



## Original Articles

## The Irish national stroke awareness campaign: a stroke of success?



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## ABSTRACT

**Introduction:** Mass media campaigns are widely used to expose large populations to health-risk behaviour messages through routine uses of media. The Act F.A.S.T stroke campaign, which highlights the symptoms of stroke, has been endorsed globally. The aim of this study was to identify the influence of the campaign on the general public in Ireland.

**Methods:** Descriptive pre and post comparative study design was conducted. Phase one was conducted in April 2010 prior to the campaign. Data were collected on a cross-section of the public ( $n = 1925$ ) to obtain baseline information on stroke warning signs. Phase two involved collecting data from participants ( $n = 688$ ) 18 months after the campaign launch.

**Results:** The majority of participants from both phases were between 30 and 50 years of age. Results from phase two reported that 93% heard or saw the campaign yet only 37% could recall the campaign name or the slogan. Post the campaign over 80% recognized the warning signs of stroke. The increase in symptom recognition is evident from pre campaign to post campaign with an increase in knowledge across all the stroke symptoms. Post the campaign there was an increase of 54% of who stated that they would go straight to hospital for stroke symptoms.

**Conclusion:** Findings suggest the campaign was well executed given the high percentage of participants recall and the increase in the recognition of stroke symptoms. However, the influence of the campaign in changing behaviour was not as evident. Further research is needed to examine factors that influence behaviour when a stroke strikes.

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## 1. Introduction

Chronic stroke care accounts for the highest cost in total stroke expenditure in Ireland (Smith et al., 2013). While effective treatments are available to reduce stroke morbidity and stroke cost (e.g. thrombolysis and stroke units), there is a lack of awareness of stroke symptoms (Hickey et al., 2009), which reduces the utilisation of these services. Pre-hospital delay remains a significant challenge in acute stroke care (Mellon, Hickey, Doyle, Dolan, & Williams, 2013). The Irish Heart Foundation launched a National Stroke Awareness Campaign in May 2010 to communicate the importance of recognizing stroke symptoms and the significance of acting fast to get emergency help to improve outcome. The campaign was known as the F.A.S.T. campaign. The acronym F.A.S.T. refers to the main symptoms of stroke—Facial weakness, Arm weakness and Speech problems, along with the warning that it's 'Time' to call the emergency response. Phrases that accompanied the campaign were 'to act fast when a stroke strikes' and 'time is brain'.

The F.A.S.T framework was initially established for rapid ambulance response to alert acute stroke patients within a time window facilitating administration of thrombolysis (Harbison, Massey, Barnett, Hodge, & Ford, 1999). Training ambulance staff using the F.A.S.T framework increased the proportion of acute-stroke cases recognized by paramedics. Subsequently, educating health professionals and the public was supported to promote early and appropriate care pathway. Hence, the F.A.S.T framework is advocated by the Irish, Australian, English and American National Stroke Foundations.

Current European Stroke Organization (2009) recommend that treatment of acute ischemic stroke begin with intravenous thrombolysis with recombinant tissue plasminogen activator (rt-PA) up to 4.5 hours after the onset of symptoms. The benefits of thrombolysis are known to significantly improve functional outcomes in patients (Lees et al., 2010; Wardlaw et al., 2012). The greatest barrier to improving stroke outcome has been identified as pre hospital delays of people with stroke symptoms to emergency departments (Hickey, Holly, McGee, Conroy, & Shelley, 2012; Hodgson, Lindsay, & Rubini, 2007; Jurkowski, Maniccia, Spicer, & Dennison, 2010). Stroke symptom knowledge is identified as knowing at least two symptoms associated with stroke recognition and appropriate action (Mosley,

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Nicol, Donnan, Thrift, & Dewey, 2014; National Institute of Neurological Disorders & Stroke (NINDS), 2012).

The aim of the Irish Heart Foundation campaign was to change health-related attitudes and behaviour by educating the public on stroke warning signs for prompt recognition of stroke symptoms. The warning signs for stroke can be difficult to remember, as there are a variety of symptoms referable to motor, sensory, visual and language systems. There is some evidence to suggest that mass media campaigns can change health related awareness, knowledge, and even behaviour (Grilli, Ramsay, & Minozzi, 2002; Hodgson et al., 2007; Noar, 2006) particularly, if campaigns concentrate on clear important messages (Pechmann & Reibling, 2000) and have prolonged exposure (McVey & Stapleton, 2000). However a recent systematic review of mass media interventions designed to improve public recognition and response to stroke symptoms, demonstrated a limited, non-sustaining impact on behaviour (Lecouturier et al., 2010).

The impact of the F.A.S.T. campaign in Ireland remains unclear. A recent study identified an increase in attendance of patients with reported stroke symptoms at two emergency departments in Ireland, however this was not sustained after the campaign (Mellon et al., 2013). In addition a survey conducted by the Behaviour and Attitudes for the Irish Heart Foundation (2013) revealed that just 52% of respondents would phone the emergency services, as their first reaction to a stroke, while 23% would tell a family member, friend or neighbour, and 12% would call their GP. Although there is an apparent increase in the number of patients receiving thrombolysis since the campaign, there is still considerable variation between hospitals on the numbers treated (Harbison, 2013). The effects of the media campaigns on awareness of stroke and of how to act in the event of a stroke remains unreported and studies to date have focused on the short-term behavioural outcomes of persons in emergency departments (Mellon et al., 2013). Therefore it is important to investigate the impact of a campaign and the information communicated to the general public. In addition, it is equally relevant to develop an understanding of the impact of mass media campaigns on an individual's behavioural intentions to act should they be faced with symptoms of stroke. This study examines if the campaign provided knowledge that would influence behavioural intentions or the action a person would perform in the event of witnessing symptoms of a stroke.

