Quantitative and Qualitative Content Analysis of Breast Cancer, Heart Disease, and Stroke Media Messages from Local Canadian Media

by

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Abstract

This study examined media coverage of breast cancer (N=145) and heart disease and stroke (N=39) news articles, videos, advertisements, and images in a local Canadian context through quantitative and thematic content analyses. Statistical analysis (Cramer's V) revealed significant differences in placement (0.415, $p < 0.01$), survivors as source of information (0.204, $p < 0.01$), health agency (0.319, $p < 0.001$), human interest stories (0.183, $p < 0.05$), research study (0.177, $p < 0.05$), risk statistics (0.324, $p < 0.001$), preventative behaviours (0.347, $p < 0.001$), and tone (0.647, $p < 0.001$). Themes for breast cancer revealed a 'typical' breast cancer survivor and that 'good' citizens and businesses should help the cause. Themes for heart disease and stroke revealed individual responsibility and how fundraising reinforces femininity and privilege. Findings help reveal how these diseases are framed in local Canadian media. These frames may impact an individual's understanding of the disease.

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Table of Contents

List of Tables

List of Appendices

Introduction

The media is a popular source for health information (Martinson & Hindman, 2005; Van Slooten, Friedman, & Tanner, 2013). It is important therefore to examine what health stories are published and the health information discussed. The media has the potential to affect individuals' beliefs and understandings about health and illness which in turn can affect risk perception and health behaviours (Lyons, 2000). Health information presented in the media can have implications for how health and illness are understood by the individual since news stories and advertisements are constructed and presented in certain ways. Media institutions that disseminate news stories have the ability to choose which health stories are discussed, the content of the story, the placement or order in the broadcast or newspaper, and the individuals that are interviewed or photographed. It is important to study health content in the media because the media have been implicated in overestimating some health risks while down-playing others (Berry, Wharf-Higgins, & Naylor, 2007). This can potentially affect one's perception of risk for certain diseases.

Cardiovascular disease (heart disease and stroke) is the leading cause of death for Canadian women (Statistics Canada, 2012). Despite this statistic, only 43 percent of female college students identified heart disease as the leading cause of death in women in a recent study (Anderson, Silliman, & Schneider, 2013). Conversely, breast cancer was thought to be the greatest health concern facing women (Anderson et al., 2013). Further, national studies found that African American and Hispanic women were less aware of heart disease as the leading

cause of death than Caucasian women (Christian, Rosamond, White & Mosca, 2007; Mochari-Greenberger, Mills, Simpson & Mosca, 2010; Mosca, Mochari-Greenberger, Dolor, Newby, & Robb, 2010). Coverage of heart disease and breast cancer therefore is pertinent to examine in the media because of the apparent misperception of risk for the diseases held by most women.

Compared to breast cancer, heart disease and stroke receive far less media attention. Research has also uncovered mixed results in regards to who is framed as 'at risk' for heart disease. Some research has found that men are most at risk for heart disease, while other research, that specifically examined women's magazines, found women most at risk (Savoie, Kazanjian, & Brunger, 1999; Barbett, 2006; Curry & O'Brien, 2006; Clarke, van Amerom, & Binns, 2007; Turner, Vader, & Walters, 2008; Edy, 2010). As well, most research examining heart disease stories in the media have focused solely on women's magazines (Savoie et al., 1999; Barbett, 2006; Turner et al., 2008; Edy, 2010). Further, only one known study examined the accompanying images of heart disease and stroke news articles and advertisements (Smith, 2007). Images can convey information about who is at risk in terms of age, gender, and ethnicity. Images are important to examine if they are representative of disease risk. Some ethnicities are at a greater risk of heart disease and stroke than the general population such as First Nations, African-Canadian, and South Asian individuals (Heart and Stroke Foundation, 2014a). Research thus far has found that these minority groups are virtually absent in health stories discussing heart disease and stroke (Hoffman-Goetz, Shannon, & Clarke, 2003; Edy, 2010). Further, no known studies have examined online news

articles on heart disease and stroke or breast cancer. This is an important area of future exploration since it has been found that women are increasingly seeking breast cancer information online (Satterlund, McCaul, & Sundgren, 2003).

The media plays a key role in disseminating health promotional information. Increased coverage of health promotion campaigns have been correlated with increased awareness and visibility of the disease. Anderson et al. (2013) found that a significantly greater number of female college students familiar with the *Red Dress* symbol identified heart disease as the leading cause of death of women. Only one known research study has examined and compared American media coverage of heart disease and the *Red Dress* campaign and breast cancer and the *Pink Ribbon* campaign (Dunlop, 2003). Further, despite the fact that the *Red Dress* campaign debuted in Canada in 2008, no studies to the researcher's knowledge have compared the *Pink Ribbon* and *Red Dress* campaigns in Canadian media.

Breast Cancer and the *Pink Ribbon* campaign

According to the Canadian Cancer Society (2013), breast cancer is the second leading cause of death from cancer in women. It is estimated that in 2013, five thousand women will die from breast cancer in Canada (Canadian Cancer Society, 2013). Some women are more at risk for breast cancer than others however (Canadian Cancer Society, 2013). An important risk factor for breast cancer is age as breast cancer mostly occurs in women between the ages of 50 and 69 (Canadian Cancer Society, 2013). Other risk factors include: previous

diagnosis of breast cancer, family history, dense breasts, Ashkenazi Jewish ancestry, BRCA gene mutations, rare genetic conditions, reproductive history, exposure to ionizing radiation, excessive alcohol consumption, and being obese (Canadian Cancer Society, 2013). According to the American Cancer Society (2013), the incidence of breast cancer is slightly higher in Caucasian women however the mortality rate is higher for African American women.

The month of October is nationally recognized as Breast Cancer Awareness month in Canada. The rationale is to increase awareness about breast cancer and to fundraise for breast cancer charities or research. Breast Cancer Awareness month started in the United States in 1985 and has raised over a hundred million dollars during the months of October since its inception (Sellman, 2004). The breast cancer movement is thus highly successful in terms of fundraising. The movement is also politically recognized, resulting in considerable federal funding (King, 2006). One of the largest breast cancer charities in Canada is the Canadian Breast Cancer Foundation which organizes the *Run for Cure* races that take place annually across Canada in many cities. In 2013, in Edmonton Alberta alone, the Edmonton *Run for the Cure* raised over 1.42 million dollars with ten thousand participants (Salz, 2013).

According to Harvey and Strahilevitz (2009), the pink ribbon [Appendix A] is one of the most widely recognized symbols in the world. The Susan J. Koman Breast Cancer Foundation, the largest breast cancer organization in the United States, was the first organization to create and distribute pink ribbons (King, 2006). Soon after, *Self* magazine and the cosmetics company Estée Lauder

partnered to create a pink ribbon to be distributed at cosmetic counters around the United States (King, 2006). The color pink, specifically a pink ribbon, has come to represent the breast cancer movement and is seen as a symbol for finding a cure. The pink ribbon also symbolizes women diagnosed with breast cancer who are frequently identified as a 'sisterhood' of wives, mothers, aunts, and grandmothers (Harvey & Strahilevitz, 2009).

Since its creation, the pink ribbon started appearing on a range of consumer products like vacuum cleaners, sneakers, clothing, hair products, kitchen supplies, and chocolates from prominent companies like KFC, Ford Motor Company, BMW, Kellogg's, Avon, MasterCard, and Reebok to name a few (King, 2006). The Canadian Breast Cancer Foundation alone has 56 regional and national sponsors for the *Run for the Cure* events. King (2006) observes that breast cancer remains one of the favorite charities for corporations to engage in cause-related marketing. This type of marketing allows companies to associate themselves with a benevolent cause as a means to build their brand, increase profit, and sustain loyal customers while simultaneously promoting the pink ribbon image and thus breast cancer (King, 2006; Harvey & Strahilevitz, 2009). Successful and profitable partnerships with corporate sponsors combined with political backing and public support have enabled the *Pink Ribbon* campaign to dominate the societal landscape.

Some scholarly research has examined the breast cancer movement and the *Pink Ribbon* campaigns, mostly from a social constructivist perspective. King (2006) and Sulik (2010) found breast cancer fundraising was popular because it

was linked with cause-related marketing that branded the disease as feminine and sexy. Lubitow and Davis, (2011) found consumers fail to question pink ribbon products because of their link to a benevolent cause.

Taylor and Knibb (2013) examined how individuals react to marketing images in cancer-related advertising. They found that individuals were significantly more likely to donate to an advertisement for breast cancer (Taylor & Knibb, 2013). As well, the breast cancer advertisements garnered a greater emotional response compared to the other advertisements (Taylor & Knibb, 2013). Some scholarly articles have also critically examined the *Pink Ribbon* campaign in terms of history, politics, and corporate use (Wagner, 2005; Elliott, 2007; King, 2010; Lubitow, & Davis, 2011). Wagner (2005) examined the origins of ribbon use and critically compared it to the contemporary use of the pink ribbon as an international symbol for social awareness. Elliott (2007) argues that the color pink used in the breast cancer awareness movement has been made to signify corporate products and a certain ideology about women.

When looking at media items, only one known study coded the prominence of colour in images of cancer advertisements (Haines, Bottorff, McKeown, Ptolemy, Carey, & Sullivan, 2010). They found that the colour pink was prominent in breast cancer advertisements (Haines, et al., 2010). Regehr (2012) examined Pink Ribbon Pin Up calendars in which all of the models were women living with or had been diagnosed with breast cancer. The Pink Ribbon Pin Up calendars allowed the models to express themselves and re negotiate their post-cancer body or 'new' body (Regehr, 2012).

Heart Disease and Stroke and the *Red Dress* Campaign

Cardiovascular disease (heart disease and stroke) is the leading cause of death for Canadian women and men (Statistics Canada, 2012). The risk factors for heart disease increase with age (post menopausal women are at a greater risk) and 89.7% of strokes occur in individuals over the age of 65 (Heart and Stroke Foundation, 2014a; Public Health Agency of Canada, 2011). Other risk factors include: Prior stroke or heart attack, family history, high blood pressure and cholesterol, diabetes, being overweight, excessive alcohol consumption, physical inactivity, smoking, and stress (Heart and Stroke Foundation, 2014b). As well, First Nations people, African Canadian, and South Asian individuals are at a greater risk of heart disease compared to the general population due to socio-economic status (access to resources and knowledge gap), and culture differences (Liu, So, Mohan, Khan, King, & Quan, 2010; Moe & Tu, 2010). The knowledge gap refers to the finding that information disseminated through society is more likely to benefit higher socio-economic groups (Tichenor, Donohue, & Olien, 1970).

The month of February in Canada is nationally recognized as Heart and Stroke month to increase awareness of the prevalence of heart disease and stroke. Along with this initiative, the Canadian Heart and Stroke Foundation launched *The Heart Truth* campaign on February 4, 2008 to increase awareness about heart disease and stroke for women (Heart and Stroke Foundation, 2011a). The campaign's target audience is women of different ethnicities between the ages of 40 and 60 (Wayman, Long, Ruoff, Temple, & Taubenheim, 2011). The Red Dress

[Appendix B] is the official symbol of *The Heart Truth* campaign. The *Red Dress* symbol is used in *The Heart Truth* campaign to dispel the belief that heart disease is a man's disease and to convey a sense of urgency and personal risk for women (Wayman et al., 2011). Ultimately, the goal of the *Red Dress* campaign is to change behaviours to lower disease rates. According to the Heart and Stroke Foundation, the *Red Dress* symbol is "feminine, strong, and confident...[it] represents women's courage and passion and their power for change as they share the truth with others and raise awareness about the importance of heart health" (Heart and Stroke Foundation, 2011b).

One of the top awareness initiatives by *The Heart Truth* campaign is *The Heart Truth Fashion Show* in which top Canadian fashion designers create original red dresses for an annual fashion show in March (Heart and Stroke Foundation, 2011b). The fashion show features Canadian celebrities who model red dresses and Models of Health who are older women that exemplify healthy living. The *Red Dress* campaign has grown dramatically since its inception in the United States, and now has more than one hundred corporate partners (Wayman et al., 2011).

Some American studies have examined the impact of the *Red Dress* campaign on women's perceptions of risk. Mosca et. al. (2006) found that only 55 percent of the women surveyed correctly identified heart disease as the leading cause of death for women. As well, only 23 percent of the respondents identified that they have seen, read, or heard information about the *Red Dress* symbol (Mosca et. al., 2006). Similarly, Anderson et al., (2013) found that only 33

percent of the respondents had seen, heard, or read information about the *Red Dress* symbol. A large proportion of participants who were familiar with the *Red Dress* symbol were Caucasian and older (Anderson et al., 2013). It is important to note that a significantly greater proportion of the women who were familiar with the *Red Dress* symbol identified heart disease as the greatest problem facing women (Anderson et al., 2013). In another study, 46 percent of the respondents identified heart disease as the leading cause of death of women, however, African-American and Hispanic women had lower awareness (Mosca, Ferris, Fabunmi, & Robertson, 2004). Tentative results from a study have correlated the *Red Dress* campaign with lower rates of acute myocardial infarction, however heart disease is still the leading cause of death for women (Cohen, et al., 2011).

In contrast, to the previously mentioned studies, 90 percent of the survey respondents in North Dakota recognized that heart disease is the leading cause of death for women in the United States (Mozumdar & Liguori, 2010). Further, nearly all of the participants correctly recognized the 'Go Red' *Red Dress* symbol and knew that it related to women and heart disease (Mozumdar & Liguori, 2010).

Only one known study (Master's Thesis) examined heart disease messages and the *Heart Truth* and the *Red Dress* campaigns in the America media (Dunlop, 2003). Dunlop (2003) found that there were six and a half times more breast cancer items than heart disease items. Of the heart disease articles, almost 30 percent mentioned a public relations campaign such as the *Heart Truth* or *Go Red for Women* campaign. News articles about breast cancer were not significantly more likely to reference public relations campaigns than heart disease news

articles. This is an important finding because although there were more breast cancer media items, their reference to promotional campaigns was not statistically significant compared to the heart disease media items. It is important to reference promotional campaigns because they are meant to increase one's knowledge about a disease including preventative behaviours and risk statistics.

Ownership of the *Pink Ribbon* and *Red Dress* symbol

As mentioned previously, the *Red Dress* symbol is the exclusive symbol of the *Heart Truth* Campaign and is owned and trademarked by the Heart and Stroke Foundation of Canada (Wayman et al., 2011). Fundraising and awareness initiatives directly linked to the *Red Dress* symbol are owned and controlled by the Heart and Stroke Foundation. Conversely, the Canadian Breast Cancer Foundation promotes the pink ribbon symbol yet no corporation or organization is licensed to have exclusive use of the pink ribbon symbol and imagery (Harvey & Strahilevitz, 2009). Therefore, fundraising efforts using the pink ribbon symbol are not exclusively linked to the Canadian Breast Cancer Foundation. Because there is no regulation on the pink ribbon symbol and imagery, it is open to misuse (Harvey & Strahilevitz, 2009). The public are asked to give money or buy 'pink' products with the proposed idea that their money will directly save lives and 'cure' breast cancer without the full knowledge of where their donation is going (Sulik, 2010).

