

Review Article

Didactic and narrative methods of communicating breast cancer screening: a systematic review

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ABSTRACT

There is limited studies that have sought to understanding the processes and mechanisms through which stories influence health-related decisions and actions is critical to maximizing their effectiveness and developing appropriate applications for use in practice settings, more also studies that seek to interrogate the available evidence on the effectiveness of narratives in on seven correlates of behaviour change hence the current review. The main aim of this review was to conduct a comparative evaluation on effectiveness of didactic and narrative methods of cancer communication. Studies were included if they the study used empirical data whether the data was quantitative or qualitative discussing the use of narrative or didactic forms communication on cancer screening, if the study reported outcome of the intervention, if the study was on cancer screening, if the article was written in English language, and the article appeared in a peer-reviewed journal that was published before July 2017. The current systematic review evaluated evidence supporting narrative intervention in cancer communication in an attempt to increase the uptake of breast cancer screening as well as comparing narrative mode of communication with statistical mode of passing the information. Over all it was observed that there exist some evidence that narrative is efficacious in increasing breast cancer screening services. However there were a lot of inconsistencies in the evidence adduced in these studies, a fact that warrant that more studies be done in this area of study.

Keywords: Didactic, Narrative, Breast cancer, Screening

INTRODUCTION

Cancer is the leading cause of mortality worldwide. In 2016 it was responsible for approximately 7.6 million deaths or roughly 13% of all deaths, seventy percent of which occurred in low-and middle-income countries. This is predicted to rise to 13.1 million deaths annually by 2030.¹ Among women, breast cancer is the leading form of disease, accounting for 16% of all female cancers.² In 2012, it was estimated that there was approximately one million, six hundred new cases of breast cancer. This constituted approximately 25% of all

cancer cases worldwide.³⁻⁵ Breast cancer incidence rates vary by a factor of nearly 4 across the world regions, with 2012 rates (per 100 000) ranging from 27 cases in central Africa and in eastern Asia to 96 cases in Western Europe.²

Globally the incidence rate of cancer of the breast is such that it is low among the young women with approximately 27 cases per 100,000 compared to 92 per every 100,000 women among the women in North America. However it is worth to note that the incidence rates are rising among the least developed country where it is the most form of cancer that is diagnosed

superseding cervical cancer.⁶ In 2012 for example breast cancer accounted for approximately 522000 deaths in 2012, with 62% (324,000) of these deaths occurring in less developed regions of the world.⁷

While breast cancer incidence is affected by a demographic transition with a resultant increasing life expectancy and a westernisation of diet and lifestyle, the mortality from breast cancer is affected by early diagnosis, an increasing awareness of the disease and the advances that have been made in breast cancer therapy in many HICs in recent years.⁶ There is a scarcity of high-quality data on the incidence and mortality associated with breast cancer in sub-Saharan Africa (SSA) due to a limited number of population-based cancer registries on the continent.⁸ Having said that however, it is estimated that the number of new cases in Sub-Saharan Africa in on the increase. However, available estimates indicate that the number of new cases of breast cancer and breast cancer deaths in SSA is increasing. The estimated incidence rate of breast cancer in Kenya stands at 33.5/100,000 women according to the Nairobi Cancer Registry.⁹

According to the Kenya's 2014 Demographic Health Survey reports there is utilization of screening breast cancer screening services (Kenya National Bureau of Statistics).¹⁰ It is estimated that only a quarter (25 %) of women have carried out self breast examination and only fourteen percent have had a healthcare provider examination. Moreover the proportion of women who have undergone any of the two types of exams ranges from 1 per cent in North Eastern to 17 percent in Central and Nairobi as per regional analysis.

