

# Fear and persuasion in public health discourse: The case of CDC anti-smoking campaigns

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## ABSTRACT

Fear has long been recognised as a potent tool for persuasive communication. A plethora of research has examined the role of fear appeals in influencing the target audience. However, scant attention has been given to the choice of persuasive strategies used to craft fear messages, particularly in the public health domain. This study aims to bridge the gap in the literature by examining the prevalence of fear strategies and the interplay between persuasion and fear in an anti-smoking campaign, drawing on Aristotle's persuasion theory and Fear Appeals by Witte and Allen (2000). Methodologically, the study employs a qualitative, descriptive content analysis to examine how fear-based persuasive strategies are constructed in the CDC's press releases. A qualitative analysis was conducted on a corpus of 27 press releases issued between 2012 and 2024 as part of the Centers for Disease Control and Prevention's (CDC) *Tips From Former Smokers* campaign. The analysis reveals five predominant fear strategies utilised by the CDC in their press releases: fear-induced narratives, health-hazard emphasis, statistics, expert endorsement, and urgency. These strategies enhance the CDC's message by amplifying fear appeals, thereby altering smokers' current behaviours and attitudes. This study contributes to the literature by providing insights into the strategies adopted in crafting fear appeals in anti-smoking campaigns and how fear patterns shape individuals' behavioural change against smoking tobacco.

## 1. Introduction

Fear is an effective persuasive strategy that attempts to influence individuals' attitudes and behaviours by illuminating any adverse consequences of their existing actions. Fear strategy is often used as an emotional appeal to influence the audience's mind and activate their sense of risk. As such, Glascoff (2000) illustrated, "If you don't do this (buy, vote, believe, support, learn, etc.), some particular dire consequence will occur" (p. 35). Simultaneously, fear appeals are used to reduce those risks and compel individuals to step back from their current attitude, behaviour, or situation and adopt risk-free alternatives.

A plethora of studies has examined the impact of fear appeals in diverse contexts (Witte & Allen, 2000). Particularly, research focused on the impact of fear in the health domain, highlighting its aim to arouse awareness or emphasise threats associated with certain behaviours or products (Bafunno et al., 2020; Clark, 2019; Mattingly et al., 2020; Sell et al., 2020).

One area where fear appeals are particularly relevant is smoking, which remains one of the leading causes of death. The impact of smoking on the human body is severe and extensive, as it causes lung cancer, heart disease, and pulmonary disease (COPD) (Durham & Adcock, 2015). While this severity can be preventable, anti-smoking health campaigns diversify their approaches to highlight the health risks imposed by smoking. For example, the Centers for Disease Control and Prevention (CDC), a leading organisation that aims to protect Americans' health, launched one of the most recognised campaigns called "Tips from Former Smokers" (Tips). The Tips campaign stands out as one of the top health awareness campaigns. Through this campaign, CDC promotes health awareness and provides information, services and health-related programs (Hampsher-Monk et al. (2024).

Fear appeal is a predominant persuasive strategy employed in CDC campaigns. Persuasive fear messages are tailored to emphasise the negative consequences of smoking tobacco. According to The Expanded Parallel-Processing Model (EPPM) (Witte, 1992), an anxiety-appeal

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theory developed by communication scientist Kim Witte (1992), when individuals are exposed to anxiety-provoking messages, two processes occur: threat and efficacy appraisal. If the threat is high, individuals sense the risk and take protective actions to either reduce or avoid the threat. Nonetheless, if the risk is minor, these individuals may avoid taking any possible action. In essence, sufficient threat and high efficacy are the main factors that influence individuals to adopt preventive measures to mitigate threats. This model aligns with Aristotle's principles of persuasion, namely *Ethos*, *Pathos*, and *Logos*. Pathos encompasses emotions such as fear, urging the target audience to be cautious and change their behaviours and actions.

Since fear has been used as the primary persuasion strategy in health-related campaigns, such as those run by the CDC, scant attention has been given to examining the strategies used to create fear. To fill this gap in the literature, this paper highlights the strategies used to craft fear appeals in the press releases of the Tips campaign. The current study analyses the fear strategies utilised in a corpus of 27 press releases curated from the CDC website. It also showcases how fear strategies frame the CDC's persuasive message to alter and influence the existing attitudes and behaviours of smokers. To achieve its aims, the study draws on Aristotle's persuasion theory and the EPPM by Witte and Allen (2000) to address two key questions: 1) What specific fear strategies are used to persuade smokers to quit and prevent nonsmokers from starting across the Tips campaign press releases? 2) How is fear, as a persuasive strategy, implemented in the press releases of the CDC?

The significance of the research lies in its contribution to the existing literature on fear appeals in the public health context. It investigates how fear is used as a persuasive technique in anti-smoking campaigns to warn individuals of the dangers of smoking, simultaneously urging them to take preventive measures. Understanding the strategic use of fear appeals in anti-smoking campaigns can provide health practitioners and policy decision-makers with insights into optimising their communication skills for maximum impact. This investigation is grounded in a qualitative, descriptive analysis of the CDC's press releases, focusing on how fear-based persuasive strategies are constructed and deployed.