Canadian Consumption of Media

Canadians consume various forms of media such as television, radio, newspapers, and the internet. According to a 2012/2013 report conducted by the Canadian Media Director's Council, Canadian adults spend on average almost 30 hours per week viewing television. The Canadian Television Network (CTV), the Canadian Broadcasting Corporation (CBC), and Global have 25 percent, 12 percent, and 17 percent of the national viewership across available Canadian channels respectively (Canadian Media Director's Council, 2013). In addition, 33 percent of English speaking Canadians watch television online (Canadian Media Director's Council, 2013).

According to a survey done by the Print Measurement Bureau (2013), almost 80 percent (24, 221 survey respondents) of Canadians listen to the radio at least once a week or more. Regarding newspaper readership, 77 percent of people in Edmonton read a newspaper at least once a week (Newspaper Audience Databank Inc., 2012). News, including local, provincial, national, and world is the top read section of a newspaper for Canadians (Newspaper Audience Databank Inc., 2012). Individuals, who are 50 years old or older, have the highest readership of print newspapers (Newspaper Audience Databank Inc., 2012). In terms of internet access, 83.8% (25, 260 survey respondents) of Canadians have personally accessed the internet in the past 12 months, with 60.3 percent of those people accessing the internet daily (Print Measurement Bureau, 2013). Based on these figures, the media remains a popular source of information for Canadians.

Health Information and the Media

The media is a popular source for individuals seeking health information (Martinson & Hindman, 2005; Van Slooten et al., 2013). In a study by Covello and Peters (2002), 80 percent of the women surveyed were found to rely on the general media for health information, compared to 25 percent who sought health information from doctors or nurses. Women seeking information on breast cancer have also been found to use media sources, for instance, in a study of the beliefs and expectations of women under the age of 50 regarding screening mammography, most of the women's' information came from mass media sources (Nekhlyudov, Ross-Degnan, & Fletcher, 2003). It is important therefore to examine health messages in the media to see what messages are disseminated, what images are used, and what products or events are endorsed and by whom.

Media institutions are responsible for choosing which health topics are presented to the public and further, how these health stories are framed (Durrant, Wakefield, McLeoud, Clegg-Smith, & Chapman, 2003). Thus, the media has the potential to influence which health issues are discussed and can therefore heighten or minimize their visibility as a health risk. For example, Berry et al. (2007) found that in 2003, SARS and West Nile Virus were over represented in the media compared to more prevalent diseases such as obesity or heart disease. Increasing the coverage of a certain health topic in the media can have implications for people's perceptions of their own health. It has been well documented that breast cancer has received greater coverage in the media compared with other cancers (Greenberg, Freimuth, & Bratic, 1979; Sarna,1995; Gerlach, Marino, Weed, &

Hoffman-Goetz, 1997; Seale, 2001; Seale, 2002; Hoffman-Goetz, & Friedman, 2005; Cohen, Caburnay, Luke, Rodgers, Cameron, & Kreuter, 2008; Slater, Long, Bettinghaus, & Reineke, 2008; Tobler, Wilson, & Napolitano, 2009; Jensen, Moriarty, Hurley, & Stryker, 2010). Breast cancer was thought to be the greatest health concern facing women (Anderson et al., 2013). The dissemination of health stories by the media is an important venue to examine. Therefore, this research will examine breast cancer and heart disease and stroke messages in local Canadian media to gain a better understanding of the messages and what they communicate.

Theoretical Frameworks

Theories can be used in different ways in content analysis; they can be used to guide research questions or they can be used post-hoc during the data interpretation phase. The health belief model and agenda setting theory will be used post-hoc to help with data interpretation in this study by exploring significance, context, and potential implications. These theories guide the discussion for examining health messages in the media because the messages about breast cancer and heart disease are consumed by thousands of viewers/readers and can impact their understanding of the disease. The benefit of using theoretical frameworks post-data analysis is that for the qualitative data, themes do not have to fit into a pre-existing coding framework driven by the researcher's theoretical interests (Braun & Clarke, 2006). In this inductive approach, "findings emerge out of the data through the analyst's interactions with the data" (Patton, 2002, p. 453). Conversely, in a deductive analysis, "the data are

analyzed according to an existing framework" (Patton, 2002, p. 453). The strength of an inductive approach is that it uses the raw data as a starting point for theme identification (Boyatzis, 1998). An inductive analysis is also useful when investigating a new area, such as the topic for this study (Hayes, 2000; Patton, 2002). It is the first known study to examine local Canadian media in regards to heart disease, stroke and breast cancer messages. Past research examining breast cancer and heart disease in the media used an inductive approach which makes this a compatible framework (Clarke, 2004; Jones, 2004; Clarke et al., 2007; Haines et al., 2010). An inductive approach allows the findings to emerge from the data and the implications are examined using theoretical frameworks.

According to agenda setting theory, there is a correlation between the amount of media coverage of an issue and the importance of the issue to the public (McCombs & Shaw, 1972). In this view, how we have come to understand an issue in the media is constructed through word choice, image selection, and the repetition of ideas or words. By providing, repeating, and reinforcing words and images that reference some ideas but not others, some ideas are made more prominent (Entman, 1991). In a sense, the media may not explicitly tell us what to think, but they present us with issues to think about (McCombs & Shaw, 1972). Historically, agenda setting theory began with the examination of political coverage in the mass media. In their examination of the 1968 Presidential election, McCombs and Shaw (1972) found that when the media put a high degree of importance on an issue through in-depth coverage, the public rated those same issues as important.

Agenda setting theory has also been applied to health coverage in the media. Using agenda setting theory, Jones, Denham, and Springston (2006) found that women who had read breast cancer articles in news magazines were significantly more likely to undergo annual mammograms. Further, studies examining health coverage in the media using a content analysis approach have also used agenda setting theory making this a compatible framework for the chosen method for this study (Jones, 2004; Dreser, Vázquez-Vélez, Trevino, & Wirtz, 2012; Vandenberg, Price, Friedman, Marchman, & Anderson, 2012; Jung, 2013; McKeever, 2013).

The health belief model theorizes that an individual will initiate and adhere to a health behaviour depending on their perceived susceptibility and severity of the disease (threat perception) and the proposed benefits and barriers to change (behaviour evaluation) (Abraham & Sheeran, 2005). However, individuals must be ready to undergo the health behaviour change (Abraham & Sheeran, 2005). This readiness is further influenced by the individual's cues to action (social influences and health promotion campaigns), demographic variables (age, gender, social class), and psychological characteristics (personality and peer group pressure) (Abraham & Sheeran, 2005).

The constructs of perceived susceptibility and severity of the disease are particular relevant to this study since the media can communicate messages about risk and severity. Past research has found that the media has been found to overestimate some health risks while down-playing others (Berry et al., 2007). Thus, if breast cancer receives greater coverage than heart disease and stroke,

women may perceive themselves as more at risk for breast cancer. In terms of perceived susceptibility, the lack of heart disease and stroke messages may give women a false sense that they are not highly susceptible to heart disease.

The constructs of perceived benefits and barriers to change are also relevant to this study (Abraham & Sheeran, 2005). Depending on how the media frames the benefits and barriers of health behaviour changes for breast cancer and heart disease and stroke can potentially influence women's perceptions of risk. For instance, highlighting the barriers more than the benefits of health behaviour change for heart disease may negatively impact women's actions for health behaviour change. Lastly, the construct of cues to action is important for this study because, although cues to action can encompass many triggers, it can include health promotion campaigns (Abraham & Sheeran, 2005). This is important because this study seeks to examine the prevalence of the *Pink Ribbon* and *Red Dress* in the media. The greater the coverage of the campaign in the media may influence women's awareness about the disease.

Content Analysis

Content analysis can include both qualitative and quantitative data. Both types of content analysis acknowledge that all texts are produced and read by others (Krippendorff, 2013). This study will use methods to triangulate the data to examine whether both methods led to similar conclusions. A quantitative content analysis is beneficial for examining mass print media items (Bryman, 2008). It is a systematic way to categorize and organize data from the mass media to find

significant trends by the use of counts (Bryman, 2008, pg. 275). It can also reveal omissions or disparities in media coverage by revealing which health topics are rarely discussed (Bryman, 2008, pg. 276). A quantitative content analysis is an effective way to quantify trends in breast cancer and heart disease coverage and can be used for text, audio, and images (Riffe, Lacy, & Fico, 2005). Many studies that have examined breast cancer or heart disease media coverage have used a quantitative content analysis approach (Molitor, 1993; Ludwick, Rushing, & Biordi, 1994; Henderson & Kitzinger, 1999; Kline & Mattson, 2000; Andsager & Powers, 2001; Cho, 2006; Clarke & Binns, 2006; Atkin, Smith, McFeters, & Ferguson, 2008; Turner et al., 2008; Jensen, Moriarty, Hurley, & Stryker, 2010; Walsh-Childers, Edwards, & Grobmyer, 2011; McWhirter, Hoffmann-Goetz, & Clarke, 2012).

The qualitative content analysis employed in this study will be referred to as a thematic analysis (Braun & Clarke, 2006). A thematic analysis is "a method for identifying, analysing, and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 6). A theme is a categorical concept meant to capture the dominant or important messages of the data set in relation to the research question (Patton, 2002; Braun & Clarke, 2006). In the case of this study, the identified themes served to accurately reflect the data (Braun & Clarke, 2006). A thematic analysis is beneficial therefore to capture repetitive and emphasized themes, identify metaphors, and also identify what stories and images are absent (Gamson, 1989; Ryan & Bernard, 2003; Bryman, 2008).

Purpose

The purpose of this study was to examine media coverage of breast cancer and heart disease and stroke news articles, videos, advertisements, and images in a local Canadian context through quantitative and thematic content analyses. A quantitative content analysis provided numerical counts of the data and the ability to examine for differences between heart disease and breast cancer media. A qualitative thematic analysis revealed more subtle aspects found to communicate specific messages as part of larger themes. The data will be triangulated to examine whether both methods led to similar conclusions. Specific attention will be given to media items supporting the *Pink Ribbon* campaign and the *Red Dress* campaign. To date, no study has examined nor compared the *Pink Ribbon* and *Red Dress* campaigns in local Canadian media.

Methods

Data Sources

This study examined media items such as news articles (both print and online), videos, images, and advertisements (both print and online) from local (Edmonton) Canadian media sources. The media sources were the Edmonton Journal newspaper, Edmonton Journal website, Edmonton Sun newspaper, Edmonton Sun website, Metro newspaper, the Canadian Broadcasting Corporation (CBC) Edmonton website, the Canadian Television Network Edmonton website (CTV), Global Edmonton website, 91.7 The Bounce radio website, 104.9 Virgin radio website, and the Canadian Breast Cancer Foundation Edmonton chapter website.

An article that originated from CanWest media for example, was also included in the analysis if it was available from one of the above sources. Electronic and print news sources (i.e., Edmonton Sun newspaper and Edmonton Sun website) were both included because certain stories, videos, images, or advertisements were found on the website but not in the newspaper and vice versa. Only unique media items were collected. Duplicate media items, for example the exact same news story in the Edmonton Sun Newspaper and the Edmonton Sun website, were only collected once. The Edmonton Journal and the Edmonton Sun were chosen for their high readership and distribution compared to other local newspapers. The radio station 91.7 The Bounce was included because it was a major sponsor of the Flare World Runway Tour (an event linked to the Heart and Stroke Foundation). Similarly, the radio station 104.9 Virgin Radio was a major sponsor of *Run for the Cure*. Advertisements were included in the study because, although they are not written by a journalist, they still communicate messages. Such advertisements can be used to fundraise for breast cancer and heart and stroke charities and/or promote businesses affiliated with the campaigns.

The media sources were checked daily by two research assistants for any articles, images, advertisements, and videos predominately on breast cancer or heart disease and stroke. To be included in the analysis, breast cancer or heart disease had to be the main subject in the news article, video, or image. Advertisements had to be predominately on breast cancer or heart disease and stroke as well.

The media sources were checked manually. Each media item included in the study was captured and saved by a screen shot. As well, they were printed (if captured online) and were filed and stored. In the case of newspapers, a hard copy was bought and filed. Videos were transcribed and if possible, were found on YouTube and saved using a YouTube converter program. Those videos not available on YouTube were recorded directed from the website instead and then saved.

Data Collection

The first round of data collection commenced on September 15, 2012 and was originally scheduled until October 31, 2012. However, a weeklong feature on breast cancer in the Edmonton Journal newspaper and website commenced on November 1, 2012 resulting in data collection being extended to November 8, 2012. The researchers felt that this was an important feature to include as it was a heavily advertised feature with prominent full page articles. For this reason, the data collection period was extended to November 8, 2012. During this extended time period (November 1 to November 8), data collection continued as usual, so that heart disease and stroke media items were examined in addition to breast cancer items. All news sources continued to be checked during this extended period.

The second round of data collected began on January 15, 2013 and was originally scheduled until February 28, 2013. However, it was extended to March 27, 2013 due to a Heart and Stroke fundraising event happening on March 21,

2013 (*The Heart Truth* Fashion show). Even though *The Heart Truth* Fashion show took place beyond the original completion date of data collection (February 28, 2013), this event was understood as a significant event for the Heart and Stroke Foundation. Therefore, media coverage leading up to the event and six days after the event were captured. During this time period, breast cancer media items were also collected. The same news sources examined in round one of data collection were also examined in round two and were checked daily by two research assistants.

Procedure

For each media item, a comprehensive coding sheet was completed to capture as much relevant information as possible [Appendix C] in the quantitative content analysis. For the thematic analysis, media items were read and re-read in-depth for emerging themes. The comprehensive coding sheet included:

1. Title of the Story
2. Date
3. Media Source
4. Story Placement
5. Story Author
6. If it was unique to Edmonton (yes/no)
7. Story Length (number line or minutes)
8. If there was an image accompanying the story (yes/no)
    a. Describe the image

b. Demographic information of person (gender/ethnicity/age)

c. Medical images (yes/no)

d. Prominence of red or pink

e. Size of the image

9. Other relevant information
10. Source of the information (e.g. Doctor, researcher, survivor)
11. If a health Agency was Mentioned
12. Human Interest Story
    a. Describe person featured
13. If a research study was cited
    a. Locate original article
14. If at risk statistics are given

    a. What are the source(s) of statistics

15. If preventative behaviours were mentioned

    a. Describe the behaviour

16. If online, cite other suggested links
17. Summary of the media item
18. Overall tone of the media item

An a priori coding scheme was developed using findings from past research in the area of health messaging for justification of the coding sheet. Most of the variables in the coding sheet were chosen to simply describe the data including the title, date, media source, placement, images, and story length. Since

this research study examined local Canadian media, it was important to record whether the story was unique to Edmonton (for example, coverage of the Edmonton *Run for the Cure* event) as opposed to a more national or international event. A local event would encompass more local community support and engagement (e. g., by volunteering, donating, and/or participating in events).

