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The Impact of Emotion Based Mass-Media Campaigns on Stigma Towards Cervical Screening Non Participation

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Abstract

Numerous studies have demonstrated the positive impact of mass media coverage of cancer on screening rates. In this online experiment, we assessed the influence of different types of mass media news articles (factual versus emotive narratives) on cervical cancer screening intentions. We also tested the process through which mass media news articles influence screening intention. Participants (N = 141) were randomly allocated to receive either a news article containing factual information about screening, a news article containing an emotive narrative about a non-famous woman who died after not being screened, or no information about screening. Participants then completed measures of stigma, fear, shame and screening intention. Stigma toward people who had not been screened (i.e., public stigma) was greater when participants received an emotive narrative rather than factual information or no information. Moreover, we found a significant indirect effect of the manipulation on screening intention via public stigma. These results indicated that the emotive news article increased public stigma which in turn predicted screening intention. Based on this, we argue that it is important to carefully consider the type of narrative that is included in mass media articles to ensure that it does not stigmatise people who have not been screened.

Keywords: Stigma; mass media; cervical screening

Introduction

Cervical screening is an effective strategy for trying to tackle cervical cancer. This screening checks for a) abnormal cells in the cervix and b) the human papillomavirus (HPV). Identifying these early can help healthcare providers put treatments in place to reduce the likelihood of cervical cancer developing. In line with numerous other countries, the UK currently offers free cervical screening to women. Women aged 25-49 years receive a letter in the post inviting them to attend a cervical screening appointment every 3 years, whilst women aged 50-64 years receive this letter every 5 years. Despite this large-scale postal campaign, in 2018 only 71% of eligible women attended cervical screening appointments in line with government guidelines (NHS Digital, 2018). Worryingly, this report suggests that screening rates have been declining for a number of years. Therefore, it is important to understand the factors that promote cervical screening.

Researchers have highlighted the positive influence of mass media on health behaviours (Black, Yamada, & Mann, 2002; Wakefield, Loken, & Hornik, 2010), including cervical screening attendance (Morrell, Perez, Hardy, Cotter, & Bishop, 2010). Numerous studies have assessed the positive influence of news articles about celebrities with cancer on screening rates (Chapman, McLeod, Wakefield, & Holding, 2005; Macarthur, Wright, Beer, & Paranjothy, 2011). However, mass media news articles may cover the topic of cancer in a variety of different ways (Bell & Seale, 2011). News articles commonly cover the topic of cancer by discussing factual information and stories about non-famous individuals with cancer (Jensen, Moriarty, Hurley, & Stryker, 2010). In this research, we experimentally assessed the effects of factual news articles and news articles that contain an emotive narrative about a non-famous person on cervical screening intention, and the process through which such effects occur.

Narratives and Facts in Mass Media Articles

Although factual information may improve knowledge, there is only a weak association between knowledge and health behaviours (Sheeran, Abraham, & Orbell, 1999). Indeed, despite there being low levels of knowledge about cervical screening (Lovell, Wetherell, & Shepherd, 2015), knowledge-based interventions do not always promote screening (Shepherd, Walbey, & Lovell, 2018). By contrast, numerous studies have demonstrated the effectiveness of emotional narratives in promoting behaviour change (for reviews, see Perrier & Martin-Ginis, 2017; Zebregs, van den Putte, Neijens, & de Graaf, 2015). Importantly, research has suggested that narratives may be effective in promoting cervical screening (Marlow, Sangha, Patnick, & Waller, 2012). These findings suggest that narrative information may be more effective than factual information in promoting screening. In line with this, research has suggested that receiving a narrative appeal is more likely to promote cervical screening than receiving factual information (Murphy, Frank, Chatterjee, & Baezconde-Garbanati, 2013). This suggests that mass media news articles that include emotional narratives are likely to be more effective than factual information in promoting cervical screening attendance.

Narratives are likely to influence persuasion and behaviour through a process of *transportation*, in which the reader becomes captivated by the account (Green & Brock, 2000). The reader starts to relate the narrative to themselves and have emotional responses to the narrative, resulting in a change in their intentions to engage in a behaviour (for a discussion, see Dunlop, Wakefield, & Kashima, 2008). In line with this, research has suggested that the effects of narratives on health behaviours are likely to occur through changes in emotional responses, in this case fear (Dunlop, Wakefield, & Kashima, 2010). Therefore, mass media news articles that contain emotive narratives are likely to promote the health behaviour in question by eliciting feelings of fear within the reader.