## 2. Literature review

### 2.1. Fear and persuasion

Persuasive appeals have been examined in various types of discourse. For instance, persuasive messages are often used in public health and advertising campaigns (Noar et al., 2018). They confirmed that fear appeal is commonly used in health communication, with the intuitive belief that scaring people will change their behaviour. Ettinger et al. (2021) state that fear appeals are persuasive messages that arouse fear, danger, and harm. In their study on advertising, Rabab'ah and Khalwaleh (2016) explored the persuasive strategies employed in Arabic and English advertisements and found that a variety of techniques are used to persuade the audience to buy products. In a similar study, Rabab'ah et al. (2020) examined the relationship between persuasion and advertising by analysing persuasive appeals used by telecommunications companies in Jordanian and Algerian television commercials. The results showed that both sets of advertisements used several persuasive appeals to convince their target audience to buy products and experience their services, with the most frequently used appeals being puns, brand, celebrity, and music. In another study, Rabab'ah and Al-Qudah (2022) analysed the persuasive strategies in American-cuisine restaurant menus in Jordan. Thus, they identified the power of the language advertisers use to attract and persuade their customers. The findings indicated that there are five major appeals in these menus: sensual, emotional, desire, pleasure, and thought and brand appeals. They aim to create desired mental images that influence the patron's food choice decisions. Email marketing was also thoroughly examined in previous research. For example, Rabab'ah et al. (2024) examined the use of persuasive strategies in informational emails and identified several

strategies aimed at persuading recipients to purchase products and/or services.

Some theories and models appeared to discuss the relationship between fear, threat, and persuasion. All have confirmed the relationship between fear, threat, and intended action, i.e., persuasion. Leventhal's Parallel Protective Model (PPM) Leventhal (1970), for example, has been employed in studies measuring the effects of threat communications on a variety of health beliefs and behaviours (Mullens et al., 2004). Similarly, the Protection Motivation Theory (PMT), put forward by Rogers (1975), describes how people are motivated to respond self-protectively to a perceived health threat to avoid danger or risk. Witte (1992); (2008) described how fear is regulated through assessing perceived threat and perceived efficacy. Her addition to the theory is called The Expanded Parallel-Processing Model (EPPM) (Witte, 1992; Witte, 2008). EPPM states that people feel at risk when they sense severe threats. As a result, they take precautionary measures to reduce the threat. However, when the threat is trivial and people are not at risk, they do not take action.

Various types of fear influence how people talk about sickness, mental health issues, and dying in different scenarios and settings. Huang et al. (2024) showed that anxiety and depression story videos on YouTube display fear in the form of avoidance, emotional suffering, and help-seeking reluctance. Githaiga and Swartz (2017) described how the sociocultural fear of saying and discussing death restricts dialogue and communication and forces clinicians to try to be culturally sensitive, but also be clear and explain things.

In the same way, Yahya and Abdul Rahim (2023) describe how the fear of COVID-19 contributed to a worldwide genuine concern for mental health, particularly depression. In analyzing Twitter data, the authors address a significantly underexplored portion of the literature, focusing on linguistic indicators of self-focus, negativity, and closed-mindedness that, hypothetically, changed in depressed users' tweets during the pandemic, using first-person singular pronouns, negative emotion words, and absolutist statements. This is consistent with research conducted during the pandemic, which indicated that quarantines and social distancing measures contributed to people's fears, increased psychological distress, and augmented feelings of social isolation, which were already present among some individuals (Giuntella et al., 2021).

To extend these insights to end-of-life communication, Orwenjo (2025) demonstrated that conversations about illness, treatment, and death—and the fears surrounding them in Kenyan hospices are shaped by cultural beliefs, religious values, and the caregiving philosophies of those involved. These studies show the problematic relationality of fear, both as a psychological condition and as a form of discourse, as it organises how people can speak about suffering and find meaning in relation to the complex interconnections between mental health and palliative care.

Previous studies have shown the effect of fear appeals on persuasion and behaviour change. However, two conflicting perspectives on the effectiveness of fear in persuading people have emerged from the literature. In 2014, the CDC, for example, favoured fear appeals, while the Drug-Free Action Alliance, in 2013, believed that fear as a persuasive strategy was ineffective (Lueck, 2019). In her study, Lueck (2019) asserted that some practitioners are confident in the power of fear appeals to persuade the target audience, while others believe that fear-based messages are counterproductive. Such practitioners who use fear appeal in persuasive messages argue that these messages trigger defensive reactions and elicit positive responses in rare cases. Drawing from the CDC's positive perspective of fear appeal, Van Bavel et al. (2019) demonstrated that if fear appeals make people aware of the threat they might be facing, it is then beneficial. In their study, Siegenthaler et al. (2021) reported that, when possible, mediators of health are examined, health communication can occur, and fear appeals can be used to influence health behaviours.

CDC utilised fear appeal as one of the most prevalent persuasive

strategies in its anti-smoking publications, including advertisements and press releases. The CDC crafts persuasive messages designed to highlight the negative consequences that the individual could face due to smoking tobacco. In this regard, Mattingly et al. (2020) states that fear appeals significantly motivate behaviour change across various behaviours, specifically smoking cessation. He highlighted the impact of the anti-smoking ads in revealing the adverse effects of smoking on health. These advertisements generally evoke fear, which both young and adults perceive. According to the EPPM Model, when an individual is exposed to fearful messages, two processes occur: threat and efficacy appraisal (Chen & Yang, 2018). Therefore, these appraisals are crucial for examining individuals' responses to fearful messages. Specifically, threat appraisal involves assessing the individual's sensitivity to the subject message, indicating the severe health consequences of smoking.

Conversely, the efficacy appraisal indicates that an individual can follow the recommendation to avert the threat. According to Clark (2019), the EPPM model's stages stipulate that perceptions of both appraisals (threat and efficacy) must be high. When individuals experience fear, they respond counterproductively because it depends on an efficacy appraisal. For example, when smokers watch anti-smoking advertisements with their serious health consequences, they are motivated to act and quit smoking. Similarly, individuals with high efficacy can exert greater control over the given behaviour than those with low efficacy (Yoo et al., 2021).

Fear as a persuasive appeal has been examined in health campaigns. However, research revealed conflicting results regarding its efficacy (Jeong et al., 2022). To explore the effectiveness of fear appeal in health campaigns, Jeong et al. (2022) examined the relationship between fear, anger, and smoking status in the anti-smoking campaign titled 'Give me lung cancer'. The study showed that the impact of fear on attitudes towards the campaign rests on the level of anger. The results also indicated that "the impact of 'anger-adjusted' additional fear appears only among nonsmokers" (p. 2105). Teeny et al. (2021) concluded that practitioners must more effectively elaborate on strategies when individuals are exposed to high-threat fear. This conclusion aligns with the conceptualization of threat appeal comprising text-based and image-based persuasive messages. These appeals are generally designed to present a relevant threat that can evoke negative emotions, thereby leading to desired outcomes.

