRI and radiotherapy are depicted. Social connections are provided, showing the family of the cancer patient and everyone's individual role in taking care of her. Especially the patient can provide both social connections and help dealing with emotional issues by showing her harsh cancer treatment and defeating the odds by surviving cancer with a low chance of recovery. Another

emotional issue dealt with is the treatment of the patients. Mom is shown as an operation game board, illustrating the feeling of the patient and family losing control, and handing it to a stranger. There is no positive angle in this, but it can help patients and families understand their own feelings and putting it into words.

4.2 Character identification

In comics, the human characters are simplified versions of the reality they represent. By simplifying them, the image no longer represents one specific human (like a photograph), but rather the general human being, an icon. According to McCloud (1994), this makes it easier for the readers to identify with the characters. In an experiment to determine what kind of character design evoked the most empathy (Hytönen, 2015), 42 individuals were shown an image of all characters in *figure 2*. They were not given any character context beforehand. The iconic animal-like character B in *figure 2*, performed best, although the realistic human character A in *figure 2* also evoked strong feelings of empathy.
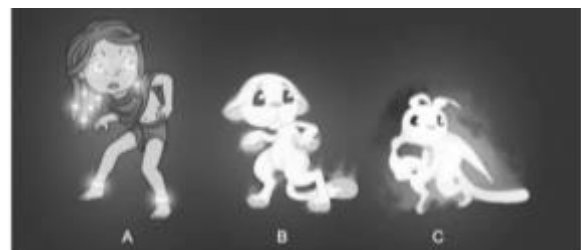

Figure 2: The character designs used in the experiment

As stated by the author, this could be caused by animals generally being perceived as less threatening than humans, but also because the human in the experiment was drawn more realistic compared to the animal. Another interesting outcome of the experiment was the fact that the participants seemed to have more empathy for characters expressing emotions clearly. For instance, character B was recognized by the most participants to be scared, and scored the highest in empathy. Character aesthetics also plays a part in engaging the user. van Vugt et al. (2007) found

that the more beautiful an interface characters are perceived, the more engaged the user will be. Engagement is important for readers to identify with a character (Hinyard et al., 2007). It has also been found evidence which suggests that playing games using a character rooted in your own culture can increase identification with the character (Bachen et al., 2016).

4.3 Sequence coherence: visually

McCloud (1994) identifies six kinds of panel transitions for comics: (a) moment-to-moment, (b) action-to-action, (c) subject-to-subject, (d) scene-to-scene, (e) aspect-to-aspect and (f) non-sequitur. According to McCloud, the three most commonly used transitions in western comics are subject-to-subject, scene-to-scene and action-to-action. Action-to-action is the most used transition, and an example can be seen in *figure 3*. McCloud suggests action-to-action is the most used because this transition is the most comprehensible of the six kinds; it projects information in the most efficient and concise way.

Figure 3: Tintin is a typical example of a comic using action-to-action transitions (Hergé, 2013)

In a review of studies on health care communication and pictograms, five out of six studies determine that adult users understood more when they had text and pictures combined compared to text alone (Houts et al., 2006). It was further discovered that unless readers understand the correlation between the picture and the text, the picture will have no effect on comprehension, but will rather create confusion. Furthermore, simple drawings combined with text are the most efficient in creating comprehension, compared to detailed drawings and images (Moll, 1986; Readance et al., 1981). It has also been found that culture sensitive images have an impact on comprehension. In a survey of comprehension in medical pictograms in South Africa (Dowse et al., 2001), the 46 participants understood

more from the culture sensitive images, as shown in *figure 4*. Unfortunately, the article do not state why the local pictures are culture-sensitive. Therefore, creating comics using images from the readers' culture can have an impact on the readers' comprehension.

Figure 4: Pictures of the culture sensitive images from the experiment showing both culture sensitive (local) and non-culture sensitive (USP) images (Dowse et al., 2001)

According to Skogen (2017) children have problems interpreting abstract symbols. Such symbols should therefore be avoided in comics or tested to verify their readability in children.

4.4 Sequence coherence: verbally

The following guidelines have been suggested for making a comprehensible patient information leaflet: (a) in order to avoid confusion, information should be specific rather than general, (b) sentences and words should be simple and short, to make the information accessible for all readers, (c) sentences should not contain more than two ideas and avoid repetition and contradiction, (d) in order to achieve more personalized patient communication, the voice in the leaflet should be active ("you have to…") rather than passive ("the patient should…") and (e) when describing medical terminology a familiar language should be used (Tutty et al., 1999). Dyregrov (1996) suggests adults should regularly verify if the child has understood the information correctly. According to Reinfjell et al. (2007): "…children gradually process complicated information, and concrete

experiences can help them integrate more complicated information in a shorter perspective". In other words: children should be given information gradually, and it should correspond to the current stage in their treatment and their experiences. Although not having received much research, one study found that parents gradually informing siblings about the child's illness was a good strategy, allowing the siblings to gradually adapt to the new situation (Maree et al., 2016).