Accompanying images and videos were examined because, just like text, images can communicate meaning (Messaris & Abraham, 2001). News images may be seen even when the accompanying news article is not read, thus images can help readers interpret news stories (Messaris & Abraham, 2001). Visual content analysis studies have found that news images can communicate stereotypes and racial, gender, and age biases (Entman, 1992; Rodgers & Thorson, 2000; Heuer et al., 2011; Hussin, Frazier, & Thompson, 2011; Yoo & Kim, 2012; Puhl, Peterson, DePierre, & Luedicke, 2013). Images in advertisements were also examined because, according to Pieters and Wedel (2004) who used an eye tracking methodology for their study, pictures, regardless of size, drew a significant amount of baseline attention to an advertisement. Further, images were examined because, to the authors' knowledge, no research has examined images accompanying heart and stroke news articles.

The source of the information was included in the coding sheet because source credibility, such as expertise and competence, has been found to influence the strength of an argument and its' persuasiveness (Petty, Priester, & Brinol, 2002). Specifically, highly credible sources, such as experts, are more persuasive than less credible sources (Petty et al., 2002). This is important to examine in

health stories where a doctor or researcher being interviewed reflects upon their credibility. Whether a health agency was mentioned was also examined because of source credibility.

Whether the media item contained a human interest story was also of importance. A human interest story brings a human face and/or emotional angle to a story (Semetko & Valkenburg, 2000). This type of story is usually presented in a narrative format that focus on a particular person and how they are affected by an event, issue, or problem (Semetko & Valkenburg, 2000; Steimel, 2010).There is evidence that human interest stories are more likely to be attended to than scientific or medical stories (Petty & Cacioppo, 1986). In a recent study that compared human interest frames with neutral frames, it was found that human interest frames increased perceived risk and stronger negative emotions (Otieno, Spada, & Renkl, 2013).

Risk statistics, such as death or probability statistics, were examined to see how often they were being cited and for which disease. This is important because the media have been implicated in overestimating some health risks while down-playing others (Berry et al., 2007). This can potentially affect ones' perception of risk for certain diseases. Further, preventative behaviours were examined because they can reveal how breast cancer and heart disease and stroke should be 'dealt' with (i.e. by the individual or at a governmental level). As well, preventative behaviours such as diet change and exercise have been found help to lower ones' risk of breast cancer and heart disease (Heart and Stroke Foundation, 2014b;

Canadian Breast Cancer Foundation, 2014). Thus, it is important to examine whether the media items mention this.

Tone, for the purpose of this study, was defined as "an attitude or sentiment expressed" (Canadian Oxford Dictionary, 2004). Tone was coded to capture the overall attitude of the media item in a concise way. It was necessary to capture the tone of a media item because it can affect a readers' lasting impression of the story. A summary of each media item, which consisted of two to five sentences, was recorded to help give a concise summary for the researcher to reference. The summary was not included in the quantitative content analysis and was only recorded to organize the data for the researcher.

Data Analysis

After the final data collection period each collected item was analyzed using both a quantitative content analysis and a qualitative thematic analysis. The one exception was the Canadian Breast Cancer Foundation Edmonton *Run for the Cure* website. The media items found on the site (N= 22) were only included in the qualitative analysis because no equivalent website existed for the Heart and Stroke Foundation. Thus, the content analysis results and comparisons would be affected by the addition of media items from the Canadian Breast Cancer Foundation Edmonton *Run for the Cure* website.

The comprehensive coding sheet for each media item was strictly used for the quantitative content analysis and input into SPSS 21.0. The heart disease and stroke and breast cancer counts were compared using the items from the coding

sheet to ultimately determine statistical significance. The qualitative thematic analysis consisted of an in-depth read of the media items for themes. A qualitative content analysis attempts to "identify core consistencies and meanings" within the data (Patton, 2002, p. 453). Core meanings were identified as themes for the data. These two approaches were triangulated together to interpret the data to generate numerical results (with statistical significance) and thematic results to ultimately tell a 'story' about the data.

Quantitative Analysis

A quantitative content analysis approach was used to quantify content from the comprehensive coding sheets [Appendix C] in a systematic and replicable manner (Bryman, 2008). A systematic manner means that the research design (e. g. the time frame for the study, what media material(s) will be the focus of the study, and what variables will be examined and measured) is determined in advance (Riffe et al., 2005). A descriptive quantitative content analysis is appropriate for this research study since, to date, no study has examined nor compared the *Pink Ribbon* and *Red Dress* campaigns in local Canadian media. Riffe et al. (2005) argue that a descriptive quantitative content analysis can be used to explore new research domains with previously unexplored messages or content. Inter-rater reliability of one-third of the data (random selection using SPSS 21.0) was coded by an external researcher not affiliated with the study. Cohen's kappa value was calculated for inter-rater reliability because of the categorical data and ranged from 0.73 to 1.00. In terms of strength of agreement, these values range from substantial to almost perfect (Landis & Koch, 1977).

The information that was collected in the comprehensive coding sheets was entered into IBM SPSS Statistics 21.0 and Cramer's V analyses were conducted to compare breast cancer, heart disease, and stroke messages in terms of media source, placement, if the content is unique to Edmonton, content of the image (ethnicity, age, medical image), size of image, source of the information, if a health agency is mentioned, human interest stories, research study cited, risk statistics, preventative behaviours, and tone. Because the data is categorical, Cramer's V statistic was chosen. An independent t-test was conducted to compare the average length of the story or video for breast cancer and heart and stroke items. Within each disease category, ethnicity, age, gender, and whether there was a prominence of red or pink in the image were examined and percentages were compared.

Qualitative Analysis

The qualitative thematic analysis followed the guidelines offered by Braun and Clarke (2006). The breast cancer media items and the heart disease and stroke media items were analyzed separately.

1. Each collected media item was read several times for immersion and read actively for patterns and meaning(s) (Braun & Clarke, 2006). Notes were made by the researcher about ideas and/or significant or interesting quotes or images.
2. Initial codes, which were the first level of analysis, were generated from the data by the researcher. Initial codes are words or phrases used to

simply describe the media item. For example, a newspaper article featuring a women diagnosed with breast cancer who expressed a positive desire to beat cancer was labeled as 'optimism for beating cancer' as a first level code. Each media item could be assigned more than one initial code (for example 'optimism for beating breast cancer' and 'importance of breast cancer awareness') (Braun & Clarke, 2006). An Excel spreadsheet was used to assign initial codes to each media item. From there, initial codes were totalled and percentages were calculated in a Word document table. In total, 65 initial codes were generated for the breast cancer media items and 27 initial codes for heart and stroke media items.

3. The next step in the analysis involved sorting the initial codes into second level themes (Braun & Clarke, 2006). Initial themes that had similar messages were grouped together. Each group was then assigned a second level theme that best captured the messages and language of the initial codes. For example, initial codes such as 'breast cancer survivor as heroic' and 'greater appreciation for life post breast cancer' were grouped together into a second level theme: 'Breast cancer as a new identity'. At this stage, initial codes that had very few counts (i.e., less than three) were also noted as it is important to examine not only the dominant messages but those messages that are not prioritized. However, due to the large volume of data, the most reoccurring initial themes were predominately focused. In total, seven second level themes were created for the breast cancer media items, and four second level themes for the heart and stroke items.

4. From there, the second level themes were grouped together to identify final over arching themes of the data that tell a unique 'story' about the data set (Braun & Clarke, 2006). Two final themes were generated for the breast cancer media items as well as two final level themes for the heart disease and stroke media items. Each final theme was described in a detailed analysis (in the results and discussion section) addressing (Braun & Clarke, 2006):
    a. What does this theme mean?
    b. What are the assumptions underpinning the theme?
    c. What are the implications of this theme?
    d. Why do people talk about this theme in this particular way as opposed to other ways?
    e. What is the overall story the different themes reveal about the topic?

Rigour is an important aspect of the data analysis process in qualitative research. According to Mays and Pope (2000) rigour is how one assesses the quality of the qualitative research. Rigour helps to ensure that the "method and data...can stand independently so that another trained researcher could analyze the same data in the same way and come to essentially the same conclusions" (Mays & Pope, 1995). A qualitative study cannot be assessed for validity because validity results in a "dichotomous outcome (i.e., valid vs. invalid)" derived from a statistical background (Onwuegbuzie & Leech, 2007). Therefore rigour is an important aspect of the data analysis process in qualitative research because it

helps guide the researcher "to produce a plausible and coherent explanation of the phenomenon under scrutiny" (Mays & Pope, 1995). To ensure rigour in this study, a random selection (using SPSS 21.0) of one-third of the media items were coded for qualitative inter-reliability by a senior PhD student. The themes were discussed in-depth between the two researchers to reach a consensus and slight refinements and changes were made to the themes. As well, triangulation was undertaken which is another method to help ensure rigour (Onwuegbuzie & Leech, 2007). These are not the only ways to address rigour for qualitative data however. Other ways to address rigour include a self-reflective approach by the researcher to consider what has be revealed and engaging with the data to search for alternative themes and rival explanations (Patton, 2002). As well, Onwuegbuzie and Leech (2007) discuss 24 strategies to enhance rigour including prolonged engagement, leaving an audit trail, member checking/information feedback, theoretical sampling, and checking the meaning of outliers. However, since this is a mixed methods study, a consensus approach towards inter-rater reliability was undertaken to be consistent with the quantitative analysis (Patton, 2002). It should be noted as well that there is ongoing discussion and controversy about rigour in qualitative research (Sandelowski, 1993).

In terms of theory, since the data analysis was conducted using an inductive approach, no theoretical frameworks were used to guide the analysis. However two theoretical frameworks, the health belief model and agenda setting theory, will be used during the discussion of the data.

Results

Quantitative Data

Altogether, 184 media items were collected across the two periods (Table 1). During the first data collection period, September 15, 2012 to November 8, 2012, 115 items were collected (n = 106 breast cancer items; n = 9 heart disease and stroke items). During the second period, January 15, 2013 to March 27, 2013, 69 items were collected (n = 39 breast cancer items; n = 30 heart and stroke items). Of the 145 total breast cancer media items, 103 were articles and 42 were advertisements. For the heart and stroke media items, 34 were articles and 5 were advertisements. Statistical analysis involved crosstabulations, Cramer's V.

Table 1

Descriptive Data for the Two Data Collection Periods by Disease

Data Collection Period	Breast Cancer media items		Heart Disease & Stroke media items	
	Article	**Advertisement**	**Article**	**Advertisement**
Fall, 2012	75 (70.7%)	31 (29.2%)	7 (77.8%)	2 (22.2%)
Winter, 2013	28 (71.8%)	11 (28.2%)	27 (90%)	3 (10%)

Media Source

The Edmonton Journal website (15.9%) and newspaper (15.2%) and the Edmonton Sun newspaper (15.9%) were the top three media sources for breast cancer items (Table 2). Similarly, for heart disease and stroke, the Edmonton sun website (18%) and newspaper (15.4%), the Edmonton Journal website (23.1%)

and newspaper (15.4%), and Global news (15.4%) represented the top three media sources. As shown in Table 2, no significant difference was found for media source. No heart disease and stroke media items were found on the CBC website or 104.9 Virgin Radio website.

Table 2

Frequencies and Cramer's V for Media Source by Disease

	Breast Cancer	**Heart Disease & Stroke**	**Cramer's V**
Media Source	N (%)	N (%)	0.235, $p = 0.33$
Edmonton Journal Newspaper	22 (15.2%)	6 (15.4%)	
Edmonton Journal Website	23 (15.9%)	9 (23.1%)	
Edmonton Sun Newspaper	23 (15.9%)	6 (15.4%)	
Edmonton Sun Website	12 (8.3%)	7 (18.0%)	
CTV Website	11 (7.6%)	3 (7.7%)	
CBC Website	7 (4.8%)	0	
Global Website	19 (13.1%)	6 (15.4%)	
Metro Newspaper	12 (8.3%)	0	
91.7 The Bounce Website	14 (9.7%)	2 (5.1%)	
104.9 Virgin Radio Website	2 (1.4%)	0	

Media Placement

A significant difference was found between the breast cancer items and heart disease and stroke items for placement (see Table 3). More breast cancer items were found on the front page (25.5%) and news sections (25.5%) compared to heart disease and stroke items (Table 3). As well, 12 breast cancer media items (8.3%) were found in the sport section while no heart disease and stroke items

were found there. Comparatively, more heart disease and stroke items were found in the Health and Lifestyle sections.

Table 3

Frequencies and Cramer's V for Media Placement by Disease

	Breast Cancer	**Heart Disease & Stroke**	**Cramer's V**
Placement	N (%)	N (%)	0.415, $p < 0.01$
Front Page	37 (25.5%)	6 (15.4%)	
News	37 (25.5%)	2 (5.1%)	
Sports	12 (8.3%)	0	
Health	16 (11.0%)	10 (25.6%)	
Lifestyle	15 (10.3%)	8 (20.5%)	
Videos	14 (9.7%)	5 (12.8%)	
Other sections *	14 (9.7%)	8 (20.5%)	

*****Other sections include: Classifieds, Entertainment, Opinion, Food, Finance, Events, Weather, and Driving

Unique to Edmonton

Just over half of the breast cancer media items (N= 78, 53.8%) were unique to Edmonton, meaning, they referenced events or fundraising endeavours that took place in Edmonton. Fifteen (38.5%) of the heart disease and stroke items were unique to Edmonton. In terms of unique media items to Edmonton, no significant difference was found, Cramer's V = 0.125, $p = 0.09$.

Story Length

Article length was measured by totalling the number of sentences in the article (excluding the headline). The average article length for breast cancer items was 36.9 lines while the average length for heart and stroke items was 24.3 lines. For video and audio clips, the average length was 2.85 minutes for breast cancer items and 2.35 minutes for heart and stroke items. No significant difference existed for lines, $t(141) = 1.12$, $p = 0.27$ or for minutes, $t(33) = 0.449$, $p = 0.66$.

Media Images and Videos

Of the one 145 media items on breast cancer, 105 of the items had accompanying images and 29 of the items were videos or audio clips (Table 4). Of the images, 73.3% were small (defined as less than half a page), 14.3% were medium (defined as half of the page), and 12.4% were large images (defined as taking up a whole page). Of the 39 heart and stroke media items, 26 of the items had accompanying images and six were videos. Of the images, 73.1% were small, 7.7% were medium, and 19.2% were large. As shown in Table 4, there was no significant difference in size of the images.

Of the individuals in the breast cancer images and videos (excluding the news anchor[s]), 89.0% were Caucasian while 11.0% were other (African Canadian, n=7; Asian, n=6; East Indian, n=7 and Middle Eastern, n=1). Conversely, of the individuals in the heart disease and stroke images and videos (excluding the news anchor[s]), 96.2% were Caucasian while 3.9% were other (East Indian and Hispanic). There was no significant difference when comparing

ethnicity between breast cancer items and heart and stroke items, as seen in Table 4.

The majority of the individuals in the breast cancer related images and video were under the age of 50 (78.0%) compared with 51 years of age and older (20.0%). Similarly, 82.7% of the individuals in heart disease and stroke images and videos were under the age of 50 while 17.3% of the individuals were over the age of 50 years. When comparing ages between breast cancer items and heart and stroke items, there was no significant difference, as seen in Table 4.