## 2.2. Role of media in inducing fear

Media plays an effective role in inducing fear (Sell et al., 2020). Media involves communication through television, billboards, and posters to encourage smokers to quit smoking (Al-Dmour et al., 2022). In advertising, fear appeals are strategies used to motivate consumers to stop a habit or buy a product to prevent a particular health risk. These appeals involve consumers perceiving the negative consequences of not using a product or of not following a specific behaviour. Advertisers use fear appeals to persuade consumers to adopt the recommended opinions by threatening them (Kessar et al., 2021). Although fear appeal theories suggest that fear-inducing messages can be effective, public service advertisements (PSAs) are not always effective in driving the desired change, as Ngondo and Klyueva (2019) observed.

In a study examining anti-tobacco campaigns, Cruz et al. (2019) found that some messages were effective among women. They also stated that "Both high-fear (e.g., risk of death or tracheotomy) and low-fear arousal messages (e.g., tobacco industry is deceptive, smokers appear foolish) resulted in lower intentions to smoke, more negative attitudes toward smoking" (p. 9). Another study focusing on the CDC campaigns found that 75 %-80 % of campaigns were effective (Joseph & DeGross, 2019). Likewise, Bafunno et al. (2020) observed that most tobacco users' reduction campaigns increased the percentage of smoking quitting rate. Al Thani et al. (2022) confirmed that smoking advertisements are effective if they arouse high-threat feelings. Bafunno et al.'s (2020) study indicated that nearly 60 % of people have quit smoking

because of media influence, with 30 % remaining without smoking for at least 30 days. While fear appeal messages focus on the negative health consequences of smoking, they also promote the use of cessation aids and services.

According to Armstrong et al. (2021), health-oriented Advertisements (PSA) are the best way to create awareness of the health consequences of smoking, aiming to change smokers' behaviour verbally or textually. A robust body of research has examined the impact of fear appeals in health campaigns, demonstrating their efficacy in enhancing awareness, arousing fear, and highlighting threats associated with certain products or behaviours, such as smoking tobacco (Bafunno et al., 2020; Clark, 2019; Mattingly et al., 2020; Sell et al., 2020; Suess et al., 2024). Nonetheless, scant attention has been paid to the strategies used to craft fear appeals in anti-smoking campaigns. To address this research gap, the current research examined all press releases from CDC anti-smoking campaigns to identify the most prevalent persuasive strategies used to instill fear in the audience and to assess how these strategies are used to urge smokers to quit and dissuade non-smokers from starting.

## 3. Methodology

### 3.1. Corpus

This research draws on a corpus of 27 press releases from the Centers for Disease Control and Prevention's (CDC) Tips from Former Smokers campaign. These press releases, written in a formal communication medium, are the department's official statements of the Tips campaign. The 27 press releases cover the period from 2012 to 2024. We curated the corpus from the official website of the CDC's Tips from Former Smokers campaign: <https://www.cdc.gov/tobacco/campaign/tips/press/index.html>. We examined and selected excerpts from these press releases that exemplify the fear strategies identified in our qualitative analysis, including fear-induced narratives, health-hazard emphasis, statistical appeal, expert endorsement, and urgency. Our selection was based on instances of warnings (e.g., specific phrases or words) that elicit fear as an emotional appeal (pathos) aimed at changing the audience's mind, that is, to quit or not to start smoking tobacco.

### 3.2. Tips from former smokers (Tips) campaign

CDC launched its first-ever nationally funded tobacco education campaign, namely *Tips From Former Smokers* (Tips). Since its inception in 2012, the Tips campaign, funded by a federal agency, has prominently featured people living with the adverse consequences of smoking or even being exposed to secondhand smoke. The campaign has remained steadfast in educating the public about the harmful effects of tobacco, raising awareness, and promoting smoking cessation through press release articles for over 13 years. It has provided communities with the necessary support to address the threats. The CDC aims to provide health information that can save the nation from various health threats and provide timely responses. Therefore, the rationale for choosing this specific campaign lies in its significance as "the largest national tobacco education mass media campaign focusing on smoking cessation among adult smokers" (Davis et al., 2019).

The campaign features real people from diverse backgrounds who have serious health issues. The Tips campaign used this approach to identify health disparities in the pursuit of health equity by increasing the receptivity and accessibility of smoking cessation messages. The campaign aimed to help the individual quit smoking through 1-800-QUIT-NOW. This toll-free number offers free counselling services and free medical camps about smoking (Babb et al., 2020). Former smokers are individuals who smoked at least 100 cigarettes in their lives but quit smoking at the time of the Tips interview. According to the National Cancer Institute, in Maryland, USA, 21.5 % of adults, including men and

women in the United States, are cigarette smokers. In the United States, smoking cigarettes has remained the leading cause of death.

### 3.3. Research approach

This study employs a qualitative, descriptive content analysis, well-suited to investigating the persuasive strategies used in public health discourse. The press releases were re-read several times and patterns of fear appeals were identified and coded inductively. Text units containing warnings, threats, emotional arousal, and calls to action were selected and grouped into categories based on emerging patterns. The categories were then subjected to the analytical interpretation of Aristotle's persuasive appeals, particularly pathos, and the Extended Parallel Process Model (EPPM) to analyse, among other things, fear (if present) and its communicative and rhetorical roles. It is qualitative in prioritizing meaning, interpretation, and context over numbers, and descriptive in outlining and clarifying the fear messaging espoused in CDC communication.