5. DISCUSSION

5.1 Medical comics using narrative communication abilities
It has been shown that medical comics can utilize narrative communication capabilities.
The most striking finding was the difference between adult and children's comics depicting illness. Both "Ghosts" and "What's up with Richard: Medikidz explain leukemia" deal with emotional issues such as hair loss and death, and manage to end on a positive note. Their focus is to comfort the readers. In contrast, "Mom's Cancer" do not always provide a happy ending when discussing emotional issues, such as the harsh reality of cancer treatment. Instead of providing comfort for the readers by making a happy ending, the author creates realistic situations the reader can relate to, thus creating "companionship". The social connections provided in the comics also differ: in the children's comics, the main characters providing social connections are children or adolescents, in the adult comic these characters are adults. This could be caused by the authors wishing for the readers to identify with the main characters, and therefore making them the same age as the reader. Although there are several ways to enforce character identification, age is a good way to do so, because age limits one's freedom and choices, which creates relatable situations and problems.

5.2 Character identification
Research collected in this article suggests an iconic and aesthetically pleasing character design can improve character identification and empathy in the reader. Furthermore, if the characters' backgrounds are rooted in the intended readership's culture, the readers will have an easier time identifying with the character. In addition, having the character's display emotions clearly can enhance the empathy for the characters.

5.3 Sequence coherence: visually
To make the panels/images as comprehensible as possible, they should be drawn in a simple manner to avoid cognitive overload. This suggests characters, background and objects should be drawn in a plain manner, avoiding too many details. The panels should mostly use action-to-action transitions because they are determined to be the most efficient and concise way to tell a story. There must be a clear connection between text and pictures, if not the readers may feel confused. For comics specifically, this means speech bubbles should be clearly connected to the speaker. The images used in the comic must be culture sensitive to the readers' culture. Abstract symbols should be avoided, or tested by children to verify their readability beforehand.

5.4 Sequence coherence: verbally
To make the information comprehensible, the information should be: (a) specific ("medication should be taken at 12 am and 6 pm") rather than general ("medications should be taken twice a day"), (b) consisting of simple and short sentences and words, (c) consist of sentences containing no more than 2 ideas, avoiding repetition and contradiction, (d) voiced in an active way ("you should…") rather than passive ("the patient could…") and (e) told in a familiar language, especially when describing medical terminology ("you have a cold" rather than "you are suffering from viral rhinitis"). For children specifically, information should be given gradually to make it easier to process, and there should be a way for parents to verify whether the child has understood the information correctly. This could be done by asking the child directly ("can you repeat the information I gave to you?") or having them make a drawing ("can you make a drawing of one of the things we just talked about?").

5.5 Limitations of the study
Although this article has argued for the use of comics for educational use, there is insufficient

data to support this argument, however most existing data supports the use of comics for educational purposes (Caldwell, 2012). Another concern for this article regards subjectivity. In this article, it is argued that characters designs should be aesthetically pleasing and culture sensitive. These terms are very subjective. The author therefore suggested to verify these designs using prototypes or surveys with the target group. Another concern in this article is the literature used in the article review. There is a lack of articles regarding comics, therefore different fields had to be consulted. The author deemed the consulted articles to be applicable to comics, but there is no external data to support this claim. For instance, one of the main articles (Houts et al., 2006) used to examine how comics visually can create comprehension, are focused on pictograms, not comics. In this case, the author deemed pictograms and comics to be similar enough to apply data based on pictograms to comics. Most of the literature used in the review and the content analysis are produced in the U.S. It is hard to determine whether this has significant impact on the results or not. American and European comics are deemed to be very similar in structure, meanwhile Eastern comics use more panel transitions and their stories tend to be more slow-paced and less goal oriented compared to western (McCloud, 1994). In future research, sources and comics outside the U.S. should also be consulted. There is also a lack in studies of comics using children as the target group. The author only found one study involving both children and comics, in which teachers were asked about the benefit of using comics to teach children subjects at school (Hutchinson, 1949). However, this study is over 50 years old, making it too old to be applicable to this article. Another limitation of the study is the use of narrative communication in comics, a theme which seems to not have been researched before. Narratives in comics have been studied, but not the theories of narrative communication in relation to comics. This means there are no data to support the use of narrative communication in comics. Also, in the two main articles concerning narrative communication in this article (Kreuter et al., 2007 and Hineyard et al., 2007), none mentions using comics as a medium, meaning the narrative communication theories applied to comics in this article, may not be applicable.

5.6 Future research
Although this article assumes children would benefit from being informed of their illness, there are cases where information should be withheld from children, which has not been researched in this article. Studying different situations and determining the appropriate age to inform children of certain vulnerable aspects of their illness (for instance percentage of survival) would be beneficial for future work in medical comics for children. As mentioned previously in the article, narrative communication can be a persuasive form of information. The question is: when should information be communicated in a persuasive way rather than objective? Is it morally justified to present information, even if it is in the best interest of the reader, in a persuasive way, or should information be presented objectively, focusing on factual evidence? These are questions worth considering and exploring. Another interesting topic of research is the possibility of improving communication and understanding between the patient and their family by making them read comics presenting different points of perspective, for instance the perspective of the patient and of caregiver. This could potentially help them understand the troubles of the other party. Lastly, comics are a stigmatized for being light hearted, juvenile and simplistic (McNicol, 2017; Green et al., 2010; Caldwell, 2012), therefore adults may assume comics is not the right medium to use to convey important information regarding healthcare, and may not take the information seriously. Examining how to challenge this bias is crucial in making medical comics a source of healthcare information.

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