Emotive Narratives, Stigma and Shame

Although previous research has focused on the mediating role of fear, it is important to consider the effects of including emotive narratives in mass media news articles on other factors. Unfortunately, people often attribute the blame of having cancer to the patient (Bresnahan, Silk, & Zhuang, 2013; Chapple, Ziebland, & McPherson, 2004). This is particularly true for individuals with bowel, cervical and lung cancer (Marlow, Waller, & Wardle, 2010). Research has also found that reading about an individual with cervical cancer can lead to increased stigma towards this group when HPV was identified as the specific cause for the development of cancer (Shepherd & Gerend, 2014). In this research, people with cervical cancer were stigmatised by readers as being more dirty, unwise and dishonest when the cause was identified than when the cause was unspecified.

Although these studies have not directly tested these processes in relation to mass media news articles, the general principles may be applied to this context. Indeed, viewing a news article about a person with cervical cancer may lead the reader to stigmatise individuals with the condition when a specific cause has been identified. This is particularly problematic given that research suggests there is a growing trend for mass media stories about cancer to discuss unhealthy lifestyle factors that may have contributed to the development of cancer (Clarke & Everest, 2006). Although Shepherd and Gerend (2014) focused on HPV as a specific cause of cervical cancer, the theoretical argument may be applied to other specific causes, such as not attending a cervical screening appointment. As such, mass media news articles that contain emotive narratives about an individual who did not attend cervical screening and subsequently developed cervical cancer may lead the reader to stigmatise people who do not get screened.

The rationale above focuses on the role of news articles in promoting *public stigma*, as it involves the perceiver stigmatising a group of individuals (i.e., people who do not get

screened). However, news articles may promote other types of stigma. For example, people may also experience *self-stigma* when they internalise the negative perceptions of others (i.e., internalise public stigma; Vogel, Bitman, Hammer, & Wade, 2013). Therefore, the elicitation of public stigma following an emotive narrative in a mass media news article may promote self-stigma when this perception is internalised. Similarly, researchers also suggest it is important to assess *perceived stigma*, which is the extent to which the individual believes that others view people with a condition negatively (Golberstein, Eisenberg, & Gollust, 2008). Although there is less research on perceived stigma, it is likely that reading emotive narratives about cervical cancer also have the potential to promote perceived stigma, especially when there is an underlying critical tone in the narrative.

It is also important to consider the emotions that are associated with stigma; specifically, feelings of shame (Cunningham, Tschann, Gurvey, Fortenberry, & Ellen, 2002; Fortenberry et al., 2002). Traditionally, shame has been regarded as a self-conscious emotion that is felt when an individual believes they have a damaged self-concept and results in social withdrawal (Tangney, Stuewig, & Mashek, 2007). However, a more recent reconceptualisation of shame has suggested that this emotion can be segregated into three subcomponents: pure shame, inferiority and rejection (Gausel & Leach, 2011; Gausel, Leach, Vignoles, & Brown, 2012). In its purest form, *shame* is felt when an individual believes an aspect of themselves could be better (e.g., 'not being screened suggests that I am not as wise as I should be'). By contrast, inferiority is felt when people believe that their whole self-concept is damaged (e.g., 'not attending a screening appointment suggests I am inadequate'). Finally, rejection is felt when people think they are isolated (e.g., 'others may look down upon me if they know I have not been screened'). Given that emotive narratives may promote stigma, it is possible that this may also result in the elicitation of these shame-based emotions, especially when the stigma has been internalised to the self (i.e., self-stigma).

As mentioned earlier, numerous studies suggest that emotive narratives within mass media new articles are likely to increase the individual's perceived susceptibility and fear of having a condition, which, in turn, increases the likelihood of the individual engaging in a health behaviour (Dunlop et al., 2008, 2010). However, it is possible that such narratives also have negative consequences, such as increasing stigma and shame. To our knowledge, there is little research assessing the influence of emotive narrative in mass media news articles on different types of stigma and shame. Therefore, the first aim of this research was to assess whether emotive narratives within mass media news articles increase stigma and shame relative to factual news articles and a control condition containing no information.