### 3.4. Theoretical framework

The study adopted two frameworks, including Aristotle's framework of persuasion and Witte and Allen's fear appeals (2000). These two frameworks are discussed below.

#### 3.4.1. Aristotle's framework of persuasion

Aristotle, the absolute master of persuasion, provided ways to develop the most persuasive and robust arguments. Despite centuries having passed, Aristotle's framework of persuasion is still a gold-standard technique. Aristotle noted that persuasion involves three appeals: *logos*, *pathos*, and *ethos*. When speakers or writers want to persuade an audience, they have to frame their message with facts (*logos*), use the emotional aspect of an argument (*pathos*), and/or present their apparent moral position (*ethos*). According to Aristotle, *logos* refers to the aspect of the message that makes the argument of a speaker's speech demonstrative and trustworthy. *Logos* represent the common ideas of order, rationality in the universe, and the principles that help us understand the world. *Ethos* involves the speaker's credibility based on the speaker's character. As long as speakers are credible and can gain the audience's trust, their ideas will be accepted, and their statements will be considered valid. The speaker must show goodwill, good sense, and good moral character to be credible. *Pathos* is the third aspect of persuasion, based on the audience's emotions. Emotions incite the affective components of an individual's mind and compel them to alter their judgments about a particular phenomenon. These affective components can be anger, fear, pity, and various other positive as well as negative emotions (Amos et al., 2021). In this current study, our primary focus is on fear as an emotional appeal (*pathos*) that aims to change the audience's mind, intending to persuade the audience either to quit smoking tobacco or to refrain from starting.

#### 3.4.2. Fear appeals theory

Fear appeals are communication techniques or strategies that aim to incite fear by focusing on the potential danger and harm that can happen to people if they do not follow the recommendations in the communicative context. Janis and Feshback (1953) sparked scientific interest in using fear or anxiety tantrums to promote behavioural change. Fear appeal theories have been used extensively in health management for behaviour change interventions to study the impact of threat intelligence on the protective actions of individuals. These theories include two dominant theoretical frameworks: Protective Motivation Theory (PMT) and the Extended Parallel Process Model (EPPM). PMT suggests that individuals choose an action or behaviour most likely to result in reward and avoid punishment (Rogers, 1975). EPPM, as discussed in 2.1, is an anxiety-appeal theory that illustrates how people respond to fear-inducing messages in a communication health context. Both

theories posit that information about disease threats creates anxiety that can motivate people to pay attention to the appropriate information and initiate behavioural changes to protect themselves (Witte, 1992). EPPM is based on two main cognitive assessments. Threat appraisal refers to the severity of a threat. The efficacy appraisal theory, on the other hand, involves the individual's perception of vulnerability: if they suspect themselves to be vulnerable, the threat has gained their attention (Witte, 1992). Hence, these two assessments are "key predictors of attitudes, behavioral intention, and behaviors associated with risk prevention" (Chu & Liu, 2024, p. 5999).

## 4. Results and discussions

Our analysis revealed five predominant fear strategies utilised by the CDC press releases: fear-induced narratives, health-hazard emphasis, statistical appeal, expert endorsement, and urgency. These strategies enhance the CDC's message by amplifying fear appeals, thereby altering smokers' current behaviours and attitudes. The following analysis is grounded in Aristotle's persuasion theory, which mainly highlights fear as an emotional appeal (*pathos*) and Witte's perspective of EPPM on the impact of fear on initiating positive behaviour for individuals. Notably, the analysis focused on the first key assessment of EPPM: Threat appraisal. Threat appraisal is identified based on instances of warnings, such as words, phrases, or sentences, conveying elements of fear in the severity of the threat. Since we had no direct engagement with recipients, we decided not to exclude the second key assessment for EPPM, namely efficacy appraisal.

### Strategy #1 Fear-induced narratives

Personal stories can resonate deeply with individuals, making them an influential tool for persuasion. In the case of smoking, sharing real-life accounts of people who have faced consequences due to their habits can be incredibly impactful. For example, recounting the story of an athlete who once brimmed with vitality but now suffers from failure as a result of smoking can stir strong emotions. Such a fear-induced narrative (FIV) encourages smokers and non-smokers, respectively, to vividly grasp the ramifications of smoking. It creates a sense of fear, not about the act itself but the potential consequences and risks they may face in the future.

CDC utilises FIV to target both smokers and non-smokers, seeking to avert the threat posed by smoking and increase its persuasive efficacy upon recipients. Witte et al. (1996) demonstrated that a threat revolves around "a danger or harm that exists in the environment whether we know it or not" (p. 320). Drawing from Witte's EPP Model (1992), what truly matters is not the actual threat posed but how individuals perceive it and act upon it.

The following samples are evidence-based narratives illustrating how this persuasive strategy is used to alter the audience's mind to quit smoking or not start.

#### Excerpt 1

"We are deeply saddened by the passing of Tonya Moore. At age 38, Tonya was diagnosed with heart failure because of cigarette smoking. Her serious health condition did not stop her from bravely coming forward to share her story as part of the *Tips From Former Smokers*® campaign. Tonya's story saved lives" (CDC, 2022, August 9)

#### Excerpt 2

"Tonya M. developed heart failure from smoking cigarettes and relies on a surgically implanted heart pump to keep her alive. Now Tonya's husband and kids take care of her.

Asaad M. was 19 when his mother was diagnosed with colorectal cancer from smoking cigarettes, and he became her full-time caregiver" (CDC, 2022, Feb 28).

#### Excerpt 3

“Tonya M., 49, who suffered from heart failure at age 38. Tonya had open-heart surgery and had a battery-operated heart pump installed.

Denise H., 66, who cares for her husband, Brian H., 65, who suffers from heart disease, chronic obstructive pulmonary disease (COPD), and lung cancer—all caused by smoking.

Asaad M., 25, who cares for his mother, Leah M., 52, who suffers from colorectal cancer due to smoking” (CDC, 2021, March 1).