In the breast cancer images and videos, 65.5% of the individuals were female while 34.6% were male. In the heart disease and stroke images and videos, 86.5% of the individuals were female while 13.5% were male. Between the two diseases, there was no significant difference found for males (Cramer's V = 0.152, $p = 0.75$). However, a significant difference was found for females (Cramer's V = 0.366, $p = 0.04$) with more females appearing in the heart disease and stroke items.

Table 4

Frequencies and Cramer's V for Media Images and Videos by Disease

	Breast Cancer	**Heart Disease & Stroke**	**Cramer's V**
Images and Videos	N (%)	N (%)	0.145, p = 1.5
Total Number of Images	105 (72.4%)	26 (66.7%)	
Total Number of Videos	29 (20.0%)	6 (15.4%)	
Image Size			0.104, p = 0.49
Small	77 (73.3%)	19 (73.1%)	
Medium	15 (14.3%)	2 (7.70%)	
Large	13 (12.4%)	5 (19.2%)	
Total Number of People in Images and Videos	191	52	0.302, p = 0.15
Ethnicity in Images and Videos			0.127, p = 0.72
Caucasian	170 (89.0%)	50 (96.2%)	
Other	21 (11.0%)	2 (3.9%)	
Gender in Images and Videos			
Female	125 (65.5%)	45 (86.5%)	0.366, p = 0.04
Male	66 (34.6%)	7 (13.5%)	0.152, p = 0.75
Age of people in Images and Videos			0.282, p = 0.16
Child	14 (7.3%)	2 (3.9%)	
18-30	55 (28.8%)	24 (46.2%)	
31-40	50 (26.2%)	12 (23.1%)	
41-50	30 (15.7%)	5 (9.6%)	
51-60	28 (14.7%)	1 (1.9%)	
61-70	10 (5.2%)	4 (7.7%)	
70+	0	4 (7.7%)	
Unable to identify	4 (2.1%)	0	
Total age 50 and under	149 (78.0%)	43 (82.7%)	
Total age 51+	38 (19.9%)	9 (17.3%)	

When specifically examining individuals who were identified in the media as either having or had breast cancer, 100 percent of them (N=52) were female. Thirty-eight of the females were Caucasian while the ethnicity of the other 14 were not mentioned. Thirty-four females were under the age of 50, ten were over the age of 50, and the ages of eight women were not mentioned. Compared with the 52 female breast cancer survivors, only two individuals mentioned having had heart disease and they were both male and over the age of 50. Their ethnicity was not mentioned.

In terms of medical images, 26 (19.4%) of the breast cancer images and videos showed medical images (e.g., an x-ray or a mammogram) or had medical scenes or imagery in the video (e.g., a doctor and/or a hospital). Similarly, seven (21.9%) of the heart disease and stroke images or videos had medical images. There was no significant difference found between the two diseases for medical images (Cramer's V = 0, $p < 0.998$).

In over half of the breast cancer images and videos (N =74, 55.2%), the color pink was seen as a prominent focus of the image or in the video. For heart disease and stroke, the color red was found to be prominent in twelve (37.5%) of the images and videos.

Source of Information

The top three sources of information for breast cancer items were found to be journalists, survivors, and businesses (Table 5). For heart disease and stroke media items, journalist, researcher, and doctor were the top three sources of

information. To clarify, though all news stories are obviously written by a journalist, the term journalist in this case refers to items like opinion articles, blogs, and first-hand accounts of fundraising event that position the writer in the first person. As shown in Table 5, a significant difference was found for 'survivor' as source of information.

Table 5

Frequencies and Cramer's V for Source of Information by Disease

Source of Information	Breast Cancer N (%)	Heart Disease & Stroke N (%)	Cramer's V
Researcher	23 (15.9%)	7 (18.0%)	0.023, $p = 0.75$
Journalist	42 (29.0%)	15 (38.5%)	0.084, $p = 0.26$
Survivor	37 (25.5%)	2 (5.1%)	0.204, $p < 0.01$
Family of survivor	10 (6.9%)	0	0.131, $p = 0.21$
Doctor	22 (15.1%)	7 (18.0%)	0.031, $p = 0.67$
Celebrity	17 (11.7%)	1 (2.6%)	0.126, $p = 0.09$
Business	35 (24.1%)	5 (12.8%)	0.112, $p = 0.13$

Mention of a Health Agency

A health agency was mentioned in 79 (54.5%) of the breast cancer media items. The Canadian Breast Cancer Foundation was the most mentioned health agency for breast cancer items in 56 (38.6%) of the items. For heart and stroke, a health agency was mentioned in 36 (92.3%) of the items. The Heart and Stroke Foundation was the top health agency mentioned for heart and stroke items and

was present in 30 (76.9%). Whether a health agency was mentioned was found to be significant, Cramer's V = 0.319, $p < 0.001$.

Human Interest Story

In regards to a human interest story, 48 (33.1%) of the breast cancer media items had a human interest story compared to only five (12.8%) of the heart disease and stroke items. This was found to be significant, Cramer's V = 0.183, $p < 0.05$.

Research Study

A research study was only cited in only 18 (12.4%) of the breast cancer items. In the heart disease and stroke items, a research study was cited in 11 (28.2%) items. This was found to be significant, Cramer's V was = 0.177, $p < 0.05$.

Risk Statistics and Preventative Behaviours

Risk statistics were mentioned in 30 (20.7%) breast cancer items and 22 (56.4%) heart and stroke items. Risk was found to be significant, Cramer's V = 0.324, $p < 0.001$. As for preventative behaviours, only 16 (11.0%) of the breast cancer media items mentioned preventative behaviours. Conversely, 17 (43.6%) of the heart and stroke media items mentioned preventative behaviours. Mention of preventative behaviours was found to be significant, Cramer's V = 0.347, $p < 0.001$.

In total, 28 preventative behaviours were mentioned in the breast cancer items. In particular, only three articles recommended changing one's diet and only six articles recommended exercise as a preventative behaviour. Exercise was the

most common preventative measure mentioned (N = 6) followed by getting a mammogram (N = 5). These findings are in stark contrast to heart disease and stroke media items. In total, 58 preventative behaviours were mentioned. Changing diet (N = 17, 43.6%) and exercise (N= 11, 28.2%) were the top two preventative behaviours. This was found to be significant, Cramer's V = 0.545, $p < 0.001$ for change in diet and 0.340, $p < 0.001$ for exercise.

Tone

A supportive tone was prevalent in many of the breast cancer media items (N = 63), compared with a prescriptive tone (N= 13) for the heart and stroke media items (Table 5). The difference in tone was found to be significant, as shown in Table 6.

Table 6

Descriptive Data and Cramer's V for Tone by Disease

	Breast Cancer counts	**Heart Disease & Stroke counts**	**Cramer's V**
Tone	**N (%)**	**N (%)**	0.647, $p < 0.001$.
Supportive	63 (43.5%)	8 (20.5%)	
Medical	21 (14.5%)	2 (5.1%)	
Prescriptive	2 (1.4%)	13 (33.3%)	
Survivorship	22 (15.2%)	0	
Fearful	17 (11.7%)	7 (18.0)	
Humorous	9 (6.2%)	0	
Sexual	4 (2.8%)	0	
Critical	4 (2.8%)	0	
Fashion & Beauty	3 (2.1%)	9 (23.1%)	

Qualitative Data

Breast Cancer Themes (Table 7)

Two final level themes were generated for the breast cancer media items. Theme one is a 'typical' breast cancer survivor. Under this theme are four second level themes: young women are susceptible to breast cancer, breast cancer patients as active 'fighters', breast cancer as a new identity, and adherence to medical research and technology. Theme two is 'good' citizens and businesses help the cause. Under this theme, the three second level themes are: collective action (everyone is responsible for finding a cure), benevolent business image, and celebrity support.

Table 7

Themes for Breast Cancer Media Items

Theme One: A 'typical ' breast cancer survivor	**Theme Two: 'Good' citizens and businesses help the cause**
Young women are susceptible to breast cancer	Collective action: Everyone is responsible for finding a cure
Breast cancer patients as active 'fighters'	Benevolent business image
Breast cancer as a new identity	Celebrity support
Adherence to medical research and technology	

Theme One: A 'typical' breast cancer survivor

The women featured in the media that have been diagnosed with breast cancer or are currently diagnosed with breast cancer represent a 'typical' breast

cancer patient and survivor. The women featured are young (under the age of fifty). They are framed as being optimistic about beating cancer and as active 'fighters'. They also express breast cancer as a transformative process in which they have a greater appreciation for life after their diagnosis. Lastly, the typical breast cancer patient is framed in the media as complying with prescribed treatment from medical experts.

1. Young women are susceptible to breast cancer

Young women, under the age of 50, were predominately represented in the media as having had or currently have breast cancer. Out of the 52 women identified as either having or had breast cancer, 34 were under the age of 50 and only ten were over the age of 50. The ages of eight women were not mentioned. Five articles in particular focused solely on how young women are susceptible to breast cancer without mentioning increasing age as a risk factor for the disease. Further, most of the accompanying images featured young women. One stock image in particular was the chest of a young female, her head was cut off, and her hands were positioned to barely conceal her breasts (QMI Agency, 2013a). In other photos, young women were wearing skimpy bras or lingerie.

Some media items featured shocking and baffling stories of young, healthy women diagnosed with the disease seemingly out of the blue. In these stories, young women expressed shock at their early and unexpected diagnosis. A woman diagnosed with breast cancer at age 41 divulges "it kind of stops you in your tracks" (Fletcher, 2012a). The media items also highlighted rare breast cancer

diagnosis. Brenda Kissel, age 40, was diagnosed with two rare neuroendocrine tumours "found in nine such documented cases" (Lees, 2012).

It should be noted however that in terms of preventative measures such as mammograms, five articles mentioned that mammograms are for women 50 years of age and older. As well, six images were of older women getting a mammogram as opposed to only one image of a young woman getting a mammogram.

Many young women were also framed as mothers by the media. In eight percent of the articles, children were framed as part of and affected by their mother's breast cancer diagnosis. In *A mother's life story* a mother, aged 37, is pictured embracing her three young children and reveals "I worried about how this diagnosis was going to affect them...that made me the most sad to think about" (Richard, 2012). In a CTV video, a mother says "I have a beautiful young daughter and when I look at her face she gives me all the inspiration I need to go out there and find that cure" (Canadian Television Network, 2012a). Children are positioned as part of, and integral, to their mother's breast cancer journey.

Although young women are predominately represented in the media as having had or have breast cancer, there is a sense that 'we' (i.e., women) are part of a collective 'sisterhood' in the journey together. It is repeatedly emphasised that "you likely know someone with breast cancer" (Mulholland, 2012) and it is understood that "breast cancer touches so many...your aunts, your moms, your sisters" (Global, 2012).Young women who are not currently survivors or patients are often portrayed as next on the list and thus susceptible to breast cancer.

Women, especially young women, must constantly be vigilant and look out for one another because breast cancer can strike young. It is reinforced that 'we' not only have to educate ourselves but also other women in our lives. One fundraiser warns that breast cancer affects "one in nine women, look around at your group of friends, your family members, we have to stop this horrible disease" (Canadian Television Network, 2012a).

2. Breast cancer patients as active 'fighters'

Warfare language like 'fighter' and 'warrior' were in almost 10 percent of the breast cancer media items, specifically, the human interest stories. They framed the women diagnosed with breast cancer as active fighters rather than passive to the disease. After learning of her diagnosis, one woman vowed that "from then on it was just a matter of fighting, I was not going to be beaten by cancer, I was going to beat it" (Canadian Television Network, 2013a). *Run for the Cure* team names also embodied the fighting attitude, one popular team was called 'Pink Solders' (Mah, 2012).

The term 'fighter' implies effort and hard work and it is understood that if one tries hard enough and puts forth the effort then one can beat breast cancer (Pool, 2012). One news video actually says "the disease is beatable" thus, failing to acknowledge the different stages and types of the disease (Goh, 2012). Strength and fighting are positioned not as a choice, but rather, as the only conceivable option for a woman diagnosed with breast cancer. This 'fighting spirit' is especially apparent and highlighted in women with families. According to one

breast cancer survivor, “I switched into fight mode...the images of my husband and my kids went through my mind, I took a deep breath and asked, ‘Ok, what do I need to do to beat this?’” (Mah, 2012). These narratives frame breast cancer as a disease that can be ‘fought’ if one works hard enough and puts forth the effort.

Since breast cancer is framed as a ‘battle’ that can be conquered by individual effort, survivors are given constant honour and acclaim for beating the disease (King, 2006). Eighteen percent of the human interest stories framed breast cancer survivors as heroic. A teary son of a breast cancer survivor reveals that his mother was “never really afraid to die” (Rose, 2012). Similarly, the daughter of a breast cancer survivor found that “seeing my mom’s strength in facing cancer...made me realize how incredible a person my mother is” (Canadian Breast Cancer Foundation, 2012b). Surviving breast cancer is positioned as an achievement worthy of recognition. A news anchor praised a breast cancer survivor before the interview even commenced, “first of all, congratulations for being a breast cancer survivor, that’s a major accomplishment” (Canadian Television Network, 2012a).

3. Breast cancer as a new identity

For many breast cancer survivors featured in the media items, their stories often highlighted the positive life transformations that happened because of the disease. Sixty-eight percent of the human interest stories mentioned breast cancer as a positive transformation and optimism about the future. “I feel fantastic**,** I feel so good**,** I, you know, have a greater appreciation for the things I have around me**...** I’m enjoying life more” (Canadian Television Network, 2012b). This

experience of breast cancer is not only seen as positive but as a necessary experience for women to become the person they are 'meant' to be. They often describe themselves as better mothers, better wives, and better and more generous people. One breast cancer survivor "now lives life to the fullest" rather than take life for granted (Richard, 2012). Breast cancer became part of their identity resulting in a new and better life, one that could not have happened unless they were diagnosed with breast cancer.

Interestingly however, mortality statistics are also mentioned in seven percent of the media items. Although a lot of survivors are interviewed and praised for 'beating' cancer, death statistics are still mentioned. These statistics can serve to reinforce that breast cancer is a life or death 'battle' with no current cure. They also acted as a sober warning for women to remember to be vigilant and spread awareness.

4. Adherence to medical research and technology

Adherence to medical research and technology is a theme found in 28 percent of the breast cancer media items. New breast cancer technology and research is praised and framed as important and crucial. One news headline proclaims "Alberta researchers discover DNA marker that could predict breast cancer reoccurrence" (Chai, 2013a). Since medical technology is seen as beneficial, a 'good' breast cancer patient is one that complies with the recommended treatment (King, 2006). For instance, many articles mentioned women who underwent a double or half mastectomy along with chemotherapy treatments and radiation. Oftentimes, when a breast cancer survivor is

interviewed, the author recites the treatment she has undergone as a sort of 'badge of honour' such as "meet 38-year old Kate Kerr...she has had a mastectomy, chemotherapy, a second surgery to remove 13 lymph nodes, and radiation" (Ullyott, 2012). Medical treatment is framed as central to the women's prognosis and recovery. The importance of donating towards breast cancer research initiatives is also reinforced.