To increase uptake of breast cancer screening health education material are often used. However, research on strategies to make such materials most effective is often only conducted among people with some education.¹¹ This is a problem, because education level is associated with cognitive capacities in a way that lower educated people generally have fewer cognitive capacities. This makes them more likely to experience difficulties while processing information from health education materials. An alternative to this is the use of narrative in providing health education for cancer screening

One way of improving this is through the use of narrative method of communication.¹² Narrative information contains cohesive stories describing a setting and episode from the perspective of one or more protagonists, often providing information about goals, plans, actions, and outcomes. This study aims at examining the effect of narration in promoting uptake of breast cancer screening. Some previous literature has identified a wide range of effects of narratives that could mediate to enhance health behavior.¹³ The current paper reviewed literature of effects of narratives on prominent variables including (fear, perceived severity, knowledge, cancer fear, cancer fatalism, perceived risk of breast cancer, and perceived

barriers to mammography), which in turn effect behavioral outcomes or correlates of breast cancer screening.

Many studies reviews and meta-analysis have examined evidence on efficacy of narrative and non- narrative (mostly info graphics and statistical messages) mode of cancer communication. The findings coming from the studies has been equivocal in that some studies have found that narratives are persuasive where others have indicated that statistical evidence is more persuasive.^{14-16,18,19} There is limited studies that have sought to understanding the processes and mechanisms through which stories influence health-related decisions and actions is critical to maximizing their effectiveness and developing appropriate applications for use in practice settings, more also studies that seek to interrogate the available evidence on the effectiveness of narratives in on seven correlates of behavior change hence the current review.

Objective

The main aim of this review was to conduct a comparative evaluation on effectiveness of didactic and narrative methods of cancer communication. Specifically the evaluation reviewed literature on effects of narratives on seven correlates of health behavior including perceived severity, knowledge, fear of cancer, cancer fatalism, perceived risk of breast cancer, and perceived barriers to breast cancer screening on women.

Theoretical framework

This study utilized transportation theory and the health belief model. Transportation theory describes the tendency of narrative consumers to "travel" or be mentally drawn into the reality described in a narrative, as well as the outcomes associated with this experience of narrative immersion. Narrative transportation involves a strong sense of absorption into a narrative, including emotional and cognitive responses to narrative content that mirror reactions to real-world events. Transported audiences may also experience vivid mental imagery.

Transportation predicts the persuasive impact of narratives, with transported consumers frequently displaying increases in story-consistent beliefs, attitudes, and behaviors. Transportation has also been found to influence aspects of the mind as central as self-concept. It is related to, but distinct from, other forms of media engagement such as identification and para-social interactions.

METHODS

Criteria for inclusion and exclusion of studies

The researcher established all the inclusion and exclusion criteria before data base search was done. In so doing

studies were included if the study used empirical data whether the data was quantitative or qualitative discussing the use of narrative or didactic forms communication on cancer screening, if the study reported outcome of the intervention, if the of the study was on cancer screening, if the article was written in English language, and the article appeared in a peer-reviewed journal that was published before July 2017. The exclusion criteria are descriptive studies on cancer screening that did not use primary data, studies on cancer communication that used a combination of any of the above methods of communication and another method.