Stigma, Shame and Screening Intention

It is also important to consider how stigma and shame may influence cervical screening. Researchers have often assessed the extent to which health service engagement is deterred by public stigma (Iversen et al., 2011), self-stigma (Vogel, Wade, & Hackler, 2007) and perceived stigma (Cunningham, Kerrigan, Jennings, & Ellen, 2009). Therefore, it could be argued that these forms of stigma may deter cervical screening. Indeed, there is some research suggesting that stigma may be a barrier for cervical screening (Logan & McIlfatrick, 2011). However, studies in this area often focus on the stigma associated with having and being treated for a condition. By contrast, in this context, we are assessing the stigma associated with not being screened for a condition. People are motivated to dissociate with low-status groups and join higher-status groups (Ellemers, van Knippenberg, & Wilke, 1993). Therefore, desire to avoid being part of a stigmatized low-status group (e.g., non-attenders) may promote cervical screening.

The subcomponents of shame are also likely to predict behaviour. Research has demonstrated that in its purest form, shame promotes pro-social actions that repair a damaged identity, whilst rejection results in social withdrawal (Gausel et al., 2012, Gausel, Vignoles,

& Leach, 2016). Although inferiority may also promote withdrawal, this is to a lesser extent than rejection (Gausel & Leach, 2011). Based on this, it is likely that experiencing shame following an emotive narrative may promote cervical screening. By contrast, experiencing inferiority or rejection may deter screening. Therefore, the type of shame-based emotion that is elicited following an emotive narrative is likely to influence whether or not the individual intends to attend a cervical screening appointment.

Based on the rationale presented, it is likely that fear, stigma and shame subscales will predict cervical screening intention. However, there has been relatively little research assessing how these subscales uniquely predict cervical screening. Therefore, the secondary aim of this research was to assess how the different subscales of stigma (public, self-stigma and perceived) and shame (shame, inferiority and rejection) uniquely predict cervical screening intention. Finally, given that emotive narratives in mass media articles are likely to predict stigma and shame and given that these constructs are likely to promote screening, we also tested the indirect effect of emotive narratives in mass media on cervical screening intention via stigma and shame.

Methods

Design

This online experimental study used a between-participants design. Participants were randomly assigned to one of three conditions (emotive media, factual media or control). In the control condition, participants did not receive any information about cervical screening. In the factual media condition, participants received a mock news article that described statistics related to cervical screening. In the emotive media condition, participants received a mock news article that described a case of a (fictitious) person who did not attend a cervical screening appointment and subsequently died from cervical cancer. The dependent variable was future cervical screening intention. The potential mediating variables were the stigma

subscales (public stigma, self-stigma and perceived stigma), the shame subscales (shame, inferiority and rejection) and fear.

Participants

This study was conducted in the UK. A total of 154 female participants were recruited online via social media and online community forums. Participants were able to take part in the study if they were eligible for cervical screening in the UK (i.e., aged in between 25-64 years and registered with a doctor in the United Kingdom). Participants were excluded if they were ineligible for cervical screening on medical grounds (e.g., past hysterectomy) and/or if they or a close friend/family member have ever been diagnosed with cervical cancer (i.e., to reduce the likelihood of unintentionally distressing participants). There were 11 participants who did not complete the questionnaire, and thus were removed before analysis. A further 2 participants were excluded as they were less than 25 years old and therefore not eligible for routine cervical screening in the UK. The final sample therefore consisted of 141 females aged in between 25-62 years (M_{age}= 39.31, SD_{age} = 9.73; for full demographics, see Table 1).

Most participants provided a postcode in order to enable us to determine their socio-economic status. For participants with an English postcode (n = 127), socio-economic status was estimated using the English Index of Multiple Deprivation (IMD) 2015 (Ministry of Housing, Communities and Local Government, 2015). This index combines information from different domains to determine the level of relative deprivation in an area. These domains include income, employment, education, health and crime. Each small area is then ranked from least to most deprived. In this study, we used the decile indicator of deprivation, with 1 representing an area is one the of 10% most deprived areas in England, and 10 indicating an area is one of the 10% least deprived in England. This score ranged from 1-10 with a mean of 5.36 (SD = 2.79). For participants with a valid Scottish postcode (n = 4), we calculated socio-economic status using the Scottish Index of Multiple Deprivation (2016; Scottish

Government, 2019). This calculates deprivation in a similar way to the English measure. Again, we used the decile measure that ranged from 1 (10% most deprived) to 10 (10% least deprived). The scores ranges from 4-10 with a mean of 7.00 (*SD* = 2.94). Such measures are well-used in previous health research (e.g., O'Carroll, Shepherd, Hayes, & Ferguson, 2016). Moreover, this measure has advantages over using single construct measures (e.g., income) because it accounts for numerous constructs related to socio-economic status.