Breast reconstructive surgery is also framed as beneficial and necessary especially for restoring femininity. A supporter of reconstructive surgery explains that "women describe a sense of emotional healing, restoration of self confidence, femininity, joy, and peace of mind after breast reconstruction" (Demontis, 2012). One-week long feature in the *Edmonton Journal* called '*Battle Scars*' featured lengthy-full page articles on women "waiting for months or years for a plastic surgeon to give them back what cancer stole" (Fletcher, 2012b). After her breast cancer reconstructive surgery, one breast cancer survivor reveals that "it was the best decision I ever made" (Fletcher, 2012c). Thus, reconstructive surgery is framed as necessary and vital.

Even women who do not have breast cancer are targeted by medical research. Some women, including Sharon Osborne and a Ms. Washington D.C. pageant contestant, underwent a preventative double mastectomy. They share how, because of their genetic risk factors for cancer, they opted for a preventative medical intervention. One article covered a story on new preventative drugs that targeted "women at [a] high risk of developing breast cancer" (Associated Press,

2013). Thus, it is reinforced that although a woman may not currently have breast cancer, she is still at risk for developing it and must be vigilant and proactive.

Interestingly however, it was found that a tension existed between the importance of medical technology and the potential deficits of the medical system, specifically the use of mammograms. Mammograms were presented as complicated; in some articles they were framed as saving lives yet in others they were implicated in unnecessary over-diagnosing. One conflicting article cautioned that mammogram "screening saves lives and causes harm" (Associated Press, 2012a). Articles also warn that "ultrasounds [are] better than mammogram[s] for detecting breast cancer" and mammograms "might actually raise the chances of developing it in young women" (Associated Press, 2012b; QMI Agency, 2012). Most of these articles had accompanying images of women getting a mammogram, which further provides conflicting information. Women who are currently being treated for breast cancer are cautioned as well. One article cited an American study that found "survival rates among women with early breast cancer were better with lumpectomy and radiation than with mastectomy" ("Lumpectomy Survival Rates", 2013). Thus, a tension exists between adhering to prescribed medical advice and being cautious of the potential 'pitfalls' of the medical system. It is framed that women themselves are responsible for knowing what preventative measures to take and should exercise caution with some medical technologies.

Theme Two: 'Good' citizens and businesses help the cause

In order to find a cure for breast cancer, individual action is framed as crucial for fundraising initiatives. Individuals are asked to purchase pink products,

donate to the cause, exercise for the cause, volunteer for the cause, and spread awareness. Thus, a 'good' citizen is one who helps the cause. This is especially apparent in the *Run for the Cure* fundraising events. Further, businesses want to associate themselves with the cause to appear charitable and benevolent. Celebrity support also serves to heighten the awareness of the cause, a particular company or brand, and the importance of finding a cure.

1. Collective Action: Everyone is responsible for finding a cure

In half of the media items (49.7%), fundraising and raising awareness is seen as serving a legitimate and crucial role. Breast cancer is framed as a relevant and worthy charity. It is seen as "one of those causes that everybody seems to have a connection to and people really latch onto" (Daum, 2013). Fundraising events like Edmonton's *Run for the Cure 2012* were mentioned in 35 media items, positioning it as a significant and popular event. High attendance at Edmonton's *Run for the Cure* was also promoted and highlighted. The day after the event, both the *Edmonton Journal* and *Edmonton Sun* featured the event on the front page and second page of their papers respectively. Similarly, photos of smiling participants in a sea of pink at the *Run for the Cure* were present in almost all of the media sources. Like the *Run for the Cure*, exercise and fundraising initiatives went hand in hand, such as events like zumba for cure and a '*Bust a Move*' dance marathon. Approximately 29 percent of the media items had a fundraising event with an exercise component.

Of the media items linked with the theme of fundraising and awareness, 55 percent of them asked individuals to make a financial contribution. Thus,

individuals are positioned as central figures responsible for fundraising. A 'good' citizen is one who supports the 'cause' happening all around them (Lubitow & Davis, 2011). Fundraising is also presented as easy to do, individuals can "donate online, they don't have to do any paper work, it's no hassle, it works great" (Canadian Television Network, 2012a).

Individuals who plan to raise substantial amounts of money are further praised and are seen as exemplary fundraisers. One article highlights how "Allison wanted to really challenge herself this year. She decided she was going to fundraise $100 000 and run 10 10K races!" (Canadian Breast Cancer Foundation, 2012a). This can serve to position top fundraisers as role models for other fundraisers. It also positions fundraisers as being fulfilled, proud, and excited by their fundraising. Those who volunteer their time and effort for breast cancer initiatives are also praised. This serves to frame fundraising and volunteering as an individual responsibility. Twenty-four articles mentioned the total money raised by various breast cancer initiatives. For instance, an article on the *Run for the Cure* announced that "thousand of Edmontonians together raise $1.7M to fight breast cancer" (Lazzarino, 2012). Thus, monetary donations are further framed as an important goal.

Though men were entirely absent as breast cancer survivors, they are seen as part of the collective to help women and fundraise for breast cancer. Prime examples were the partnerships between male sports teams such as the Edmonton Eskimos, the Edmonton Oil Kings, and the Edmonton Rush Lacrosse, all of which had breast cancer initiatives. Their collaborations with breast cancer initiatives

were reported in many media items with headlines like “the Oil Kings will don the popular pink for breast cancer awareness for Friday’s game” and “The CFL’s breast cancer awareness weekend meant a uniform adjustment and some cosmetic changes to Commonwealth stadium.” (Griwkowsky, 2012; Cameron, 2013). One sports writer declared that “real men wear pink” in support of the Edmonton Oil Kings’ pink hockey jerseys worn to increase breast cancer awareness (Cameron, 2013).The Edmonton Rush Lacrosse team heavily advertised their ‘*Bare the Awareness*’ Rush calendar (in partnership with the CBCF) in the *Edmonton Sun* and *Metro* newspaper. Shirtless and often revealing photos of the players were advertised. This serves to legitimize men’s roles in the breast cancer ‘cause’ as being supporters of women.

2. Benevolent business image

Fundraising and awareness initiates were also linked to cause-related marketing and corporate sponsorship. Breast cancer is a popular charity among businesses, as was evident in 38 percent of the breast cancer media items that had a business component. Furthermore, many companies want to be associated with a well-known disease that is marketed as feminine, sexy, and positive (Pool, 2012). It was found that breast cancer awareness was heavily linked with beauty and fashion products targeted to women. They were asked to purchase beauty or fashion products, often with a pink theme linked to supporting the ‘cause’. One headline proclaimed that "fighting breast cancer can be done with style" and features ‘fashionable’ pink products that women were encouraged to purchase (Toskan, 2012). Pink hiking boots were cleverly advertised to “give breast cancer

the boot" and a "bright wrap around belt makes wearing pink a cinch" (Toskan, 2012). Also, breast cancer fundraising events, such as '*Fashion with Compassion*' featured a fashion show with breast cancer survivors wearing the latest trends. Thus, fashion and beauty play an integral role in cause-related marketing for businesses and breast cancer awareness.

In advertisements for large fundraising events like Edmonton's *Run for the Cure* or *Bras Across the Bridge,* the names of the corporate sponsors (or their logos) were always present and prominent in the advertisements. As well, while promoting for an event, many volunteers or charities would be sure to thank or mention their sponsors. Businesses were also praised in the media for their contribution to breast cancer fundraising efforts. For instance, a fundraising endeavour by a coffee company was seen as "not just about selling coffee or buying pink slippers –it's about making a difference and caring about causes that matter" (Giles, 2013). Businesses that sponsor or raise awareness about breast cancer are represented favourably in the breast cancer media items.

In some instances, some businesses displayed pink ribbons and imagery in their advertisements without any mention of a specific charity or vague fundraising details. For example, an advertisement for a local car dealership simply had a pink background and ribbon in the advertisement with the words "Supporting the Community. National Breast Cancer Awareness Month" (DK Ford, 2012). In another example, an Edmonton college was advertising an upcoming sporting event with pink font and pink ribbons with the caption "all proceeds go towards breast cancer research" (Nait Ooks Action, 2013). It was not

always clear exactly what breast cancer charity a business was supporting, nor where the money would go.

In approximately six percent of the media items, breast cancer was sexualized and breast innuendos were made by businesses. Most of these media items came from the radio station 91.7 The Bounce which plays top-forty music and caters to a younger audience. On their website, images were exhibited of male radio hosts wearing colourful bras in preparation for a fundraiser '*Bras Across the Bridge*'. Promotion also included one song, intending to be humorous, that encouraged women to "take it off, it's for a good cause" and donate their bras. One advertisement for another fundraiser, the '*Bounce Breast Burger*' featured a song with the lyric "you just take a bite [out] of the breast burger ever" (91.7 The Bounce, 2012).

3. Celebrity support

In 11 percent of the breast cancer media items, breast cancer awareness was combined with celebrity endorsement. Breast cancer therefore is framed as a disease that is so urgent and important that celebrities have joined the cause. An image of a smiling Elizabeth Hurley in a bright pink dress accompanied an article in which her initiatives with Estée Lauder cosmetics and breast cancer awareness were praised (Critchell, 2012a). She simultaneously talked about the importance of finding a cure and also promoted Estée Lauder's new "pink lip gloss...pink innocence" (Critchell, 2012a). Similarly, Christina Applegate wanted to attract attention for "the breast cancer causes among younger women", due to her diagnosis at the age of 37, and also promote her charity that sells pink headbands, jogging bras, and sneakers (Critchell, 2012b). Richard Simmons was flown into

Edmonton for a '*Bust a Move*' dance marathon. For this fundraiser, he was featured in all of the advertisements for the event and made a special appearance that was noted in many media items. As was mentioned earlier, many Edmonton sports teams fundraised and raised awareness for breast cancer. Breast cancer is positioned as a worthy charity due to the presence of celebrity support and therefore receives heightened recognition and coverage.

Heart Disease and Stroke Themes (Table 8)

Two final level themes were generated for the heart disease and stroke media items. Theme one is health is under the control of the individual. Under this theme, the two second level themes are: individual responsibility for one's health and those who are unhealthy are deviant. Theme number two is Glamorous fundraising events: Femininity and privilege. Under this theme, the two second level themes are: women and heart disease and glamorous fashion events.

Table 8

Themes for Heart Disease and Stroke Media Items

Theme One: Health is under the control of the individual	**Theme Two: Glamorous Fundraising Events: Femininity and Privilege**
Individual responsibility for one's health	Women and heart disease
Those who are unhealthy are deviant	Glamorous fashion events

Theme One: Health is under the control of the individual

1. Individual responsibility for one's health

The heart and stroke media items framed the individual as directly responsible for their health decisions and choices; this theme was present in 19 items (48.7%). It was repeatedly emphasised that individuals must constantly monitor their health behaviours (or lack thereof) and be proactive. One Doctor says "if lifestyle changes are made now, many Canadians can considerably reduce the effects of heart disease and stroke" (QMI Agency, 2013b). Thus, personal responsibility over ones' health is encouraged and promoted to ensure continued health for years to come. In this way, future health benefits from a healthy lifestyle were promoted more so than immediate health benefits. A spokesperson for the Heart and Stroke Foundation says "we want to have [a] healthy quality of life in the long run, and it is under our control" (McQuigge, 2013). It is reinforced that health is directly and solely under the control of the individual.

Individuals are also told more specific recommendations to monitor or change their diet, exercise levels, body weight, stress levels, and smoking. Many media items provided detailed suggestions, for example specific dietary changes such as "keeping a food diary, eating out less, watching your portion sizes, and filing your plate with more vegetables and fruit while cutting back on sugary drinks" (Chai, 2013b). One article offers "five simple nutritional steps that you can start with" including "add a piece of fresh fruit to breakfast" (Berkoff, 2013). Since detailed suggestions are offered, health behaviour changes are also framed as simple and easy for individuals to adhere to.

2. Those that are unhealthy are deviant

This theme was present in 12 articles (30.8%). Since health is framed as under the control of the individual, those who do not comply with lifestyle changes are framed as at fault. Readers are warned that "seniors are sitting in doctors' offices managing a string of illnesses, likely because of the lifestyle decisions they made earlier in their lives" (Vuchnich, 2013). These seniors are reprimanded for taking up the time of the health care industry due to an unhealthy lifestyle. Individuals are in a sense 'called out' by the media for their bad health choices with headlines such as "Bad baby boomers: Generation in need of a wake-up call", "Moms [are] not heart smart", and "Most eat nearly double the recommended amount of salt" (QMI, 2013c; Griwkowsky, 2013; Linton, 2013). Being unhealthy is deviant behaviour because it is seen as compromising ones' future health by ones' current inaction. Specifically, obesity and weight gain is also framed as problematic and unhealthy. The readers are further reminded that obesity is on the rise, yet, it can be prevented.

Theme Two: Glamorous Fundraising Events: Femininity and Privilege

1. Women and Heart Disease

Five media items (12.8%) specifically mention that heart disease is the leading cause of death for women. As well, seven articles (17.9%) stress the importance of raising awareness about heart disease and women's health. For instance, one female chef promoting a Heart and Stroke fundraiser stresses that "it's really important for us to bring women together to create awareness of women's health and heart health" (Canadian Television Network, 2013b). Women

are front and center in regards to heart disease in the media items. In fact, women are exclusively singled out to the point where men are almost entirely absent. This demographic is also reflected in the fundraising and awareness initiatives as they cater towards women. As well, some media items highlight how the event is organized by or feature women. For instance, a local fundraising event for the Heart and Stroke Foundation featured four female only chefs, as well, the fashion events featured female models.

Despite the strong link made between women and heart disease, stroke is almost entirely absent from the media items. Heart disease remained the predominate focus. Only one media item mentioned a stroke survivor and she had a shocking and unexpected stroke at the age of 33. In the media items, only two heart disease survivors were framed in human interest stories and they were both men. There were no human interest stories of female heart disease survivors.

2. Glamorous Fashion Events

The theme of glamorous fashion events was found in 22 media items (56.4%). This consisted of fundraisers for heart disease and stroke campaigns intertwined with fashion shows, parties, models, and fashion designers. Many images accompanying these stories were of models walking the runway wearing the latest trends in fashion. All of the heart disease and stroke media items collected in the first round of data collection (Fall 2012) were for the *'Flare World Runway Tour'*. This event was featured across many Canadian cities, including Edmonton, and highlighted the latest fashion trends by prestigious designers in support of the *Heart Truth* campaign. The sold-out event was

highlighted as "chic, swanky, and sophisticated. A mostly female crowd, impeccably dressed, picked their poison from a spread of cheeses, to trays of martinis and Merlot" (Gault, 2012). The event is framed as a classy and glamorous party where upcoming fashion trends take center stage. This event echoes other Heart and Stroke fundraisers that feature fashion trends, models, and designers. Specifically, the *Heart Truth Fashion Show* is one of the largest fundraisers for the Heart and Stroke Foundation and features Canadian celebrities modeling red dresses by famous fashion designers. In one article, a beaming Jamie Sale, a Canadian Olympic gold medalist, is pictured in a flowing red gown walking down the runway (Rose, 2013). Thus, there is also a celebrity component to the glamorous fundraising events.