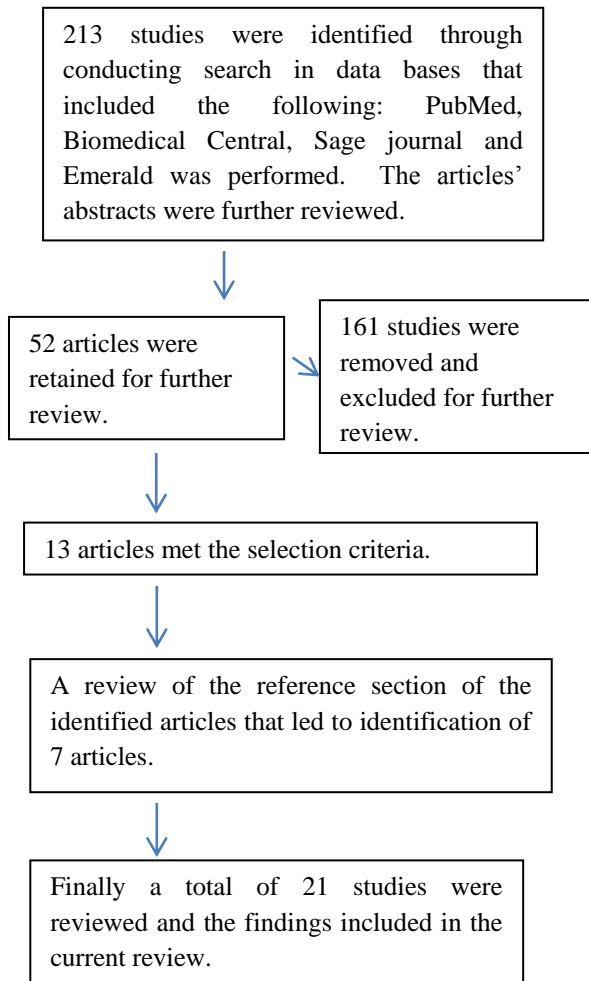


Figure 1: Study design.

Articles identification strategy

An inductive database search was performed in PubMed, Biomedical Central, Sage journal and Emerald. This was done using search terms that that included breast cancer, deductive, narrative, info graphics, oncology, screening uptake, fear, perceived severity, knowledge, cancer fear, cancer fatalism, perceived risk of breast cancer, and perceived barriers to mammography these were used, alone or in combination. The first stage of search yielded 213 articles. A review of the individual articles led to identification of 52 articles that were further reviewed.

Out of the fifty two (52) only 19 articles met the selection criteria, the remainder were removed based on the exclusion criteria. Further, a deductive search was conducted by reviewing the reference sections of all 19 included articles, which led to an additional 13 articles. Out of these only 9 articles were selected based on the study inclusion and exclusion criteria. A total of 21 articles were thus included in the current systematic literature review.

Data abstraction

The investigator abstracted data from the articles and developed a table that contained information including the location and the time in which the study was done, the population that was targeted, method used to enlist the respondents into that study and sampling, the study design, study design, type of communication (deductive or narrative) and study outcomes (Figure 1).

RESULTS

The following section presents the findings of the review. Out of the need for the ease of presentation and reference, the findings are presented in orderly manner whereby findings on the role of narratives on cancer screening behavior change are presented first, then comparison on impact of narrative and statistical messages on behavior change next, the role of narrative messages on the determinants of behavior, and findings on the role of narratives on fear. The section ends with presentation of findings on role of narratives on attitudes.

The role of narratives on cancer screening behavior change

A few studies to determine the effects of interventions of narratives on breast cancer behavior change were identified.²⁰⁻²² Their approach to the subject differed but they seemed to be in agreement that narrative interventions are effective in increasing uptake of breast cancer screening uptake. RCT study design was in the study by Grindel et al to compare the effectiveness of three types of video narratives on breast cancer screening.²⁰ Test of within the groups' uptake of breast cancer screening did not show any difference, however the study showed an increase in the uptake of mammography among the respondents who watched the any type of the three narrative videos.

The study by noted that there was an increase in the number of women who utilized screening service after in-person interventions.²¹ Moreover the two other studies in which one adopted quasi experimental study design and the other pre-test post-test design indicated that there was an increase in the cancer screening uptake after in-person interventions.^{21,22} Following this there seems to be a level of agreement that narrative have a positive influence in

changing breast cancer screening behavior among the respondent.

The mechanism in which this happens has been studied by other scholars. For example Green, 2006 indicated that transporting ability of narratives has a potential to change both personal beliefs and also motivate action in regard to the desired health behavior.¹³ He indicated that this is particularly useful in conveying cancer information in that it avoids opportunity for counterargument and that it also provide away in which individuals and individual can reflect on what is being said. Moreover it provides a role model for behavior change and creation of strong attitudes that is required for behavior change.