#### Excerpt 4

“Tonya M., age 49, was diagnosed with heart failure at 38. She had to have a mechanical pump inserted inside her chest to help her heart pump blood throughout her body.

Asaad M., age 25, put his young life on hold to care for his mother, Leah, who was diagnosed with colorectal cancer from smoking.

Denise H., age 66, has spent more than 30 years caring for her husband, Brian, featured in previous *Tips* ads, who suffers from multiple health conditions as a result of his smoking” (CDC, 2020, March 23).

CDC recognises the importance of fear-induced narratives (FIVs) in persuading people to exercise caution in regard to smoking. Publicly sharing these narratives in their Press Releases evokes emotions of fear and concern. The four excerpts, taken from four press releases, feature FIVs of real-life smoking individuals, vividly illustrating the severity of smokers' health conditions. For instance, the poignant story of Tonya M., who developed heart failure due to smoking cigarettes, was shared on the CDC website over the course of three years, as shown in the samples of CDC press releases published in 2022, 2021 and 2020. Introducing Tonya's deteriorating health condition over a sequential period of time contributes to building a connection between the target audience and Tonya, thereby fortifying an emotional bond with the patient's story. Subsequently, this connection yields the same impact as fear of losing someone close. Highlighting Tonya's heart failure, which forced her to undergo surgery to implant a heart pump, depicts her as totally reliant on others for survival. The inclusion of the statement “Now Tonya's husband and kids take care of her” (CDC, Feb 28, 2022) emphasises the profound disability of pursuing life normally, hence illuminating the need for support. This serves to stir fear among smoking and non-smoking readers, hoping that this deters them from facing a similar fate.

Similarly, the demonstration of Brian and Leah's stories in three samples exhibits their fatal health condition, albeit with a different narrative style. Initiating their FIVs by referring to their family members, Brian's wife 'Denise' and Leah's son 'Asaad', as their caretakers, fosters the fear and threat of their health condition. Such a presentation induces a mix of feelings, including fear and sorrow, as Brian's wife witnesses her beloved's pain. At the same time, Leah's son Asaad captures the feeling of the profound emotional burden of witnessing his mom's suffering and deterioration. The inclusion of the narrative style of these FIVs showcases that smoking not only affects individuals but also has far-reaching effects that devastate families and relationships. Moreover, the chronological listing of the fatal conditions Brian is suffering from, such as heart disease, chronic obstructive pulmonary disease (COPD), and lung cancer, all persuasively arouse feelings of helplessness. Through an in-depth exploration of Brian and Leah's personal experiences, these narratives clearly demonstrate the severe health effects of smoking, leaving a profound impact on the audience, i. e., the smokers and non-smokers alike. For example, smokers are faced with the imminent prospect of a future characterised by illness, addiction, and hopelessness, which can prompt them to reassess their habits.

Meanwhile, non-smokers are made aware of the indirect consequences of smoking, observing the psychological and physiological consequences it has on both the smoker and their family members. This combined effect acts as a powerful deterrent, urging smokers to quit and stopping non-smokers from starting smoking, both out of fear of

experiencing similar suffering or fate. Consequently, the audience will recognise the severity of the consequences, compelling them to follow a preventive lifestyle by quitting smoking.

By sharing FIVs, the CDC acknowledges their significance to the target audience, tapping into emotions of fear and threat and warning society of the devastating aftermath caused by tobacco addiction. This conclusion aligns with EPPM perspective on the influence of fear-induced messages to trigger smokers' attention, prompting them to change their lifestyle towards a healthier one. Likewise, Ooms et al. (2020) observed that narratives that evoke a sense of warning are more effective than non-narrative ones, as they cause “more transportation, fear, sadness, compassion and anger” (p. 166).

#### Strategy #2. Health-Hazard emphasis

Another aspect of fear that has been instigated by the CDC is revealing health hazards by elaborating on the negative health-related consequences of smoking, as evident in almost all analysed data. The reference to negative consequences is another persuasive strategy that emotively influences smokers to reduce cigarette consumption and quit smoking, leading to higher motivational effects (Schneider et al., 2012). The data analysis demonstrates this strategy first in the statements of authorised figures, such as the CEO of the CDC, and also in the fear-induced narratives concerning patients.

#### Excerpt 1

“The director of the CDC's Office, Kittner, said: We are deeply saddened by the passing of Brian Hayden. [...] Brian was diagnosed with chronic obstructive pulmonary disease (COPD), had a heart attack and bypass surgery [...] and part of his lung removed, all due to cigarette smoking” (CDC, 2023, January 20).

#### Excerpt 2

“Brian, 63, an Air Force veteran, had his first heart attack at age 35, while on assignment overseas [...] In January 2017, Brian was diagnosed with lung cancer and had part of his lung removed. Christine [...] At age 44, she was diagnosed with oral cancer, which eventually required doctors to remove half of her jaw” (CDC, 2018, April 20).

#### Excerpt 3

“Cigarette smoking remains the leading cause of preventable disease, disability, and death in the United States” (CDC, 2020; August 27; 2020 March 23; 2019, April 1; 2017, January 9).

Excerpt 1 pertains to the announcement of the death of Brian Hayden, a former participant in CDC's *Tips From Former Smokers*. This announcement underscores the health hazards Brian encountered due to smoking. By enumerating the list of health hazards and complications, which Brian endured, such as chronic obstructive pulmonary disease (COPD), a heart attack followed by bypass surgery, and ultimately a heart transplant and lung cancer, invokes fear and concern. This vivid portrayal of the perilous consequences of smoking is aimed at raising the audience's awareness of either not starting or quitting smoking.

