BMJ Open

Formative research to develop theory-based messages for a Western Australian child drowning prevention television campaign: study protocol

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ABSTRACT

Introduction: Worldwide, children under the age of 5 years are at particular risk of drowning. Responding to this need requires the development of evidence-informed drowning prevention strategies. Historically, drowning prevention strategies have included denying access, learning survival skills and providing supervision, as well as education and information which includes the use of mass media. Interventions underpinned by behavioural theory and formative evaluation tend to be more effective, yet few practical examples exist in the drowning and/or injury prevention literature. The Health Belief Model and Social Cognitive Theory will be used to explore participants' perspectives regarding proposed mass media messaging. This paper describes a qualitative protocol to undertake formative research to develop theory-based messages for a child drowning prevention campaign.

Methods and analysis: The primary data source will be focus group interviews with parents and caregivers of children under 5 years of age in metropolitan and regional Western Australia. Qualitative content analysis will be used to analyse the data.

Ethics and dissemination: This study will contribute to the drowning prevention literature to inform the development of future child drowning prevention mass media campaigns. Findings from the study will be disseminated to practitioners, policymakers and researchers via international conferences, peer and non-peer-reviewed journals and evidence summaries. The study was submitted and approved by the Curtin University Human Research Ethics Committee.

Strengths and limitations of this study

- This study will provide evidence-based recommendations to guide the development of child drowning prevention mass media messages.
- This research is exploratory and will be conducted in one Australian state. Therefore, findings should not be considered conclusive.
- Further studies that build on the research findings and the role of different approaches may contribute to future findings.

greater, with overall statistics of child drowning considerably underestimated due to the exclusion of drownings from natural disasters, aquatic transport and intentional drownings in drowning data, as well as poor data collection systems.[1] [2] Further, some data on drowning may also be excluded due to variable data completeness and coverage, as well as unintentional drowning cases not being taken to a hospital or formal health facility.[3]

Significant progress has been made regarding the prevention of childhood drowning in Western Australia.[4] Fatal drownings dropped from 14 in 1996 to 1 in 2011.[4] However, recent increases are evident with six fatal drownings recorded in 2012 (3.7/100 000 population), and eight in 2013 (4.8/100 000).[4] [5] A further 29 children in 2012 and 35 children in 2013 were hospitalised following a non-fatal drowning incident (17.9/100 000 and 20.8/100 000, respectively).[4] [5] Bathtubs were the leading drowning site among children under 12 months of age.[5] For those aged 1–3 years, home swimming pools were the most common drowning location.[5] Inadequate supervision was the primary contributory factor.[5]

Historically, public health approaches to prevent child drowning have included a range of strategies, including denial of access

INTRODUCTION

Children are a priority population for drowning prevention activities.[1] Those under the age of 5 years are particularly vulnerable, with an estimated 66 007 children drowning each year worldwide.[1] However, the full magnitude of the issue may be significantly

(pool fencing, signage and regulation), acquisition of survival skills (training in swimming and resuscitation), provision of supervision (parental and carer supervision and lifeguard services), and education and information (parent and community education and mass media).[6] The literature supports a multifaceted approach to prevention, with a combination of strategies found to be the most effective approach to reducing child drowning.[7 8]

Mass media has been used as an education and information strategy to promote behaviour change for a range of health issues.[9] For example, interventions have been conducted to reduce smoking,[10] drunk driving,[11] and interpersonal violence,[12] increase levels of physical activity,[13] and to prevent HIV/AIDS,[14] suicide[15] and drowning.[16 17] Mass media provides an opportunity to inform, persuade, motivate and reach large audiences.[18] Furthermore, it can prepare populations for other strategies,[18] such as pool barrier fencing in the case of prevention of drowning.