Materials and Procedure

The study received ethical approval from the authors' institutional review board. Participants were first asked to read an information sheet outlining the study. If the participant gave consent, they were asked to complete a brief questionnaire collecting demographic information (e.g. age, ethnicity, level of education) and cervical screening status (i.e. currently overdue or up-to-date). Following this, participants were randomly allocated into one of the three conditions by the online survey software (Qualtrics). In the emotive condition, participants viewed a mock news article entitled 'Tragic story of young mum diagnosed with cancer after missing smear test'. The article described the fictional case of a 35-year-old who never attended a cervical screening appointment, despite being urged to by her friends. This person was subsequently diagnosed with late-stage cervical cancer and then died from this condition. Although this was a mock news article, the information that was included was based on existing news articles. In the factual condition, participants viewed a mock news article entitled 'Benefits of cervical screening discussed as attendance falls to a 20-year low.' This article discussed the life-saving benefits of cervical screening and the process of being screened. Importantly, this information did not discuss any case-studies of individuals who died after not getting screened. Finally, in the control condition, participants were not presented with any news articles. Participants then completed a series of items, each rated on a five-point scale (1 = *strongly disagree,* 5 = *strongly agree*).

Cancer-related fear. The cancer-related fear items were adapted based on previous research (e.g., Vrinten, Waller, von Wagner, & Wardle, 2015). This was assessed using three items: 'I worry about having cervical cancer', 'I feel anxious thinking about cervical cancer' and 'I am afraid of having cervical cancer'. These items formed a reliable scale (α = .87).

Shame subscales. The items for the shame subscales were adapted based on previous research (Gausel et al., 2012, 2016). The shame items were: 'I would feel ashamed if I was not up-to-date with my cervical screening appointment', 'I would feel embarrassed if I was not up to date with my cervical screening appointment' and 'I would feel self-conscious if I was not up to date with my cervical screening appointment' (α = .87). There were two inferiority items: 'I would feel inferior to others if I did not attend cervical screening when I was due' and 'I would feel vulnerable if I did not attend cervical screening when I was due' (r = .41, p < .001). The rejection items were: 'I would feel withdrawn from others if I had not attended my screening appointment when I was due', 'I feel others would reject me if I had not attended my screening appointment when I was due' and 'I feel I would not 'fit in' with others if I was not up-to-date with my screening appointment' (α = .87).

Stigma. The stigma items were adapted from previous research on stigma (e.g., Jennings, Cheung, Britt, Goguen, Jeffirs, Peasley, & Lee, 2015). Three items assessed public stigma: 'People who do not attend cervical screening are irresponsible', 'People who do not attend cervical screening should be ashamed of themselves' and 'People who do not attend cervical screening are not taking care of themselves' (α = .78)[1]. There were three self-stigma items: 'I feel people would judge me negatively if I did not attend my cervical screening appointment', 'If I did not attend a cervical screening appointment, I would feel self-conscious discussing this with others' and 'If I did not attend a cervical screening appointment, I would hide this from others' (α = .78). The perceived stigma items were: 'Women who do not attend screened are often viewed negatively', 'Women who do not

attend screening are often judged by others' and 'Women who do not attend screening are viewed as irresponsible' (α = .88).

Screening intention. Three items were used to assess future screening intention: 'I intend to go to my cervical screening appointments in the future', 'I am likely to attend a cervical screening appointment in the future' and 'I will attend a cervical screening appointment in the future' (α = .96). We also included a measure to assess behavioural intention. Participants were asked whether they wished to receive some information about screening (no versus yes) and informed that if they selected 'yes' they would receive more information at the end of the study. This measure was most relevant for people who were not up-to-date with screening. However, there was an insufficient number of people who were not up-to-date with screening to perform a meaningful analysis (see Table 1). Therefore, this item is not discussed further.