Similar to breast cancer items, awareness of heart disease was linked with fashion trends and products that readers are encouraged to purchase. For instance, an editor for a fashion magazine being interviewed informed the readers that "there are eight key trends they've identified for the season" (Gold, 2012). Fashion trends are positioned as crucial and important and are almost always mentioned in greater depth than the cause itself (i.e., heart disease and stroke). Thus, there is a profit aspect to the events in addition to the fundraising element. Further, individual companies and businesses are keen to sponsor events, for instance, *Flare* magazine was the main sponsor for a fundraising event ('*Flare World Runway Tour*') resulting in tremendous attention and cause-related marketing. Unlike the breast cancer media items, there was little to no focus on the reader (i.e. the average person) to raise money or participate in the *Red Dress*

movement. Instead, the event was framed as exclusive; one article on the '*Flare World Runway Tour*' starts off by saying "for those of you who didn't catch the sold-out event...we've pulled together some of our photos from the event" (Gold, 2012).

Discussion

The purpose of this study was to examine media coverage of breast cancer and heart disease and stroke news articles, videos, advertisements, and images in a local Canadian context through quantitative and thematic content analyses. This study revealed a large difference between the amount of breast cancer and heart disease and stroke coverage in the Edmonton media. Despite the fact that February is nationally recognized as Heart Disease and Stroke month, there was still more breast cancer coverage during the second round of data collection (January 15, 2013-February 28, 2013) in addition to the first round of collection (September 15, 2012-November 8, 2012). Thus, the vast amount of breast cancer coverage compared to heart disease and stroke coverage gives evidence to the idea that the media can overestimate some health risks while down-playing others (Berry et al., 2007). This is pertinent because women often fail to identify heart disease as the leading cause of death in women; rather, breast cancer is thought to be the greatest health concern facing women (Anderson et al., 2013). Also, women often delay seeking treatment for a myocardial infarction, compared with men, because they do not perceive themselves to be at risk (Lefler & Bondy, 2004). Though the media certainly cannot be wholly implicated for these findings, the media does play a role in health messaging and health dissemination.

This study found that Edmonton media presented a biased and 'typical' breast cancer patient, one who is young (aged fifty and younger), Caucasian, an optimistic 'fighter', has a greater appreciation for life, and one who complies with prescribed treatment from medical experts. The repeated emphasis of a 'typical' breast cancer patient in the media can have far reaching implications for women. If the media consistently promotes a young Caucasian breast cancer patient and survivor, according to agenda setting theory, breast cancer can be viewed as an important disease for this demographic. Although breast cancer can occur in younger women, it mostly occurs in women between the ages of 50 and 69 (Canadian Cancer Society, 2013). In conjunction with the health belief model, this high coverage of breast cancer could affect the constructs of threat perception and cues to action. In terms of threat perception (specifically perceived susceptibility) these messages may create anxiety and increased surveillance for young women who may not be highly susceptible to breast cancer. As well, this slanted coverage could affect the perception of risk for breast cancer in African Canadian, South East Asian, East Indian, and First Nations women. Their perceived susceptibility of breast cancer may be low because they do not fit the 'typical' breast cancer patient. It is important to represent all ethnicities as being susceptible to breast cancer, rather than predominately Caucasian females. This is especially important because African American women have a higher mortality from breast cancer compared with Caucasian women (American Cancer Society, 2013).

Similar to the breast cancer items, the heart disease and stroke items featured almost exclusively young Caucasian women. This exclusive focus does

not reflect the true demographic risk for heart disease. The risk factors for heart disease increase with age (post menopausal women are at a greater risk) and 89.7% of strokes occur in individuals over the age of 65 (Heart and Stroke Foundation, 2014a; Public Health Agency of Canada, 2011). First Nations people, African Canadian, and South Asian individuals are at a greater risk of heart disease compared to the general population due to socio-economic status and culture differences (Liu et al., 2010; Moe & Tu, 2010). Despite this, ethnicity as a risk factor for heart disease was entirely absent in the media items. The media's bias and heighted coverage of Caucasian women, according to agenda setting theory, can increase the importance of heart disease and stroke as a disease affecting Caucasian women. Thus, the construct of threat perception from the health belief model can potentially have an effect on First Nations, African Canadian, and South Asian women's risk perception. They may not see themselves as susceptible nor view heart disease as the greatest health concern and leading cause of death for all women. This is important because American studies have found that African American and Hispanic women were less aware of heart disease as the leading cause of death than Caucasian women (Christian et al., 2007; Mochari-Greenberger et al., 2010; Mosca et al., 2010).

This study revealed that stroke was almost entirely absent in the media despite being a leading cause of death and disability in Canada, costing an estimated $3.6 billion for health care costs and lost productivity (Public Health Agency of Canada, 2000). In conjunction with agenda setting theory, individuals who read/view health information in the media may not be aware of the high

prevalence of stroke because of the significant lack of coverage. Thus, stroke may be seen as a less important health concern than heart disease (McCombs & Shaw, 1972). Further, in accordance with the health belief model, the near absence of stroke coverage in the media may mean that individuals do not think of themselves as susceptible to having a stroke (threat perception). If the media is constantly emphasizing, repeating, and reinforcing certain diseases, such as breast cancer, more prominence and attention is given to this disease (Entman, 1991). Thus, a woman may perceive herself as more at risk for breast cancer rather than stroke due to the heavy coverage of breast cancer in the media. The virtual non-existence of stroke coverage can be seen as a missed opportunity to disseminate important stroke information like warning signs, symptoms, and treatment options (Pribble et, al., 2006).

Despite the low coverage of heart disease and stroke, women were framed as at risk for heart disease. This finding builds on previous research that found that news coverage of heart disease focused on men and that coverage in women's magazines focused on women (Savoie et al., 1999; Barbett, 2006; Curry & O'Brien, 2006; Clarke et al., 2007; Turner et al., 2008; Edy, 2010). Thus, this study provides new evidence that women are implicated as at risk for heart disease in local Canadian news media compared to historically, only women's magazines. The recognition that women are at risk for heart disease is important because cardiovascular disease is the leading cause of death for women (Statistics Canada, 2012). Thus, the fact that some media items are beginning to emphasize that heart disease and stroke is the leading cause of death for women can

potentially lead to increased importance of the issue to the public (McCombs & Shaw, 1972). As well women might begin to recognize the severity of the disease, according to the health belief model.

In terms of human interest stories, there were significantly fewer heart disease and stroke human interest stories compared with breast cancer. None of the human interest stories featured women and none of them featured a stroke survivor. As well, unlike the breast cancer items, there was no mention of the reaction of the survivor's families and the impact it had on their children. This is important because human interest stories bring a human face and emotional angle to a story (Semetko & Valkenburg, 2000). Thus, if only breast cancer human interest stories are repeatedly emphasized and reinforced in the media, according to agenda setting theory, this may serve to highlight the emotional journey of a breast cancer survivor over a heart disease or stroke survivor. As well, human interest frames increase perceived risk and stronger negative emotions compared to neutral frames (Otieno et al., 2013). Thus, in accordance with the health belief model, low coverage of human interest stories for heart disease and stroke could have implications in women's perceived risk of the disease. They might not see themselves as susceptible and they might not think heart disease is a severe health problem.

The findings from this study suggest that a 'typical' breast cancer patient goes through a crusade or battle in which they must actively fight and are then transformed into a 'survivor' (Harvey & Strahilevitz, 2009). As a result, new 'warrior' identities are created and the experience of being diagnosed with breast

cancer is assimilated into a collective experience. In conjunction with agenda setting theory, by providing, repeating, and reinforcing the idea that women must 'fight' breast cancer can give more attention to this frame (Entman, 1991). An implication is that women diagnosed with breast cancer seemingly have no choice but to be strong as no other option is mentioned or recognized. The notion that women should 'fight' breast cancer and be 'strong' can silence other approaches of women dealing with the disease. The diagnosed therefore, must carefully decide what to reveal about their illness experiences and what to hide (Sulik, 2011). A war metaphor implies only two outcomes, either winning (i.e., surviving), or defeat (i.e., death) (Grant & Hundley, 2008). As a result, this metaphor leads to the exclusive focus of celebrating and praising survivors. According to King (2006) there is a sense that those who have survived breast cancer are understood to have somehow fought harder than those who have died. This is especially apparent in the *Run for the Cure* media items where the recognition of survivors and hope for a cure are central and celebrated themes. Sobering accounts that reveal anger, struggle, or death fall on the margins because they are in direct contrast with the more optimistic 'warrior' attitude that prevails in the media (Sulik, 2011).

In addition to the dominant message of 'fighting' breast cancer, a 'typical' breast cancer patient is one who is positively transformed by the disease. This means that stories of death, depression, hopelessness, and isolation are almost always absent. In these experiences, breast cancer is not seen as a positive transformation but rather as a horrific disease (Sulik, 2011). Consequently, if the

experience of breast cancer is repetitively portrayed through carefully selected ideal narratives that focus on optimism, courage, and strength, the experience of breast cancer as a unique, oftentimes isolating or solitary experience will be left out. The experience of breast cancer as a positive life transformation may be valid and meaningful for some women however, others may experience consequences like divorce, decreased self-image, loss of friends, or depression (King, 2006). In the media items, breast cancer and the *Pink Ribbon* cause is instead framed as celebratory, hopeful, and positive.

In contrast with breast cancer, the heart disease survivors, the few that were mentioned, were not lavishly praised and celebrated nor were they framed as active 'fighters'. The tone was not hopeful and positive but rather paternalistic and shameful. Accusatory headlines and prescriptive messages positioned heart disease as something that could have 'easily' been avoided by changing lifestyle choices. Heart disease was framed as resulting from going down the 'bad' path of unhealthy and deviant behaviour. These accusations can potentially make individuals feel shameful of their behaviour. In terms of obesity in particular (a risk factor for heart disease and stroke), numerous studies have implicated the media in conveying stigmatizing messages and images of people who are obese, a disease that is framed as self-inflicted (Heuer et al., 2011; Hussin et al., 2011; Yoo & Kim, 2012; Puhl et al., 2013).

For heart disease and stroke, if individual responsibility of one's' health reigns as the dominate message, other determinants of health such as socio-economic status, access to resources and medical care, government policy,

environment, and genetics will be left on the margins. Socio-economic status is particularly important; low income individuals have higher rates of cardiovascular disease, greater exposure to risk factors, and these risk factors worsen over a person's lifetime (Sheth, Nair, Nargundkar, Anand, & Yusuf, 1999; Carson et al., 2007; Kreatsoulas & Anand, 2010; Blais, Hamel, & Rinfret, 2012). The sole focus of individual responsibility fails to acknowledge other determinants of health and instead, can be a looming burden for those trying to adhere to health behaviour changes. Conversely, few of the breast cancer media items mentioned health behaviour changes such as quitting smoking, avoiding weight gain, improving ones' diet, and regular exercise. Therefore, breast cancer is rarely positioned as a shameful or self induced disease (King, 2006).

A typical breast cancer patient is one who complies with prescribed medical treatment and advice. If this idea is constantly repeated and emphasised, it can serve to highlight medical expertise above other types of expertise. However, it was also found that solutions and preventative measures were also positioned as complex. Some medical procedures that were once the gold standard were being questioned. Current breast cancer research, for example on the potential ineffectiveness on mammograms, was being covered in the media. Thus, some tension was found between the need for medical expertise and the potential pitfall(s) of the medical system. In this sense, the media highlighted the need for women to be vigilant about 'common sense' medical treatments and procedures.

Comparatively, solutions to heart disease and stroke were framed as easy and simple; the main focus was on health behaviour changes. In addition, heart

disease was framed as a disease that happened in the future in older age rather than a current problem. This is problematic because health behaviours that individuals engage in now affect their current health in addition to their future health. This relates to the health belief model's construct of susceptibility because heart disease may not seem as a dangerous disease affecting ones' current health. The proposed solutions for heart disease also relate to the construct of behaviour evaluation, specifically proposed benefits and barriers to change (Abraham & Sheeran, 2005). If the proposed benefits of health behaviour changes are framed as beneficial for ones' long term health rather than current health, these benefits may not seem appealing for individuals to make right away. As well, if health behaviour changes are only framed as 'easy' and 'simple', this does not address ones' barriers to change including money and time.

In terms of fundraising and awareness, initiatives and events for heart disease and stroke were framed very differently from breast cancer initiatives. For breast cancer fundraising and awareness, there was a collective 'we' implicated in finding a cure. It was understood that 'everyone' is in the cause together and individuals are implored to participate and donate. The emphasis of collective breast cancer awareness and fundraising, according to agenda setting theory, can serve to reinforce individual responsibility (e.g., by donating or purchasing products). By constantly highlighting the need for personal responsibility this can exclude the idea of government intervention and policy (Pool, 2012). As well, purchasing 'pink' products directly benefit the companies who sell them through cause-related marketing and profit. Further, this study revealed that it was not

always clear where monetary donations go. This can be potentially problematic since the pink ribbon and imagery is not trademarked nor affiliated with only one charity. This is important because it has been found that individuals were significantly more likely to donate to an advertisement for breast cancer and that breast cancer advertisements garnered a greater emotional response compared to the other advertisements (Taylor & Knibb, 2013).

Celebrities, either through endorsing 'pink' products or revealing their own breast cancer diagnosis, served to heighten breast cancer awareness in the media due to their celebrity status. This study also revealed partnerships between local male sports teams and breast cancer initiatives. This association frames breast cancer as a worthy charity for male athletes, who are local celebrities, to be a part of. It also positioned the athletes as 'real' men (i.e., it heightened their masculinity) by supporting a 'feminine' cause. The high prevalence of celebrity coverage and sport partnerships can serve to heighten the awareness of breast cancer. It was found that after a famous Australian singer, Kylie Minogue, was diagnosed with breast cancer there was a twenty-fold increase in news coverage of breast cancer in Australian news stories (Chapman, McLeod, Wakefield, & Holding, 2005). In accordance with agenda setting theory, by providing, repeating, and reinforcing celebrity coverage and breast cancer this frame is made more prominent which in turn can be seen as important according to the public (McCombs & Shaw, 1972; Entman, 1991).

In terms of heart disease and stroke fundraisers, the media focused on glamorous events that centered on high fashion and exclusive access. The

implications of this focus reinforce privilege (i.e., those with time and money to attend the events and 'look' the part) and femininity (i.e., wearing the latest trends and makeup). Compared with the breast cancer items, the heart disease and stroke fundraisers were not framed as a collective that 'we' are part of but rather as a separate and privileged event with models, fashion designers, and select guests. The privilege aspect of the event, if continually emphasized and repeated enough in the media can potentially position heart disease fundraisers as not accessible to the 'average' person. Instead of feeling like part of the collective to raise awareness about heart disease and stroke, the 'average' person might feel on the outside looking in. The readers were kept separate and read about events to be in awe of rather than part of. Thus, the average person is rarely asked to participate in the movement rather, the reader is told about events but rarely invited.