Mass media campaigns, while expensive, often succeed in their ability to disseminate well-defined behavioural focused messages to large audiences (Wakefield, Loken, & Hormik, 2010). To a large extent, many campaigns lack a sound theoretical basis guiding their formulation of objectives and messages (Maibach & Parrott, 1995; Noar, 2006; Witte, 1997a,b). Studies that have examined factors that predict healthy stroke behaviour have focused primarily on risk perception (Kraywinkel, Heidrich, Heuschmann, Wagner, & Berger, 2007) and knowledge of warning signs (Hodgson et al., 2007; Mellon et al., 2013). Many campaigns, in particular stroke campaigns have not mentioned a theory that serves as a conceptual foundation for stroke campaigns (Noar, 2006). Evidence suggests that knowledge or recognition of stroke symptoms does not always change an individual's behaviour to seek medical attention (Giles & Rothwell, 2007; Shah, Walshe, Saple, et al., 2007). Indeed the factors influencing help-seeking behaviour for medical conditions such as stroke are much more complex and encompass variables that extend beyond knowledge and risk perception (Cornally & McCarthy, 2011). In an effort to understand a person's decision making process regarding action it is pertinent to firstly establish their intention to act. In fact, "behavioural intentions are assumed to capture the motivational factors that influence behaviour" (Ajzen, 1991 p. 181). To investigate if a change in behaviour was achieved from the F.A.S.T. campaign as a result of the information delivered in the campaign, this study examines the intention of the public to perform the targeted behaviour post the campaign.

## 2. Methods

A descriptive pre and post comparative study design was conducted. An ethical approval application was submitted and granted by the Clinical Research Ethical Committee for this study. The pre-campaign questionnaire was conducted in April 2010 prior to the launch of the F.A.S.T. campaign. Once permission was granted from a number of urban and rural public amenities (shopping centres, churches, community centres and different public events e.g. local athletic races, college campus), data collection commenced. Potential participants accessing such amenities were approached and asked to complete a short survey about the warning signs for stroke. Targeting a variety of public amenities ensured a cross section of the general public ( $n = 1925$ ). Participants were asked to provide their contact details if they were willing to be contacted again, to repeat the survey post the F.A.S.T. campaign.

The F.A.S.T. media message for stroke was broadcast between May 2010 and June 2011, through national television and regional radio. There were three major waves of the media campaign and continuous television advertising for 3-week periods in May 2010, August 2010 and January 2011. The campaign used a voice-over with a local accent and according to Mellon et al. (2013) there was high population exposure with gross rating points of 73.4.

The post campaign questionnaire involved collecting data from participants ( $n = 688$ ) in February 2011, 10 months after the campaign launch (see Fig. 1 for summary of data collection process).

### 2.1. Research instrument

The pre-campaign questionnaire contained a series of open and closed-questions. The first section sought demographic information (age, gender, level of education). In addition respondents were asked about their previous experience of stroke. The next section asked participants to name the 3 warning signs of stroke and to identify from a list if they would associate these signs with a stroke. The list consisted of warning signs for stroke established by the National Institute of Neurological Disorders and Stroke (NINDS) (2005).

The post campaign questionnaire contained 10 questions using a mixture of open and closed methods. Participants were initially asked to describe in their own words what a stroke was and then provide 3 warning signs. Following this 'perceived severity of stroke' was measured using 3 items on a 5-point likert scale. This was adapted from the Cardiovascular Attitudes and Beliefs Scale (CABS) (Sullivan & Waugh, 2007). The CABS was developed as a measure of stroke related health beliefs and draws on dimensions of the Health Belief Model (Sullivan & Waugh, 2007). It was important to explore if the perceived seriousness of consequences of a stroke would influence individuals' behavioural intentions to seek emergency help, as this has been shown to be significantly related to higher levels of healthy risk behaviour in stroke survivors (Sullivan, White, Young, & Scott, 2008).

Exposure to the campaign was assessed using a yes/no response format and sources of exposure were requested e.g. radio, television, newspapers. Participants were also asked to recall the campaign slogan. A list of 9 warning signs for stroke (5 from NINDS and 4 non stroke symptoms) were presented (see Table 1) and participants were asked to indicate if they recognized these signs as warning signs of a stroke.

The remaining question measured behavioural intentions by asking participants to indicate their intended behaviour if they experienced or observed the warning signs for stroke in the future. Participants were also asked to indicate reasons for delay, where appropriate. Both instruments were pilot tested with stroke-related professionals and members of the public ( $n = 9$ ).

### 2.2. Data analysis

Data were analysed using PASW Statistics 18, statistical software. Descriptive statistics, such as percentages, averages and standard

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