Planned Analysis

Correlation analyses were conducted to assess the association between the shame subscales, stigma subscales, fear and intention to be screened. Analyses of variance (ANOVA) tests were conducted to determine whether the experimental condition had a significant effect on levels of fear, shame subscales, stigma subscales and intention to be screened. We then used the Process Macro (Hayes, 2013) to assess any potential indirect effects from the manipulation to screening intention.

Results

Preliminary data analysis demonstrated that there were seven potential univariate outliers on the screening intention and one on the rejection variable (i.e., scores ± 3 standard deviations from the mean). We analysed the data with and without these outliers included in the dataset. The removal of these outliers did not alter the main findings. Therefore, this data was retained.

Correlations between Variables

Correlation analyses demonstrated that screening intention was positively associated with public stigma, self-stigma, perceived stigma, shame and inferiority (Table 2). Being overdue (coded 0 = no and 1 = yes) was negatively associated with shame, inferiority and screening intention. By contrast, the other variables were not associated with screening intention. There were positive associations between the stigma and shame subscales. Moreover, fear was positively related to public stigma, shame, inferiority and rejection. Socio-economic status was not associated with any of the variables. Although there were some associations between the variables, the lowest tolerance value (.44) was greater than .20, indicating that the data was not bias by multicollinearity (Menard, 1995).

Effect of the Media Manipulation

Next, we assessed the effect of the media manipulation on the shame and stigma subscales, fear and intention. The manipulation had a significant effect on public stigma (Table 3). Further post hoc analyses, with Bonferroni corrections, revealed that this was due to higher public stigma in the emotive media condition than the factual media or control condition. The manipulation did not have a significant effect on any of the other variables. These results suggest the emotive media article increased negative views toward women who have not been screened (in comparison to being presented with factual media or no information)[2].

Indirect Effects

For an indirect effect to be present, there needs to be a significant relationship between a) the independent variable and the mediator and b) the mediator and the dependent variable (Hayes, 2013). We found that the manipulation (i.e., the independent variable) had a significant effect on public stigma (i.e., the mediator; Table 3) and that public stigma was positively associated with screening intention (i.e., the dependent variable; Table 2).

Therefore, although there was not a direct effect from the manipulation to intention, there was the potential for an indirect effect via public stigma. This was tested using the Process Macro (Model 4, Hayes, 2013). The condition variable had three levels (control, factual and emotive). Therefore, indicator coding was used with the emotive condition as the reference category. The confidence intervals were calculated based on 5,000 bootstrap resamples. For the comparison between the control and emotive conditions, there was a significant indirect effect (95% CI [-0.39, -0.05]). This suggests that the emotive condition increased levels of public stigma relative to the control condition and that this, in turn, positively predicted the intention to be screened (see Figure 1). Similarly, for the comparison between the factual and emotive condition, there was a significant indirect effect (95% CI [-0.36, -0.03]), suggesting the emotive article increased public stigma relative to the factual article and that this positively predicted intention to be screened. Therefore, these results suggest that receiving an emotive news articles increase levels of public stigma and that this, in turn, promotes an intention to be screened.

We also reanalysed the data with whether or not the participant was overdue a screening, socio-economic status, self-stigma, perceived stigma, fear, shame, inferiority and rejection entered into the model as covariates. This served two purposes. First, it ensured that the mediation model was robust. Second, it allowed us to assess the predictive power of these covariates on intention to be screened. In this analysis, the indirect effects remained significant for the comparisons between the control condition and the emotive condition (95% CI [-0.29, -0.02]), and the comparisons between the factual and emotive condition (95% CI [-0.26, -0.02]). This suggests that the indirect effects were reliable. In the regression analysis assessing the effects of the manipulation, mediator and covariates on intention to be screened, we found that people who were overdue were less likely to intend to get screened. Interestingly, in this analysis shame positively predicted intention to be screened, whilst

rejection negatively predicted intention to be screened (Table 4). This suggests that the shame subscales are likely to have different effects on intention to be screened. Shame seems to promote screening, whilst rejection seems to deter screening.