Before Brian Hayden's passing in 2023, excerpt 2 portrayed his critical health condition in 2018, employing a combination of visual and written content. The elaboration of Brian's health hazard, including a lung cancer diagnosis and the surgical removal of part of his lung, effectively contributes to framing a vivid and fearful mental image. His image further amplifies this in the article, showing the scar from his lung removal operation. Similarly, the CDC employed the same strategy to depict Christine's condition, another former smoker who underwent the removal of half of her jaw. This multimodal communication meticulously evokes fear as a persuasive tool, showcasing the seriousness of health hazards related to smoking tobacco to capture the audience's attention to these risks.

Likewise, excerpt 3 infuses the sample statement with the negative and detrimental consequences of smoking. The reference to cigarette smoking as “the main leading cause of preventable disease, disability,

and death in the United States” (CDC, March 23, 2020) strengthens and amplifies the CDC’s persuasive message for smokers to quit smoking and cease this harmful habit. The illumination of disease, disability, and death might trigger a cognitive response in both smokers and non-smokers regarding these potential health hazards associated explicitly with smoking. It is worth noting that the same statement has been reiterated constantly over three years in 2019, 2020, and 2021.

In light of the strength of this strategy, the content of the Tips stories prominently highlights the negative consequences that will befall viewers if they do not quit smoking, and it suggests crucial conditions for the target recipient to quit smoking and change lifestyle habits. This aligns with Massey et al. (2022) findings, which showed that highlighting the health hazard of smoking cigarettes can affect “the attitudes, beliefs, and behavioural intentions of people who smoke” (p. 1). Leveraging multimodal communication not only amplifies the adverse outcomes of smoking but also delivers a more compelling message to captivate the target recipients.

**Strategy # 3 Statistics**

The employment of statistics is another persuasive communication strategy that incorporates numerical data, figures, percentages, or graphs. McKinley et al. (2017) argue that using statistical evidence, such as numerical data, amplifies message recall. It arouses cognitive engagement (Kopfman et al., 1998) and presents credible, valuable information to the target audience (Greene & Brinn, 2003). CDC relies on statistics to substantiate its assertions and intensify the threats of smoking; hence, it lends credibility to the message and warns the target recipient by evoking fear of the potential future consequences of tobacco smoking. The following scripts, taken from the selected press releases, contain statistics that serve as powerful tools of fear appeal.(Fig. 1).

**Excerpt 1**

Two weeks after the Centers for Disease Control and Prevention launched the Tips from Former Smokers campaign, calls to the 1-800-QUIT-NOW quitline have more than doubled. Call volume rose from 14,437 calls for the period Monday, March 12 – Sunday, March 18, to 33,262 calls for the period Monday, March 19 – Sunday, March 25[...] Previous experience from state and local media campaigns promoting quitlines shows at least five to six smokers try to quit on their own for every one person who calls a quitline (CDC, 2012, April).

**Excerpt 2**

“Cigarette smoking remains the single largest cause of preventable disease and death in the United States, killing more than 480,000 Americans each year” (CDC, 2020, March 23).

**Excerpt 3**

“Cigarette smoking costs the nation \$96 billion in direct medical costs and \$97 billion in lost productivity each year” (CDC, 2012, March 15).

**Excerpt 4**

“Additional research from the CDC, also released today in the *American Journal of Preventive Medicine*, shows that annual health care spending in the U.S. attributable to cigarette smoking totals as much as \$170 billion a year, and 60 % of that cost is paid for by Americans through public programs such as Medicare or Medicaid” (December 10, 2014).

Our scrutiny of 27 press release articles written by the CDC revealed a consistent use of statistics in almost all releases to emphasise the seriousness of the impact of smoking on smokers’ health, aiming either to persuade smokers to quit smoking or non-smokers not to start this habit. As observed, excerpt 1 is the inaugural press release article following the campaign’s launch for Tips From Former Smokers, published in April 2012. The bar chart shows the volume of calls made to the Quitline (1-800-QUIT-NOW). It indicates that the number of calls almost doubled within two weeks of launching the campaign, further underscoring that “at least five to six smokers try to quit on their own for every one person who calls a Quitline” (CDC, 2012, April 2). While this statistical data reflects an optimistic indication that smokers are cognizant of the health impact of smoking and its expected consequences, as well as their need to seek help and support, it also elicits a sense of fear and uneasiness, considering the challenges they face.

Excerpts 2, 3, and 4 contain statistical data concerning two key themes: The number of smoking-related deaths and medical expenses attributed to smoking-related diseases. Excerpt 2 presents an annual estimate of 480,000 deaths among Americans due to smoking-related diseases. The CDC reiterates these statistics in press releases covering 2014, 2015, 2016, 2019, 2020, and 2021. Infusing these articles with death figures intensifies the sense of fear of death and apprehension among the target individuals, alerting them about the tragic outcomes associated with tobacco consumption.

As for excerpt 3, the press release article published on March 12, 2012 highlights the figure of \$96 billion, representing the U.S. annual healthcare expenses associated with smoking-related diseases. The CDC repeats the exact figure from the 2013 press release. Unfortunately, as conveyed in excerpt 4, these statistics have reached \$170 billion a year. Over seven years, the CDC’s confirmation of these figures highlights that the problem persists, underscoring the alarming and fearful situation regarding the government’s spending on people’s health. As seen in the press releases above, the CDC effectively uses fear-provoking statistics to appeal to people’s emotions and logic. These techniques are believed to be effective as people take statistical statements to be evidence-based

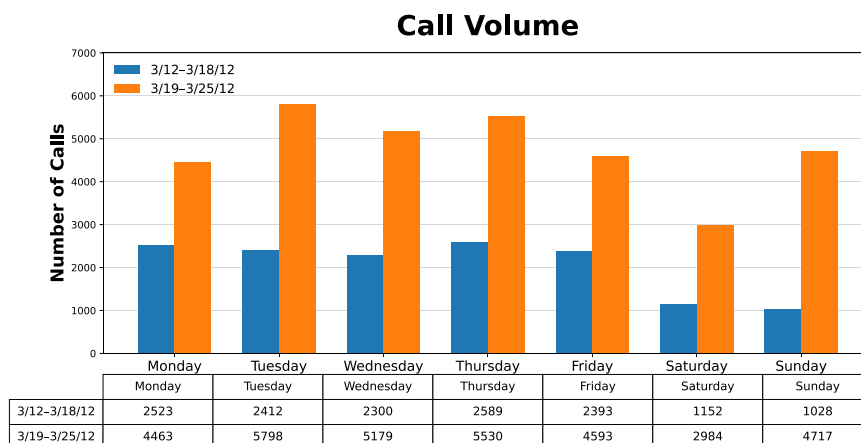


Fig. 1. Calls to the Quitline reached a record high after the launch of the CDC’s national tobacco ad campaign (CDC, 2012, April).

and reliable (Hong, et al., 2020).