However, behavioural effects of these interventions have typically been modest and have usually not resulted in sustained behaviour change, particularly when used as a stand-alone strategy.[9] Mass media can also have unintended effects, be inappropriate, unpersuasive, or attempt to promote unachievable changes.[18 19] Accordingly, implementing effective campaign design principles, which includes the use of formative research and behavioural theory, can minimise potential negative consequences and increase the likelihood of behavioural change.[20]

Comprehensive formative research is a critical component in the design of successful health mass media campaigns.[21] It provides a mechanism to understand behaviour, identify potential approaches and test messages.[20] This can improve and increase the likelihood of desired effects and also increase the likelihood of adequate exposure.[18] Despite its importance, there are few examples of adequately documented formative research in the injury or drowning prevention literature.[22 23]

The integration of behavioural theory in health interventions to enhance efforts to encourage behaviour change is well supported in the literature.[21 24] Theory provides a way of understanding behaviour and informs the message focus, development and evaluation design.[25] Although a range of theories have been applied to mass media campaigns across a range of health issues,[20] few drowning or injury prevention interventions document the use of theory in the peer-reviewed literature.[22 23]

The literature and current drowning statistics highlight a need for the development of evidence-informed drowning prevention programmes, underpinned by theory and supported by formative evaluation.[22] Currently, there is a paucity of published literature on the development of child drowning prevention mass media messages, creating challenges for practice, policy and research. This paper describes a protocol for formative research to guide the development of theory-based child drowning prevention mass media messages.

Behaviour theory in the current study

The Health Belief Model (HBM),[26] and Social Cognitive Theory (SCT),[27] will underpin the development of a child drowning prevention mass media campaign in Western Australia. The HBM has been used to inform the design of injury prevention messages,[28] such as motivating pregnant pool owners to learn resuscitation,[29] mothers' perceptions of childhood injury risks,[30] and farmers' attitudes towards farm accidents.[31] The model posits that an individual's perceptions about the risks and benefits of an outcome impact their readiness to perform a behaviour.[26] Key constructs include perceived susceptibility, severity, benefits, barriers, self-efficacy and cues to action.[25]

SCT is a broad theory that considers how personal behaviour and environment influence each other.[27] The theory suggests that learning can occur through a person's expectations (anticipated consequences), direct performance of a behaviour or observational learning (where they witness others conducting a behaviour), with behavioural reinforcement being internal or external (self-initiated or in the environment).[25] Added to this, a person can manage their own behaviour through self-control (monitoring and goal setting).[25] A person's perception of the environment (situation) is also important, and self-efficacy (self-confidence in performing a recommended behaviour) is viewed as a major requirement for behaviour change.[32] SCT has also been used as the theoretical base for injury prevention messages.[16 28 33–36] For example, a US drowning prevention campaign targeting parents was informed by the SCT constructs of self-efficacy, skill practice, reinforcement and role modelling to increase usage of child life vests.[16]

METHODS AND ANALYSIS
Aim and objectives

This formative research will test messages proposed for a child drowning prevention campaign based in Western Australia aimed at parents and caregivers of children aged under 5 years. The study will

▶ Apply behavioural theory (HBM and SCT) to message development;
▶ Assess message comprehension, acceptability and attractiveness;
▶ Assess the perceived influence of the messages to change behaviour; and
▶ Develop recommendations to guide mass media campaigns to prevent children drowning.

Campaign messages

This study will test proposed messaging using a 30 s online community service video previously delivered in New South Wales, Australia, which promoted environmental and parent-based child drowning prevention strategies

(such as restricting access to water hazards and supervision). The video used Australian television, music and sporting celebrities to demonstrate the small amount of water in which a child can drown, and encouraged supervision around water. The video ended with celebrities saying the words 'if you care share. Post this video on your Facebook status'. In addition to the video, a preproduction recording of a radio advertisement that imparted similar messages will be developed for this study.