Discussion

The aim of this research was to assess the effect of different types of mass media articles on screening intention, and the process through which such effects occur. We found that people who received emotive narratives within a mass media news article were more likely to demonstrate public stigma towards people who had not been screened. Moreover, we also found an indirect effect of emotive narratives on screening intention via public stigma. Reading an emotive narrative in a mass media news article increased feelings of public stigma, which in turn positively predicted the willingness to attend a cervical screening appointment. This suggests that one process through which emotive narratives within news articles promote screening is through increases in public stigma.

We also found that the manipulation did not have a significant effect on fear, the shame subscales (shame, inferiority and rejection), self-stigma and perceived stigma. We may not have found this effect because the majority of participants in our sample were up-to-date with screening. The internalisation of stigma to the self requires the individual to belong to the stigmatised group (i.e., people who have not been screened). People who belong to this group may also be more likely to experience fear as they are not up-to-date with their screening (Lovell, Wetherell, & Shepherd, 2015). Similarly, perceived stigma may be more relevant to non-attenders as it involves not viewing non-attenders negatively when other people do. Given the majority of the sample were up-to-date, these concepts may not have been as relevant. It is important to note that controlling for whether or not the participant was overdue a screening did not influence the analyses. However, we may have been more likely

to find a significant effect on these other variables if the sample contained more people who had not been screened.

Interestingly, we found that shame positively and rejection negatively predicted cervical screening intention. This is in line with previous research that has suggested that pure shame promotes prosocial behaviour, whereas rejection results in social withdrawal (Gausel et al., 2012, 2016). Interestingly, most research in this area has assessed influence of these components on shame in the moral domain. There is some research applying these concepts to education (Gausel, 2014), sexual objectification (Shepherd, 2019) and weight loss (Tauber, Gausel, & Flint, 2018.). However, to our knowledge, there has been little research assessing the extent to which these factors predict screening behaviours. Therefore, this research further demonstrates the robustness of this model to different contexts. It is also an interesting avenue for future research.

These findings have some interesting implications. This research suggests that emotive narratives may promote health behaviours through increases in public stigma. Given the harmful effects of belonging to a stigmatised group (Schmitt, Branscombe, Postmes, & Garcia, 2014), it could be argued that the use of emotive narratives in health behaviour change is problematic. However, it is important to note that narratives do not always increase stigma, but in some cases may be used as an effective strategy for reducing stigma towards individuals with health conditions (Heley, Kennedy-Hendricks, Niedereppe, & Barry, 2019). As mentioned earlier, narratives are likely to promote stigma when a cause of the condition has been identified (Shepherd & Gerend, 2014). Therefore, it is not the inclusion of a narrative that is problematic, but instead the nature of the information within the narrative. For example, the mass media reporting of a UK celebrity (Jade Goody) who was diagnosed and subsequently died from cervical cancer, was associated with an increase in cervical screening attendance (Macarthur et al., 2011). Importantly, the mass media reporting of this

focused on the diagnosis, treatment and spread of her cancer (Hilton & Hunt, 2010). We argue that by focusing on these aspects rather than specific causes, these mass media news articles are likely to have promoted screening without increasing levels of stigma.

Although this research produced some interesting findings and implications, it is important to consider the limitations of this study. First, as mentioned above, the majority of the sample were up-to-date with cervical screening and had a high intention to get screened. Although the socio-economic status of participants was diverse, the sample were generally White and likely to be highly educated. It is important to test whether the findings would be replicated in a more diverse sample. For example, it is important to see whether these factors predict cervical screening when the sample includes a greater number of people with low screening intentions. Second, this study focused on cervical screening intention. Cervical screening intention predicts behaviour (Cooke & French, 2008). However, there is a well-known intention-behaviour gap (Sheeran, 2002). Therefore, further research is needed to consider these processes in relation to cervical screening attendance. Finally, in this research we assessed the influence of factual information and narratives separately. However, recently researchers have assessed the persuasive power of having facts embedded within narratives (Krause & Rucker, 2019). Therefore, it would be useful for future studies to assess the influence of mass media news articles that contain facts embedded within emotive narratives.

In conclusion, this research assessed the influence of mass media news articles that contain factual information or emotive narratives on fear, stigma, shame and cervical screening intention. Articles that included an emotive narrative about an individual who died after not being screened resulted in increased public stigma towards people who have not been screened. This increase in stigma subsequently positively predicted cervical screening intention. This suggests that the inclusion of emotive narratives about an individual who developed cervical cancer following a specific cause (i.e., not being screened) may

unintentionally increase stigma towards people who have not been screened. Given the potentially damaging effects of stigmatisation, it is therefore important to carefully consider the type of narrative that is included in mass media news articles.