#### Strategy # 4 Expert endorsement

Expert endorsement is a strategy that features the statements and testimonials of healthcare experts, such as doctors, professors, scientists, and reputable institutions and organisations. Martini et al. (2022) emphasised the significant roles of experts, such as doctors and scientists, portraying them as “the most trusted sources of information in society” (p. 4636). Their influence considerably extends to individuals’ behaviours and values. These statements and testimonials are leveraged to strengthen the persuasive messages. The CDC employs this strategy to claim not only credibility and legitimacy in its statements, but also to highlight the dangers of smoking-related diseases. The following excerpts exemplify the use of expert endorsement strategies in CDA press releases as a means of effectively communicating the risks and deterring non-smokers from smoking or encouraging a smoker to quit.

##### Expert endorsement: Headlines

Headline 1: “Statement from Deirdre Lawrence Kittner, PhD, MPH, Director, CDC’s Office on Smoking and Health on the passing of Brian Hayden, *Tips From Former Smokers*® participant” (CDC, 2023, January 20).

Headline 2: “Statement from CDC Director Tom Frieden on the passing of Rosemary V. Hernandez, former *Tips From Former Smokers* ad participant” (CDC, 2015, January 9).

##### Expert endorsement: In-text citations

“While cigarette smoking among adults has declined, it remains the leading cause of preventable disease, disability, and death in the United States, and some groups continue to be affected more than others,” said Dr. Kittner, the Director of CDC’s Office on Smoking and Health. “The *Tips* campaign reaches adults with compelling messages and information to motivate them to quit smoking” (CDC, 2024, February 5).

Throughout the CDC press release, expert endorsements are prominently featured as headlines or direct quotations. Based on a thorough analysis of the CDC press releases, we found that 20 of 27 articles covering the period 2012–2024 included direct quotations from external experts. In contrast, 10 of 24 articles consist of announcements by officials within the CDC. They are trustworthy and reliable sources of information. The following are some of the reliable figures referred to in the CDC’s press releases:

1. Dr. Kittner, the Director of CDC’s Office on Smoking and Health,
2. Dr. Houry, the Deputy Director.
3. Dr. Hacker, the Director of CDC’s National Center for Chronic Disease Prevention and Health Promotion.
4. Dr. Walensky, CDC Director.
5. Dr. Redfield, the CDC Director
6. Dr. Frieden, CDC Director
7. Dr. Graffunder, the Director of CDC’s Office on Smoking and Health.
8. Dr. McAfee, the Director of CDC’s Office on Smoking and Health.

In the given excerpts above, Headline 1 and Headline 2 comprise announcements made by the two medical directors of the CDC concerning the passing of two former smokers, Brian Hayden and Rosemary V. Hernandez. Such headlines serve as the initial element to capture the target recipient’s attention and engage them further with the announcements. Facchinetti (2021) asserts the pivotal role that headlines play in disseminating information and framing perspective. For example, the first headline mirrors the pattern of announcements typically issued by CDC directors, as observed across almost all the CDC press releases. Generally speaking, announcements of death evoke fear, which ultimately impacts public perceptions of smoking. This echoes Colin’s and Droulers’s (2022) assertion that negative emotions enhance the persuasiveness of anti-smoking messages.

As for the in-text citations, the CDC incorporates a direct quotation, underscoring the positive role of its campaigns through the information and messages it disseminates to persuade people to quit smoking or not to start because of its risks. However, despite the optimistic message concerning the decline in the number of adults who smoke cigarettes, the CDC director underscores the negative impact and severity of diseases caused by smoking, stating, “It remains the leading cause of preventable disease, disability and death in the United States”. This blend of positivity and negativity appeals to the audience’s emotions, thereby reviving the feeling of fear towards smoking. In essence, the strategy of expert endorsement can effectively influence the behaviour and attitude of its respective community and motivate them to take action. As a result, CDC utilises this strategy to instill trust between its anti-smoking campaign and its target audience.

#### Strategy #5 Urgency:

In the context of fear appeals in anti-smoking campaigns, Burris et al. (2017) defined urgency as a facet of impulsivity that reflects the “reciprocal relationship between behaviour and personality—or, as is the focus here, a reciprocal relationship between smoking and the facet of impulsivity known as ‘urgency.’” (p. 520). Smith and Cyders (2016) observed two kinds of urgency: positive and negative, as part of personal traits. Drawing from this perspective, we can distinguish that the impulsive behaviour of smokers to smoke represents a negative urgency, and the CDC’s efforts to prompt the impulsive behaviour of smokers to quit smoking represent a positive urgency.

##### Excerpt 1

“In addition to promoting the 1–800-QUIT-NOW telephone-based counseling service, the *Tips* campaign will now also promote the new National Texting Portal developed in collaboration with the National Cancer Institute [...] Adults can text QUITNOW to 333888 for free help in English or text DÉJELO YA to 333888 for free help in Spanish” (CDC, 2022, Feb. 28).