Comparison on effects of statistical messages and statistical messages on behavior change

A number of study used Random Control Trial research design in an attempt to compare the efficacy of narratives in cancer communication and statistical messages in motivating women to take up cancer screening.¹² The Hwang et al study showed no change in the uptake of screening services in the statistical group and the narrative group.²³ However at the same time, he found that those that had an additional exposure to narratives had a higher probability of utilizing screening services as compared to only those that had only been exposed to statistical information. More also when categorized in terms of the level of education.

Studies suggested that association of efficacy of narratives and statistical messages in changing screening for cancer behavior may not be strait forward.¹² For instance in a study by Kreuter et al found that there lacked difference in the uptake of mammography between the respondents who were exposed to narratives and those who were exposed to statistical messages.²³ However when the respondents were stratified based on education those who were exposed to narratives showed a higher uptake of mammography compared to those who were exposed to statistical messages in women who had an average of 12 years of education and lower.

On the same breath the study by Lemal et al and partner that consisted of a three group randomized control trials which included respondents receiving exposure to narrative, the second one with both statistical messages and narratives and the third one with no message at all to examine efficacy of a narrative messages mode of communication narrative message on the cancer of the skin screening behaviors established that even though respondents in the who were in the narrative arm were more likely to examine their skin when compared to respondents in no message arm the difference between narrative and statistical messages was not apparent.²⁴ Based on the foregoing it seems that there is some evidence that narrative provides a bigger level of efficacy on cancer communication compared with statistical messages.

The role of narrative messages on the determinants of behavior

It is not in doubt that behavior is associated with health and disease. Actually it is accepted that there is always a tendency to associate a person's behavior (including, negligence, indulgence, ignorance, recklessness etc.) with for health problems. It does not matter how well a behavior is framed or morally presented it remains a fact that ultimate etiologies and incidence or prevalence of the most diseases and health conditions downstream are pegged on the determinants of the behavior. Where the determinants of a behavior are addressed it is possible that the behavior will not happen and the fore the disease will not happen.

In the current review although few studies measured actual cancer screening behaviors. Approximately 10 studies sought to establish the effects of narrative intervention on the correlates that influence the screening of cancer. These included measuring correlates as intention, knowledge, perceived risk, perceived severity, and attitude perceived barriers.

Three studies conducted to determine the effectiveness of associations were found. Of the three studies two adopted a pre-post design and one adopted a cross sectional research design.^{25,26} In all of the three studies narrative increased the efficacy of communication in regard to cancer screening services uptake. Moreover there was an increased level of intention to screen.

Basing on the findings in the three studies five randomized controlled trials were conducted.^{25,27,28} The study by Kreuter et al determined that those respondents that were exposed to narrative displayed a greater level of intention to go for screening services compared to those who were exposed to statistical information.¹² However it was noted that education in the study was modifying factors in the sense that those with more education (minimum of 12 years education) had higher likelihood of having an intention to screen compared to those exposed to narratives and with fewer layers of education.²³

Moreover two studies by two RCTs found that a positive correlation with intension to screen for cancer.^{23,27} The study found a statistical significant relationship between exposure and the intention to take a screening test for cancer, those who received intervention inform of a narrative had a higher level of intention to take up a screening services as compared to respondents who received intervention inform of statistical messages. However a randomized control trial by found no difference between the groups.²³ Based on the above studies therefore one can conclude that there exist a level of evidence that exposure to narrative on cancer increase the intention which increases likelihood of cancer screening. Narrative has a greater efficacy in terms of

screening communication as compared to statistical messages.