Both the breast cancer media items and heart and stroke items linked fundraising with beauty and fashion products. Not only is this linked to consumerism but fashion and beauty products are used to reinforce 'common sense' notions of femininity. One type of 'beautiful' female is essentially represented, one that adheres to the latest fashion trends and makeup products. It is repeated and emphasized that looks do matter and that women must be constantly vigilant of their appearance. Ironically, this focus on fashion and beauty seemingly appears to contradict many Heart and Stroke messages such as a print advertisement for the *Red Dress* campaign that reads "Heart disease *doesn't* care what you wear" (Wayman, Long, Ruoff, Temple, & Taubenheim, 2008). In accordance with agenda setting theory, if fashion and beauty are constantly

emphasized in the media, this serves to highlight the importance of fashion trends and beauty products. As a result, disease risk may be underestimated or simply not focused on in the media which may lead to lowered threat perception of heart disease and stroke by women.

The majority of the heart and stroke media items covered fashion events, going into great detail about the beautiful dresses and outfits worn by the models. Even the *Red Dress* symbol itself represents and communicates a specific message about women and heart disease since the logo is a dress. What is clear however, at least in the United States, is that a significantly greater number of female college students familiar with the *Red Dress* symbol identified heart disease as the leading cause of death of women (Anderson et al., 2013). In conjunction with the health belief model, an individual's readiness to undergo a health behaviour change is influenced by the individual's cues to action, which can include health promotion campaigns (Abraham & Sheeran, 2005). Thus, there is at least a link between the *Red Dress* symbol and heart disease and stroke. However, if the media is highlighting fashion and beauty events, the main message of the *Red Dress* campaign (that heart disease and stroke is the leading cause of death for women) may get drowned out.

Limitations

Only English language news stories, advertisements, and videos were collected due to the first language of the researcher. The data from local television stations were collected online only, no news stories were watched and recorded on television. It is possible that some news stories that appeared on television did not

get put online and therefore were not included in this study. Similarly, the radio station's websites were checked daily rather than listening to the radio due to the feasibility and ease of data collection. Media items were checked manually by two researchers rather than by key word searches or computer programs. Therefore, it is possible that some breast cancer, heart disease, and stroke coverage was missed due to human error. Finally, the study period was just five months (September to October 2012 and January to March 2013) in order to make the coding feasible and manageable. Therefore, the collected data is only a portion of local media coverage and does not reflect the year's coverage nor past coverage. As well, this study only examined Edmonton media sources due to feasibility and ease of collection (the researcher is based in Edmonton) and because no other study has examined local Canadian media with respect to breast cancer, heart disease, and stroke. Lastly, it should be noted that the researcher does play an active role in the data collection and analysis process (Braun & Clarke, 2006). The research was conducted by a young Caucasian female with an undergraduate degree in Physical Education. The researcher's background influences what themes stand out and can untimely influence what themes are reported since completely value-free research is impossible (Patton, 2002; Braun & Clarke, 2006).Therefore it is important to acknowledge the active role of the researcher as part of the decision making process. However, to mitigate this bias, inter-rater reliability was performed for both the quantitative and qualitative content analysis and triangulation was undertaken (Patton, 2002).

Conclusion

Since the media is a popular source for health information, it is important to examine which health stories are being published and what health information is being discussed (Martinson & Hindman, 2005; Van Slooten et al., 2013). Heart disease and stroke is the leading cause of death for Canadian women however, this study found that breast cancer received greater coverage in local Canadian media in terms of news articles, images, videos, and advertisements (Statistics Canada, 2012). Health information sought through the media can have implications for how health and illness are understood by the individual since news stories, accompanying images, and advertisements are constructed and presented in certain ways. In accordance with agenda setting theory, the lack of coverage of heart disease and stroke items may affect what health issues are thought about (McCombs & Shaw, 1972). Using the health belief model, the disparity in coverage of heart disease, stroke, and breast cancer items may influence women's perceptions of their risk for these diseases. It should be mentioned however that there are no 'good' and 'bad' ways to promote breast cancer, heart disease, and stroke prevention or solutions as this notion is far too simplistic and dichotomized. What is important however is to recognize that the meaning and experience of health and illness are shaped by cultural and social systems, including the media (Conrad & Barker, 2010). These health messages communicated in the media do not exist in a vacuum and therefore can have an impact on the viewer and reader.

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Appendix A: Pink Ribbon Symbol

Appendix B: Red Dress Symbol

Appendix C: Breast Cancer and Heart Disease and Stroke Coding Sheet

Title of story	
Date	
Media source	
Story placement (main/sub-page)	
Story author	
Unique to Edmonton	
Story length (lines/minutes)	
Image accompanying story	
If yes, describe	
Demographic information of person (gender/race/age)	
Medical images	
Prominence of red/pink	
If printed material, size of image	
Other	
Source of information (researcher/survivor)	
Health agency mentioned	
Human interest story	
If yes, describe the person featured	
Research study cited	
If yes, find the original article	
Are risk statistics given	
If yes, find source of statistics	
Preventative behaviours mentioned	
If yes, describe behaviours	
If online source, other links suggested	
Summary	
Overall tone	

Appendix D: Literature Review

This section is a review of the literature regarding breast cancer and heart and stroke media coverage and serves to highlight the importance for conducting this study.

Media Coverage of Breast Cancer

Prevalence of Breast Cancer in the Media

Breast cancer has been a dominant health topic in the media and the coverage of breast cancer has increased over the years (Lantz & Booth, 1998; Cho, 2006; Tobler, Wilson, & Napolitano, 2009). Many research studies investigating cancer coverage and the media have found that breast cancer received greater coverage compared with other cancers (Greenberg, Freimuth, & Bratic, 1979; Sarna,1995; Gerlach, Marino, Weed, & Hoffman-Goetz, 1997; Seale, 2001; Seale, 2002; Hoffman-Goetz, & Friedman, 2005; Cohen, Caburnay, Luke, Rodgers, Cameron, & Kreuter, 2008; Slater, Long, Bettinghaus, & Reineke, 2008; Tobler, Wilson, & Napolitano, 2009; Jensen, Moriarty, Hurley, & Stryker, 2010).

However, it is important to examine if breast cancer coverage is related to current events or fundraising initiatives during certain times of the year. For instance, breast cancer coverage has been found to peak during October, which is breast cancer awareness month in Canada and the United States (Seale 2001; Seale, 2002; Pribble et, al., 2006). Celebrity breast diagnosis can also affect breast cancer coverage in the media. After Kylie Minogue, a famous Australian singer, was diagnosed with breast cancer there was a twenty-fold increase in news coverage of breast cancer in Australian news stories (Chapman, McLeod,

Wakefield, & Holding, 2005). Corbett and Mori (1999) found breast cancer coverage peaked in 1974, the year that Betty Ford and Happy Rockefeller announced their breast cancer diagnosis.

Stories and Images of Women Diagnosed with Breast Cancer

A recurring and dominant theme among studies found that young women (below the age of 50) were a prominent, if not the most prominent, age group written about and portrayed in accompanying images (Lupton, 1994; Marino & Gerlach, 1999; McKay & Bonner, 1999; Lantz & Booth, 1998; Saywell, Henderson, & Beattie, 2000; Burke, Pinsky, Reynolds & Press, 2001; Dobias, Moyer, McAchran, Katz, & Sonnad, 2001; Jones, 2004; Chapman, McLeod, Wakefield, & Holding, 2005; MacKenzie, Chapman, Holding, & Stiven, 2010). This representation is problematic because breast cancer mostly occurs in women between the ages of 50 and 69 (Canadian Cancer Society, 2013). Women diagnosed with breast cancer in their sixties and seventies were almost entirely absent in the media (Burke, Pinsky, Reynolds & Press, 2001). Further, some researchers found that increasing age as a risk factor for breast cancer was rarely mentioned in news stories (Yadlon, 1997; Burke, Pinsky, Reynolds & Press, 2001; Lupton, 1994; MacKenzie, Chapman, Holding, & Stiven, 2010). Contrary to these studies however, Henderson and Kitzinger (1999) and Kline and Mattson (2000) found that increasing age was the most discussed risk factor. Some articles provided accurate information about increasing age as a risk factor for breast cancer however they were often linked with human interest stories of younger women, thus providing contradicting information (Clarke, 1999; Marino &

Gerlach, 1999; Burke, Pinsky, Reynolds & Press, 2001; Jones, 2004; Walsh-Childers, Edwards, & Grobmyer, 2011).

Images accompanying breast cancer articles were likewise dominated by younger women, increasing the contradictory messages about increasing age as a risk for breast cancer. In their examination of breast cancer advertisements and campaign material, Haines, et al. (2010) found that the majority of images were of young, healthy and 'beautiful' women that conformed to Western conventions around physical attractiveness. In American magazines, 80 percent of the images accompanying breast cancer articles were women under the age of 50 (Lantz & Booth, 1998). Similar results were found in Canadian women's and fashion magazines where 81 percent of the images were women under 50 (McWhirter, Hoffmann-Goetz & Clarke, 2012). Thus, it was found that the vast majority of the images in the Canadian magazines did not accurately portray breast cancer risk factors such as age (majority between age 50 and 69) and body weight (being obese) (McWhirter, Hoffmann-Goetz & Clarke, 2012; Canadian Cancer Society, 2013). In their examination of older women and breast cancer, Ludwick, Rushing, & Biordi (1994) found that only four percent of images were identified as older women.

Linked to the dominant discourse of young women and breast cancer, research findings have found that some women who are featured in human interest stories are framed as young mothers (McKay & Bonner, 1999; Saywell, Henderson, & Beattie, 2000; Burke, Pinsky, Reynolds & Press, 2001). Even as far back as 1933, a young mother was pictured with her infant in an image accompanying a breast

cancer article (Black, 1995). Emotional stories told of women expressing concern and fear regarding 'abandoning' their young children should their diagnosis lead to death (Burke, Pinsky, Reynolds & Press, 2001). In a human interest story featuring a young women dying from breast cancer, the focus of the story centered on the effects her young family will face (McKay & Bonner, 1999). Breast cancer is positioned not only as a disease that is susceptible to young women, but additionally, to young mothers. The media emphasises the dire negative effects for the whole family rather than focusing on the individual.

Similar to the high proportion of young women in breast cancer articles, a specific ethnicity has dominated stories and images; that of a Caucasian woman. Andsager and Powers (2001) found that out of 86 breast cancer articles, only one article and one image depicted an African-American woman. In their examination of popular Australian women's magazines, the authors found no representation or discussion of Aboriginal women with regards to breast cancer (McKay & Bonner, 1999). In their recent examination of Canadian magazines, the authors found that 81 percent of the women in the images were Caucasian (McWhirter, Hoffmann-Goetz, & Clarke, 2012). The findings from these studies reveal that it is important to examine the images accompanying the news articles to examine what ethnicity is being represented. If articles on breast cancer are saturated by images of Caucasian women these images can subtly communicate ideas and stereotypes of the disease.

Breast cancer articles and images have not only been dominated by young Caucasian women, researchers have found that femininity, beauty, and sexuality

are also dominant themes. Images accompanying breast cancer articles have been found to depict slim women with 'perfect' bodies (Clarke, 1999; Andsager, Hust, & Powers, 2000; Haines et, al., 2010). This is an important finding because being obese has been identified as a risk factor for breast cancer (Canadian Cancer Society, 2013). There is some discrepancy therefore between the images in the media of a 'typical' 'slim' woman with breast cancer and those women who are overweight or obese. In Canadian women's and fashion magazines, the authors found that 100 percent of the images of breasts were intact (no scarring or missing breasts) (McWhirter, Hoffmann-Goetz, & Clarke, 2012). These images were juxtaposed with articles detailing the life changing impact of a mastectomy or scarring (McWhirter, Hoffmann-Goetz, & Clarke, 2012). It is important therefore to examine the accompanying images as they can differ from the tone of the article (Haines et, al., 2010). Images of 'perfect' and healthy bodies do not reflect the devastating consequences of breast cancer that can dramatically alter one's physical appearance (Saywell, Henderson, & Beattie, 2000; Haines et, al., 2010). The images of 'normal' breasts can also subtly communicate what an ideal feminine body should look like and thus possibly stigmatize women with scarring or removed breast(s).

A study by Haines et al. (2010) is the only study in this literature review that coded colours in the visual imagery in cancer advertisements. They found that the colour pink was prominent in 23 out of 32 advertisements. This is an important finding as colours used in breast cancer imagery had yet to be investigated. The colour pink can serve to reinforce and legitimatize breast cancer as a feminine

disease as pink is considered a stereotypical signifier of femininity (Haines et al., 2010). Further, Haines et al. (2010) found that several messages showed women as faceless or headless with primary emphasis on their semi-nude bodies, specifically their breasts or torsos. In fact, in nine of the images, the women were unclothed however it is unclear whether this finding was statistically significant (Haines et al., 2010). The color pink is a color associated with femininity, thus, breast cancer is intertwined with this idea.

Dominance of Warfare Language

Starting as early as 1937, warfare language like 'war', 'battle', 'fighter(s)', and 'troops' have been used in the media to frame women diagnosed with breast cancer, thus evoking the imagery of breast cancer as battlefield (Black, 1995; Lupton, 1994; Lantz & Booth, 1999; Clarke, 2004; Gill & Babrow, 2007; Haines et al., 2010). The term 'fighter' implies effort and hard work; if one tries hard enough and puts forth the effort then one can beat breast cancer (Pool, 2012). Breast cancer is positioned as a disease that needs to be actively monitored and actively 'fought'. Interestingly however, Gill and Babrow (2007) found that the war metaphors were contradictory by emphasising personal control and at the say time uncertainty of the disease and lack of control.

Absence of Men with Breast Cancer

Men diagnosed with breast cancer were found to be almost invisible in media stories about breast cancer. Most research studies in this literature review did not mention whether men with breast cancer were discussed or whether they were

entirely absent in news stories. However, McKay and Bonner (1999) found that out of 42 personal stories in Australian women's magazines, two were of men. Seale (2001, 2002) also found that some men were mentioned as having breast cancer in news articles (four percent in 2001 and five percent in 2002). In breast self examination pamphlets, four out of 28 pamphlets noted that men too are susceptible to breast cancer (Kline & Mattson, 2000). Breast cancer is not solely a disease afflicted upon women, it is also estimated that 200 men will be diagnosed with breast cancer in 2013 (Canadian Cancer Society, 2013). It is important to examine news stories that not only feature female breast cancer narratives, but examine whose voice is being silenced and therefore made absent.

Breast Cancer Risk Factors

Individual risk factors for breast cancer, such as delayed childbearing, no childbearing, use of oral contraceptives, and smoking or drinking alcohol were found to be framed in the media as risk factors for breast cancer (Lantz & Booth, 1998; Lupton, 1994). In a more recent study however, lifestyle related factors like obesity, an unhealthy diet, and inactivity were infrequently cited risk factors (Atkin, Smith, McFeters, & Ferguson, 2008).