Research design

This research will collect qualitative data via focus group interviews with parents and caregivers of children aged under 5 years in metropolitan and regional Western Australia. This methodology will allow for the in-depth exploration of participant perspectives regarding the proposed messages.[37] Focus groups can increase the depth and diversity of data collected because information is obtained not only from individuals, but also groups and group interaction.[37] Furthermore, the group can provide a safe environment for individuals to express opinions, or build on the ideas of others, resulting in increased quality and quantity of data.[37 38] In addition, focus groups can present an economical, fast and efficient means to collect data from multiple participants.[37]

It is anticipated that focus groups will run for approximately 1 h.[38] A semistructured interview guide will be used to guide discussions, permitting the moderator to discuss any emerging topics.[37] The research team will review the interview guide throughout data collection to determine whether changes are required, and to respond to themes as they emerge, and as saturation is reached.[39] The initial domains of enquiry (box 1) in the

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Box 1 Initial interview domains of inquiry: examples

▸ Thinking about TV and radio ads, have you seen or heard anything lately about child health or safety? What made these particular ads memorable?
▸ What do you think about injury prevention TV and radio ads?
▸ What did you think was the main message?
▸ What else did you take out? This will explore other messages received by participants.
▸ What do you remember the most?
▸ What action do you think the message is asking the audience to take? This will explore perceived behaviour recommendations.
▸ What impact do you think the message would have on you? What impact would it have on other people?
▸ What elements did you like?
▸ What elements did you dislike?
▸ Are there any elements of the message that you found confusing?
▸ Do you think that the message is personally relevant?
▸ Do you think that the message is believable?
▸ Would you discuss this message with others?
▸ Who do you think is most appropriate to deliver the message?

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interview guide will explore comprehension and ability to attract attention, determine personal relevance, and identify strengths, weaknesses and controversial elements of messaging.

As focus groups rely on assisted discussion to produce results, there is potential for some group participants to direct the discussion.[37] Our trained moderator will be responsible for facilitating discussion and managing the group dynamics so that all members have an opportunity to express their views. With participant permission, the focus group will be audio recorded by note takers to accurately document the discussion.[40] Furthermore, note takers will document verbal and non-verbal communication and contextual details to assist further interpretation.[40]

Participants will be provided with an information sheet in 'plain English',[41] which will also be explained verbally. Following this, written consent will be obtained and participants will be exposed to the video and radio advertisement (described previously). Each execution will be shown twice to allow sufficient time for comprehension.[42] A series of open-ended questions will follow,[37] and participants will be encouraged to interact and respond with other group members, and openly express their viewpoints.[37] On completion, one member of the research team will transcribe audio-recording verbatim. Transcriptions will include slang, non-verbal sounds and background noises, though all participant identifiers will be removed.[43] To ensure accuracy, verbatim transcriptions will then be cross-checked by another researcher prior to analysis.[43] Background information on each participant will be collected, including: age, gender, geographic region and caregiver status. This instrument will predominantly contain multiple choice questions and take no longer than 5 min to complete in order to reduce participant burden.

Study rigour

The study will apply the reporting guidelines outlined in the consolidated criteria for reporting qualitative research (COREQ) to ensure study rigour, comprehensiveness and credibility.[44 45] The COREQ is a 32-item checklist designed to improve the quality of reporting for qualitative research that groups reporting criteria into three domains: (1) research team and reflexivity, (2) study design and (3) data analysis and reporting.[44] Importantly, formal reporting frameworks, such as the COREQ, have been shown to improve the quality of study reporting.[46] Namely, they ensure sufficient detail is included on key study aspects, which assists users during critique and application of findings.[44 45]

Research team

The study will provide an opportunity to create a research–practice partnership between researchers and community-based practitioners. The research team consists of university-based researchers (GC, JL, JJ and MD) with expertise in qualitative research, drowning

prevention, health-related mass media, and a community-based practitioner (LN) experienced in the implementation of health promotion and drowning prevention interventions. The research team will provide direction and ensure rigour throughout the research. Research team members, in conjunction with staff from a drowning prevention community-based organisation, will undertake data collection. All moderators will be trained in qualitative research.[37] A researcher (MD) will then undertake data analysis under the support and direction of other members of the research team (GC and JL).