As regard to the relationship of narrative and change in knowledge, one study examines the effects of exposure to narrative and compared that with effects of exposure to statistical message and knowledge acquisition. A study adopting randomized controlled trial examined the association between narrative exposure and knowledge change in regard to breast cancer.²⁸ They found that the level of knowledge was related to exposure. Those exposed to narratives were more likely to acquire more knowledge as compared to those exposed to who received statistical messages on cancer. Moreover, some studies indicated an existence of a significant increase in the level of knowledge for those receiving narrative intervention as compared to those receiving other forms of interventions.²⁹ However, one of the studies indicated no such change in knowledge level.

In further review few studies using quasi experimental design, four studies, and another three using randomized control trial, sort to determine the efficacy of narrative intervention and statistical messages in regard to growing knowledge on the cancer on the colon. The findings were that there were that there were no significant difference with regard to changing the level of knowledge positively on the cancer of the colon and screening for the same.²³ In a study by Murphy et al that used a randomized controlled trial found that narrative seemed to accord additional advantage in knowledge acquisition as compared to statistical messages.²⁸

Several studies examine the influence of narratives on the perception of risk for breast cancer among women who had not taken up mammogram. In a randomized control trial by there was no between the group difference and neither was there any difference in pre-test post-test when as sample was followed out for 12 months.²⁰

Further five RCTs which compared the effects of narrative to statistical messages in regard to perception of risk for breast cancer perceived risk of breast cancer.^{12,30,31} These studies found narrative to effective in changing the perception of cancer however Gonzalez found no significant difference between the two. In terms of the role of narrative on stealing fear of disease, five studies were identified that discussed on the topic.^{12,27,30}

Kreuter et al compared the consequence of narratives to statistical messages on fear on.³⁰ The findings were that narrative advantage triggered more fear as compared to statistical messages. Moreover, when compared, together, all the three RCTs found that there was no statistically significant relationship of communication format (narrative or statistical) to change in fear level of colorectal cancer.^{25,27} In general the studies found some evidence that narrative is more effective in triggering fear as compared to statistical messages.

In two studies Cheney et al (that used RCT) and Grindel et al (a study that used pre-post study design) that explored the effects of narrative intervention on attitudes tin regard to breast cancer screening found that there was a statistically significant relationship between the mode of communication and attitude change.²⁰ Those exposed to narrative showed a lot of positive improvement in regard to breast cancer screening compared to those who were exposed to statistical messages. There is therefore evidence that narrative is more efficacious in changing people's attitudes compared to statistical messages.

DISCUSSION

This studies sort to determine the efficacy of narrative as a communication tool for cancer screening. Twenty one studies were reviewed and their conclusion in regard to efficacy of narrative in cancer communication evaluated. Specifically the study reviewed literature on level of efficacy in regard to seven correlates of health behaviour including perceived risk of breast cancer, perceived severity, cancer fatalism, knowledge, fear of cancer, and perceived barriers to breast cancer screening on women. Majority of the studies adopted a quasi-experimental design.

Although there is consistent evidence across all the studies on the effectiveness of narrative in changing cancer behaviour it is not apparent that narrative advantage over statistical method in regard to changing cancer behaviour. Few things can be noted in this regard. First is that for those studies that indicated that narrative was more effective in altering cancer behaviour it was only significant after stratification was done. In for example study by Kreuter et al the association was only significant after the sample was stratified by the level of education.¹² At the same time a study by Lemal and Bulck VD noted some differences between narrative and statistical modes of communication nevertheless the difference was not significant.²⁴

CONCLUSION

The current systematic review evaluated evidence supporting narrative intervention in cancer communication in an attempt to increase the uptake of breast cancer screening as well as comparing narrative mode of communication with statistical mode of passing the information. Over all it was observed that there exist some evidence that narrative is efficacious in increasing breast cancer screening services. However there were a lot of inconsistencies in the evidence adduced in these studies, a fact that warrant that more studies be done in this area of study.

Recommendations

Looking at the current state of affairs in the highlighted research, question on the efficacy of narratives in changing the behavior still remains and requires more

research. A highly randomized control trial is required for the evidence of efficacy of narratives to be clear.

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