Endnotes

[1] Originally, this scale contained an additional item ('I would think negatively of someone who was not up to date with cervical screening'). However, due to a technical error, this was rated on a 7-point scale rather than a 5-point scale. This item was removed from the scale to avoid trying to combine items rated on different response scales.

[2] We also tested whether the manipulation had a significant effect on the variables after controlling for whether or not the participant was overdue. After controlling for this, there was still a significant main effect of the manipulation on public stigma, $F(2, 137) = 5.44$, $p = .005$, $\eta_p^2 = .07$. The effect of the manipulation on all other variables remained non-significant.

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Tables

Table 1. Demographics of the sample.

	Total *n* (%)
Ethnicity	141[†]
White	134 (95.04)
Asian	2 (1.42)
Mixed Race	3 (2.13)
Other	2 (1.42)
Education	140[†]
Secondary School	12 (8.51)
College	19 (13.48)
University undergraduate	41 (29.08)
University Postgraduate	68 (48.23)
Occupation	141[†]
Student	7 (4.96)
Working full-time	72 (51.06)
Working part-time	29 (20.57)
Retired	3 (2.13)
Unemployed	8 (5.67)
Other	22 (15.60)
Annual household income	140[†]
£60,000 +	25 (17.73)
£50,000 – 59,999	11 (7.80)
£40,000 – 49,999	26 (18.44)

£30,000-39.999	25 (17.73)
£20,000-29,999	24 (17.02)
£15,000-19,999	14 (9.93)
£15,000 or less	15 (10.64)
Ever attended screening	141[†]
Yes	134 (95.04)
No	7 (4.96)
Ever postponed screening	134[†]
No	46 (32.62)
Once	28 (19.86)
Occasionally	45 (31.91)
Always	15 (10.64)
Overdue	141[†]
No	116 (82.27)
Yes	25 (17.73)

Notes. [†] This represents the number of participants who completed the questions

Table 2. Correlation analyses assessing association between variables.

	M (*SD*)	1	2	3	4	5	6	7	8	9	10
1) Overdue	-	-									
2) Socio-economic status	5.36 (2.79)	-.16	-								
3) Public stigma	3.17 (0.97)	-.16	.01	-							
4) Self-stigma	3.05 (1.03)	-.15	.09	.48***	-						
5) Perceived stigma	3.34 (0.99)	-.15	.06	.45***	.67***	-					
6) Cancer-related fear	3.49 (1.07)	-.09	-.08	.22*	.16	.13	-				
7) Shame	3.27 (1.10)	-.25**	.14	.41***	.51***	.40***	.33***	-			
8) Inferiority	3.03 (1.02)	-.36***	.11	.45***	.53***	.44***	.33***	.61***	-		
9) Rejection	1.86 (0.88)	-.16	-.002	.46***	.50***	.50***	.33***	.43***	.53***	-	
10) Screening intention	4.65 (0.87)	-.53***	.16	.38***	.24**	.21*	.09	.44**	.39***	.11	-

* = $p < .05$, ** = $p < .01$ and *** = $p < .001$

Note. Socio-economic status is based on the English Index of Multiple Deprivation. Participants with a Scottish postcode were not included in this analysis. Pairwise deletion was used in these analyses.

Table 3. The effect of the media manipulation on shame subscales, stigma subscales and intention to be screened.