##### Excerpt 2

“Each year when the *Tips* campaign is aired, there is an immediate and marked spike in calls to 1–800-QUIT-NOW and in visits to the campaign website” (CDC, March 1, 2021).

##### Excerpt 3

“The message of the *Tips* campaign and our new “Talk With Your Doctor” campaign is simple: Quit smoking now. Or better yet don’t start. Studies show that the sooner you quit the better” (2013, May 22).

Excerpt 1 emphasises the accessibility of services and resources available through CDC campaigns for smokers who wish to quit. Analysing all the CDC’s press releases, we have noticed the predominant promotion of the counseling telephone-based line service, 1–800-QUIT-NOW. The deliberate choice of the two capitalised lexical terms “QUIT-NOW” adds impact and highlights the sense of urgency that can influence a smoker’s decision to stop. The imperative form of “QUIT-NOW” urges smokers to take decisive steps to quit, underscoring the emergency nature of the situation. This urgency also transcends the hotline, opting for text messages, with the message content set to “QUIT-NOW,” sent to the hotline 333888 for those seeking assistance.

Triggering urgency behaviour can be prompted not just by selective terminology but also through an emphasis on occurrences, such as in excerpt 2: “Each year when the *Tips* campaign is aired, there is an immediate and marked spike in calls to 1–800-QUIT-NOW and in visits to the campaign website.” This statement, “immediate and marked spike in calls”, illuminates the campaign’s effectiveness through the increase in the number of initiates calling the hotlines or visiting the campaign webpage, and also showcases the sense of urgency in the behaviour of smokers seeking help.

Similarly, excerpt 3 highlights the impactful message of the *Tips* campaign: “Quit smoking now. Or better yet, don’t start” (CDC, 2013,

May 22). The affirmative and directive message lies in the form of a command, urging others to take immediate action by quitting now. This indicates the severity of the situation, which can significantly shorten one's lifespan, calling for the message "Quit smoking now" to prioritise health and longevity.

In essence, anti-tobacco campaigns use imperatives to convey urgency, a form of explicit language necessary in a health context to amplify and enhance the dissemination of a clear message. These findings are concurrent with Staunton et al. (2020) study, which observed the use of imperatives as a form of directive communication in anti-tobacco campaigns, i.e., a strategy that aims at "enhancing clarity while mitigating reactance" (p. 611).

## 5. Conclusion

Fear is one of humankind's most primitive responses; it not only makes one aware of danger but also prompts action that may reduce fear. For this reason, many marketing campaigns, particularly those related to public health, have consistently used fear as the basis for persuasion. While many persuasion strategies have been prevalent in marketing, the effective use of fear has been the most successful, specifically in healthcare and prevention. Fear is most commonly used as a persuasion strategy within Aristotle's framework. Aristotle, a founding father of persuasion and public speaking, introduced his theory of persuasion, which comprises three components: ethos (credibility), pathos (affect) and logos (logic), for achieving behavioural change.

The present study aimed to explore how the CDC has used fear as a persuasion strategy in its anti-smoking campaigns. The CDC's anti-smoking campaign comprises various components, including press releases, personal narratives, and research reports. In line with the aim of the study, the first dataset, based on the Tips press releases, was examined using qualitative analysis. The data were reviewed to assess how fear has been used to persuade people to quit as well as avoid smoking. The results from the study were in line with the prevalent literature, as they suggest that the messages from the Tips press releases were crafted in a way that highlighted the negative consequences of smoking and suggested all sorts of dangers associated with smoking. Moreover, these press releases instigated fear by elaborating on how loved ones are affected by smoking. As a result, the consequence of utilising these strategies prompts smokers to take precautionary measures, also acting as a deterrent for non-smokers from initiating tobacco smoking. This answers the second research question: How is fear, as a persuasive strategy, implemented in the press releases of the CDC?

After analysing the 27 press releases, we identified five main fear strategies: fear-induced narratives, health-hazard emphasis, statistics, expert endorsement, and urgency. This finding answers the first research question: What specific fear strategies are used to persuade smokers to quit and prevent non-smokers from starting in the Tips campaign press releases? The press releases highlighted the negative and fearful aspects of smoking through these strategies. The statistical findings, for example, framed smoking as dangerous and supported these numerical findings with credible statements from people in authority stating the harms of smoking and how it can have negative health consequences. Furthermore, they included the firsthand sufferings of former smokers and the harmful impact smoking had on their lives, as well as their loved ones.

The current study demonstrated the effective use of fear as a persuasion strategy, highlighting the harmful aspects of a phenomenon, i.e., smoking tobacco. This study can be used as a framework to evaluate how fear appeals, as a persuasion tool, and can generate maximum impact. The strategies highlighted in this study should be implemented in future campaigns for the best results. At the same time, comprehending the strategic use of fear appeals in anti-smoking campaigns can offer health policy decision-makers and practitioners' valuable insights on optimising their communications skills for maximum impact on both smokers and non-smokers.

The findings of our research present some recommendations for future studies. One of the studies might conduct a multimodal analysis of the Tips videos, images, and other health awareness campaigns. Multimodal analysis can harness the impact of communication channels, offering a deeper understanding of how different elements can collectively influence behaviour and attitude and change the audience's mindset towards health issues. Another study might examine other strategies of persuasion that are used in the medical field to persuade the audience to either stop smoking or refrain from starting this habit.

## CRedit authorship contribution statement

**Rabab'ah Ghaleb:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Formal analysis, Conceptualization. **Fakir Al Gharaibeh:** Writing – original draft, Resources, Methodology, Data curation. **Sharif Alghazo:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Conceptualization. **Rima Malkawi:** Writing – original draft, Validation, Formal analysis, Data curation.

## Ethical approval

This article does not contain any studies with human participants performed by any of the authors.

## Informed consent

Our study does not include human subjects.

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## Declaration of Competing Interest

We have nothing to declare.

## Data availability

Data will be made available on request.

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