Family history and genetics as risk factors were central themes in many news stories (Henderson & Kitzinger, 1999; Marino & Gerlach, 1999; Saywell, Henderson, & Beattie, 2000; Brown, Zavestoski, McCormick, Mandelbaum, & Luebke, 2001). With the discovery of the BRCA1 and BRCA2 breast cancer genes, discussion of the genetic link to breast cancer increased (Clarke, 2004). In

a recent study, Walsh-Childers, Edwards, and Grobmyer (2011) found that magazine articles were twice as likely to emphasize family history of breast cancer rather than increasing age. Similarly, in their comparison of Jewish newspapers and Canadian newspapers, Donelle, Hoffmann-Goetz and Clarke (2005) found that the Jewish newspapers almost exclusively focused on genetic risk factors. Only one study in this literature review found that genetics as a risk factor was downplayed and framed as uncommon (Jones, 2004).

Compared to individual risk factors, an analysis of newspaper articles, magazines and television stories found that only four percent of the stories mentioned exposure to contaminants (like chemicals and pesticides) as a risk factor for breast cancer (Atkin, Smith, McFeters & Ferguson, 2008). Similar findings reveal that environmental risk factors received little coverage (Brown, Zavestoski, McCormick, Mandelbaum, & Luebke, 2001; Atkin, Smith, McFeters & Ferguson, 2008). Interestingly, in the articles that did write about breast cancer and environmental causation, most authors presented the evidence as inconclusive and uncertain (Brown, Zavestoski, McCormick, Mandelbaum, & Luebke, 2001).

In some instances, all women were positioned as susceptible to breast cancer and that this 'epidemic' appeared to be out of control, mysterious, and not understood by scientists (Lupton, 1994; Yadlon, 1997; Lantz & Booth, 1998; Clarke, 1999; Chapman, Mcleod, Wakefield, & Holding, 2005; Gill & Babrow, 2007). This information presented in the media is misleading and can lead to increased anxiety and fear, especially for younger women who may be receiving contradictory information about risk factors. Dramatic, fearful, and sensational

headlines were also dominant in many forms of media, particularly magazines (Black, 1995; Lupton, 1994; Yadlon, 1997; Clarke, 1999; McKay & Bonner, 1999). Yadlon (1997) also observed that the frequent use of risk factor statistics (such as one out of eight women will die from breast cancer) was given without sufficient explanation of the statistics.

Prevention and Treatment of Breast Cancer

Several research studies found that the prevention and treatment of breast cancer were the most discussed subject in breast cancer articles (Andsager & Powers, 1999; Clarke, 1999; Andsager & Powers, 2001; Cho, 2006; Atkin, Smith, McFeters, & Fergusion, 2008). Mammograms were frequently discussed as a crucial form of breast cancer prevention without mentioning the controversies surrounding their use (Lupton, 1994; Lantz & Booth, 1999; Marino & Gerlach, 1999; Dobias, Moyer, McAchran, Katz, & Sonnad, 2001; Schwartz & Woloshin, 2002; Atkin, Smith, McFeters, & Fergusion, 2008). Only one study in this literature review found that mammogram screening was rarely mentioned in news articles and advertisements (Jones, 2004). Gill and Babrow (2007) found that mammogram screening controversies and debates were discussed in news articles. Further, magazines targeted toward women with higher education levels featured more articles about the debates of mammograms compared to magazines targeted to women with lower educational levels (Dobias, Moyer, McAchran, Katz, & Sonnad, 2001). This is the only study in this literature review that separately examined magazines based on their target audience in terms of educational levels. This finding is important because it highlights how women of different

educational levels may be receiving different messages on breast health and screening based on their media source. According to the knowledge gap hypothesis, information that is disseminated through society is more likely to benefit individuals of a higher socio-economic status as they receive information more quickly (Tichenor, Donohue, & Olien, 1970). Therefore, it is important to examine the readership and target audience of media sources.

Many studies found that breast cancer prevention was framed as under the responsibility of the individual. For instance, diet changes and increased exercise were frequently mentioned and discussed as solutions to prevent breast cancer (Lupton, 1994; Black, 1995; Yadlon, 1997; McKay & Bonner, 1999; Brown, Zavestoski, McCormick, Mandelbaum, & Luebke, 2001). In women's magazines, readers were encouraged to learn and share information on breast cancer and take health matters into their own hands by adhering to early detection (Marino & Gerlach, 1999; Chapman, McLeod, Wakefield, & Holding, 2005; Gill & Babrow, 2007). Conversely, women who were seen as not taking action against breast cancer were framed as irresponsible, apathetic, and deviant (Kline, 1999; Gill & Babrow, 2007). Overall, these articles position breast cancer prevention within the control of the individual. Women are framed as capable of conquering breast cancer if they vigilantly monitor their lifestyle and seek early detection methods.

Dominance of Doctors, Researchers, and Scientific Expertise

Doctors, researchers, and medical professionals have been found to be a dominant source in breast cancer articles; their expertise and knowledge are framed as

important and relevant. In their analysis of 231 newspaper articles, news magazines, and television stories, Atkin, Smith, McFeters and Ferguson (2008) found that two-thirds of the data cited medical professionals, researchers, or expert organizations. Similarly, Cho (2006) found that more than half of the examined television stories cited medical doctors and researchers as sources. In women's magazines, scientific experts were cited to interpret scientific findings and give medical advice (Lantz & Booth, 1998; Kline, 1999; Jones, 2004). Scientific and biomedical expertise was found to be framed as dominant, certain, factual, and objective (Clarke, 1991; Lupton, 1994; Clarke, 1999; Gill & Babrow, 2007). Further, it was found that breast cancer stories with a research focus increased over time (Cho, 2006). However, tensions with scientific technologies and screenings have been found, for example, debates over prophylactic [risk-reducing] mastectomies (Henderson & Kitzinger, 1999; Saywell, Henderson, & Beattie, 2000).

It is important to examine not only what stories are being told in the media, but also the accuracy of the information. Newspaper articles on breast cancer citing a research study were compared to the original research findings and inaccuracies were discovered in two-thirds of the cases (Moyer, Greener, Beauvais, & Salovery, 1995). In the same study, less than half of the references in the newspaper articles provided enough information for readers to locate the original source (Moyer, Greener, Beauvais, & Salovery, 1995). Newspaper articles discussing Hormone Replacement Therapy and breast cancer were found to have

a positive tone contrary to null research effects on Hormone Replacement Therapy (Whiteman, Cui, Flaws, Langenberg & Bush, 2001).

In a more recent study that examined 555 magazine articles, the authors found that 44 percent of the information was inaccurate (Walsh-Childers, Edwards, & Grobmyer, 2011). As well, key information about breast cancer that should have been mentioned, were omitted in the magazine articles (Walsh-Childers, Edwards, & Grobmyer, 2011). Kline (1999) found that only five out of 300 breast cancer articles cited a reference for conducting a breast self-exam information. These findings reveal that there can be a large discrepancy between what is reported in the media regarding breast cancer compared with the actual research findings. Certain research results may be simplified, sensationalized, or omitted to create a new sensational and favourable story in the media.

Role of Female Celebrities Diagnosed with Breast Cancer

High profile female celebrities were featured in many of the breast cancer stories in the media (Ludwick, Rushing & Biordi, 1994; Lupton, 1994; McKay & Bonner, 1999; Saywell, Henderson, & Beattie, 2000; Burke, Pinsky, Reynolds & Press, 2001; Chapman, McLeod, Wakefield, & Holding, 2005; MacKenzie, Chapman, Holding, & Stiven, 2010). For instance, 25 celebrities were found in American magazines from 1993 to 1997 (Burke, Pinsky, Reynolds & Press, 2001). Celebrities were found to be framed as role models who urged other women to be vigilant of their breast health (McKay & Bonner, 1999). High profile female celebrities can share their experiences with other women diagnosed with

breast cancer in what Seale (2001) refers to as a 'shared sisterhood'. As well, famous celebrities can serve to increase awareness about the disease and increase media attention.

Conclusion

Breast cancer coverage in the media remains a dominant focus of health stories and continues to feature young, Caucasian, and physically attractive females that conform to Western standards of beauty. Stories of men with breast cancer are few and are seldom reported in the media. A breast cancer diagnosis is a metaphorical battle field where women must actively 'fight' rather than be passive to the disease. New 'warrior' identities are created where self transformation is encouraged and expected. Female celebrities diagnosed with breast cancer are part of a 'shared sisterhood' that act as role models for other women. An underlying tone in the media is that all women are at an equal risk for breast cancer. This is problematic as there are known risk factors for the disease that make some women more susceptible than others. The media also heavily emphasizes the genetic predisposition and family history of breast cancer while simultaneously minimizing and silencing environmental risk factors. Mammograms are encouraged as well as individual control like monitoring one's diet and weight as a means of prevention against breast cancer. Medical advice and expertise is a dominate source used in the media that further promotes medical technologies and scientific expertise.

There is a disproportionate amount of media coverage of breast cancer in the media even though heart disease and stroke is the leading cause of death in women in Canada. Despite this statistic, breast cancer remains a dominant focus in the media and a popular charity for organizations and businesses. It is important therefore, to investigate the prevalence of heart disease and stroke in the media.

Media Coverage of Heart Disease and Stroke

Prevalence of Heart Disease and Stroke in the Media

Starkly contrasted to breast cancer stories in the media, stories on heart disease were found to be less reported (Blanchard, Erblich, Montgomery, & Bovbjerg, 2002; Hoffman-Goetz, Shannon, & Clarke, 2003; Pribble et, al., 2006). Compared to other health stories, heart disease received less than one percent of the overall media coverage during a five-year period (Wharf-Higgins, Naylor, Berry, O'Connor, & McLean, 2006). Similar findings have been found in the media's reporting of stroke where less than one percent of the health stories were on stroke (Pribble et, al., 2006). In their examination of 14 Canadian Aboriginal newspapers, the authors found there were no human interest stories featuring men or women with cardiovascular disease (Hoffman-Goetz, Shannon, & Clarke, 2003).

Prevention and Treatment of Heart Disease

Heart disease prevention in the media has been primarily framed within the control of the individual (Clarke, 1991; Clarke, 1992; Clarke & Binns, 2006; Clarke, van Amerom, & Binns, 2007; Clarke & van Amerom, 2008; Edy, 2010).

In one extreme example, heart attacks were described as preventable and triggered by poor lifestyle choices (Clarke, 1992). Men and women were urged to improve their diet, lose weight, quit smoking, and exercise as prevention for heart attacks (Barbett, 2006; Turner, Vader, & Walters, 2008; Edy, 2010). Individuals were seen as in charge and in control of their heart health and that they held the power to improve their health (Clarke & van Amerom, 2008). Conversely, some researchers have found that while individual responsibility were a main focus in the media, societal factors were also discussed (Savoie, Kazanjian, & Brunger, 1999; Wharf-Higgins, Naylor, Berry, O'Connor, & McLean, 2006).

Along with personal responsibility, heart disease prevention was also linked to medical expertise and scientific technologies. Readers were urged to consult their medical doctors for advice, information, and tests on cholesterol and blood pressure (Clarke, 1991; Barbett, 2006; Clarke & Binns, 2006; Clarke & van Amerom, 2008; Edy, 2010). Further, new cholesterol lowering medication and new technologies were framed as life saving and as optimistic solutions (Clarke, 1991; Savoie, Kazanjian, & Brunger, 1999; Curry & O'Brien, 2006). However, some news articles sensationalized research findings and included inaccurate information on the treatment and prevention of heart attacks (Molitor, 1993; Cluckie, Rudd, & McKevitt, 2012).

Heart Disease and Gender

Contrasting information has been found regarding the media's portrayal of heart disease and gender. In some research studies, men were framed as more susceptible and discussed more frequently than women in relation to heart disease

(Clarke, 1992; Curry & O'Brien, 2006; Clarke, van Amerom, & Binns, 2007). Further, only male celebrities who had heart disease were featured and discussed (Clarke & Binns, 2006; Clarke & van Amerom, 2008). In their analysis of American and Canadian magazines, Clarke, van Amerom, & Binns, (2007) found that for men, heart disease was framed as inevitable and as a successful sign of manhood and career.

In other studies, women at risk for heart disease feature prominently in the media, specifically in women's magazines (Savoie, Kazanjian, & Brunger, 1999; Barbett, 2006; Turner, Vader, & Walters, 2008; Edy, 2010). This increased attention in the media can be linked to *The Heart Truth* campaign as magazines such as *Glamour* are sponsors of the American Heart Association's campaign, *The Heart Truth* (Turner, Vader, & Walters, 2008). Additionally in 2004, *Good Housekeeping* began to feature lengthy articles on heart disease in February, officially known as Heart Heath month in the United States (Edy, 2010).

Contradictory and Fearful Health Messages

Edy (2010) examined 18 articles in the magazine *Good Housekeeping* and found contradictory messages given to the readers. For instance, exercise was suggested as a preventative measure against a heart attack yet other articles mentioned women who had heart attacks while exercising (Edy, 2010). *Good Housekeeping* also failed to mention ethnicity as a possible risk factor for heart disease (Edy, 2010). In the only study in this literature review that examined the accompanying images to heart disease information, Smith (2007), found that pamphlets and

brochures for heart disease showed fit people smiling and engaging in physical activities. These images were found to contradict those at risk for heart disease (Smith, 2007). The results of this study demonstrate how important it is to examine the accompanying images of heart disease and stroke in news articles.

Fearful personal narratives were also found in heart disease articles, predominately in women's magazines. *Good Housekeeping* featured several women who had no risk factors for heart disease yet suffered heart attacks and no explanations were given to the reader (Edy, 2010). In *The Ladies' Home Journal*, a personal narrative of a woman who had a heart attack was 27 years old (Barbett, 2006). In a *Cosmopolitan* article, one woman described how a heart attack left her without her health, job, and freedom (Barbett, 2006). Fearful messages can communicate negative messages about having heart disease and are important to examine in media messages.

Conclusion

Compared with breast cancer, heart disease and stroke news stories do not dominate in health stories despite the fact that they are the leading cause of death. An exception can be found in the month of February where certain women's magazines, that are sponsors of the American Heart Association, feature lengthy articles and prescriptive information on heart disease. In the media, the prevention of heart disease and stroke is framed as under the control of the individual. They must adhere to a healthy diet, watch their weight, quit smoking, and exercise regularly. Further, readers are urged to seek out the expertise of their Doctor and

adhere to regular screening. Both men and women have been framed as at risk for heart disease, however, a women's risk is heightened and made more visible in women's magazines. Heart disease treatment and prevention have been presented as fearful by the use of shocking stories that feature young women with no risk factors, however, this has only been found in women's magazines compared to news magazines, newspapers, and television. Compared to breast cancer in the media, stories about heart disease do not feature nearly as many prominent celebrities nor do they use warfare language. As well, no research study in this literature review examined images accompanying heart and stroke articles and whether there was a prominence of color (i.e. red for heart disease and stroke).

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