	Control *M* (*SD*)	Factual *M* (*SD*)	Emotive *M* (*SD*)	*F* Value
Public stigma	2.94 (0.94)$_a$	2.99 (0.92)$_a$	3.49 (0.96)$_b$	$F(2, 138) = 5.24$, $p = .006$, $\eta_p^2 = .07$
Self-stigma	2.97 (1.13)$_a$	3.05 (0.98)$_a$	3.10 (1.00)$_a$	$F(2, 138) = 0.21$, $p = .813$, $\eta_p^2 = .003$
Perceived stigma	3.06 (1.16)$_a$	3.44 (0.90)$_a$	3.47 (0.88)$_a$	$F(2, 138) = 2.41$, $p = .094$, $\eta_p^2 = .03$
Cancer-related fear	3.71 (0.93)$_a$	3.23 (1.22)$_a$	3.55 (0.99)$_a$	$F(2, 138) = 2.34$, $p = .101$, $\eta_p^2 = .03$
Shame	3.26 (1.07)$_a$	3.21 (1.19)$_a$	3.33 (1.08)$_a$	$F(2, 138) = 0.14$, $p = .866$, $\eta_p^2 = .002$
Inferiority	2.96 (0.95)$_a$	2.88 (1.15)$_a$	3.20 (0.95)$_a$	$F(2, 138) = 1.38$, $p = .255$, $\eta_p^2 = .02$
Rejection	1.70 (0.74)$_a$	1.86 (1.06)$_a$	1.98 (0.82)$_a$	$F(2, 138) = 1.16$, $p = .316$, $\eta_p^2 = .02$
Screening intention	4.54 (1.06)$_a$	4.65 (0.82)$_a$	4.72 (0.74)$_a$	$F(2, 138) = 0.52$, $p = .594$ $\eta_p^2 = .01$

Different in-line letters represent significant difference between the means at $p < .05$. For the analysis, $n = 54$ for the emotive condition, $n = 45$ for the factual condition, and $n = 42$ for the control condition.

Table 4. Regression analysis assessing influence of manipulation, mediator and covariates on intention to be screened.

	B	SE
Comparison between control and emotive condition	0.06	0.16
Comparison between factual and emotive condition	-0.02	0.15
Overdue a screening	-1.01***	0.17
Socio-economic status	0.01	0.02
Public stigma	0.24**	0.08
Self-stigma	-0.03	0.09
Perceived stigma	0.03	0.09
Fear	-0.09	0.06
Shame	0.25***	0.07
Inferiority	0.07	0.09
Rejection	-0.22*	0.09

* = $p < .05$, ** = $p < .01$ and *** = $p < .001$

Figure Captions

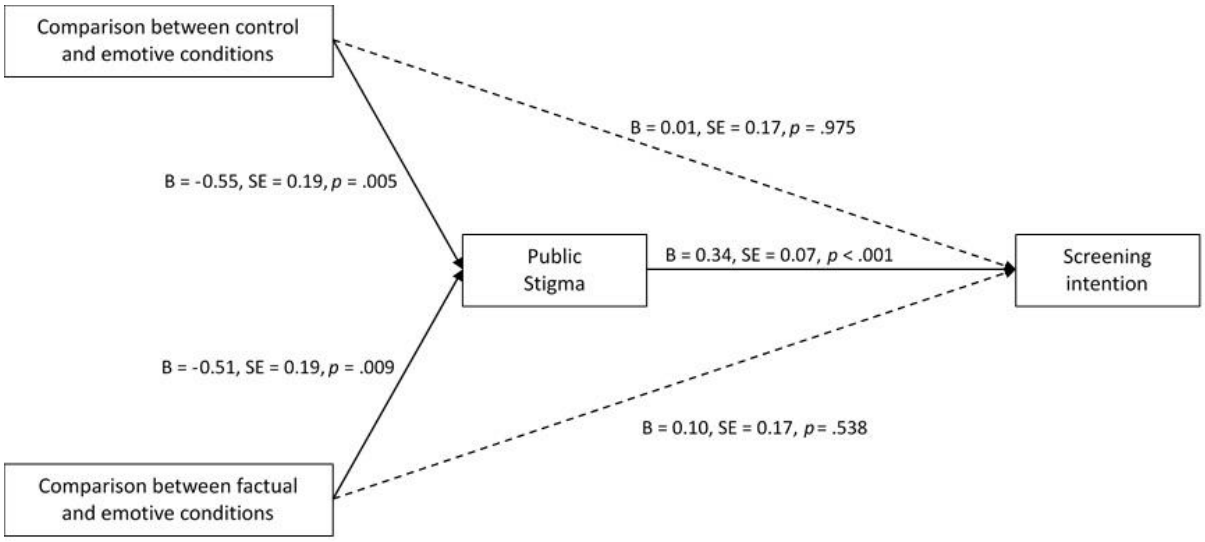

Figure 1. Indirect effect from the manipulation to intention to be screened via public stigma.

B = unstandarised coefficient and SE = standard error.