Research setting

The study will be conducted at coastal and inland metropolitan and regional locations in the state of Western Australia. A mix of locations will permit exploration and comparison of any geographic differences in population groups.[37] Locations will include playgroup and childcare centres, community health centres and not-for-profit organisations, which represent sites visited by the target population. Notably, the final selection of site locality will consider participant convenience. At each site, a private area will be chosen to collect data in order to maintain participant confidentiality.[44] During data collection, children cared for by participants will be permitted to attend. While the presence of non-participants can influence participants' expressed opinions, this strategy will facilitate recruitment of a more diverse range of participants for the study.[44]

Sample selection, recruitment and size

Participants will be recruited using convenience and snowball sampling techniques.

Sample selection

The study will recruit those who self-identify as a parent or caregiver of a child aged under 5 years. Eligible participants will be men and women aged 18 years and over, who care for a child aged under 5 years on at least one occasion per week on a regular basis.

Recruitment

The study will use purposeful sampling. Community-based stakeholders, such as playgroup and child health centre coordinators, with whom one researcher (LN) has an existing relationship with will be approached via email and telephone. The study purpose and anticipated outcomes will be explained to the stakeholders, followed by a request to recruit parents and caregivers of children aged <5 years with whom the stakeholders have a relationship with. After permission is obtained, email, flyers and word-of-mouth will be used by the stakeholders and researchers to contact individuals. A greater proportion of participants will be recruited from metropolitan areas, reflecting the distribution of child drowning in Western Australia between 2009 and 2013 (fatal drownings n=17, 81%; non-fatal drownings n=139, 74%).[5] The majority of groups will be mixed gender due to practical

resource limitations, though the research team will attempt to recruit single gender groups in order to determine potential differences. Some participants may be familiar with other participants in their group. Researchers will administer a brief screener to ensure participants meet inclusion criteria before data collection.

Sample size

Final sample size will be determined during data collection using the principle of saturation,[47] with data saturation being established when no new relevant information is obtained from additional participants.[39] The exact saturation point cannot be determined from the study outset;[47] however, it is anticipated that saturation may be reached with between four and six focus groups.[48] At a minimum, six focus groups will be conducted. To assist the researchers in determining saturation, constant comparison will be used whereby data collection and analysis is undertaken concurrently.[39] Conversely, practical limitations of time and cost may impact the final number of groups undertaken. Each focus group will consist of between 6 and 10 participants, to collect a diversity of information and facilitate sufficient group interaction.[36][48] Rates of non-participation will be recorded and explored during recruitment.[44]

Data analysis

Focus group participant characteristics will be described. Qualitative data will be analysed using content analysis to ensure a systematic approach is applied to data organisation and interpretation.[49] This process will involve condensing data into small groups, with each group receiving a unique code.[49][50] Behaviour change theory will be used to guide the content analysis process.[24] This will involve mapping collected data to selected constructs from the HBM and SCT (table 1). Additional categories may be added on starting analysis. The analysis process will involve three stages: preparation, organisation and reporting.[49] To increase the rigour of the analysis, a proportion of the coding will be reviewed by three members of the research team[44] who will discuss the analyses to ensure agreement.[51] Qualitative analysis software (NVivo V.10.0) will be used,[44] to assist with data analysis. The final coding frame[44] and a description of the analysis and connections between the results and data will be reported.[50]

ETHICS AND DISSEMINATION

Curtin University Human Research Ethics Committee approval has been obtained. This research will adhere to the National Statement on Ethical Conduct in Human Research.[52] Hence, information about the research purpose, methods, requirements and outcomes will be provided to participants. Moreover, the voluntary nature of the research will be emphasised, and participants will

Table 1 Mapping of data to theoretical constructs: examples

Construct	Sample response from participant
Health belief model	
Perceived susceptibility	My child is not at risk of drowning
Perceived severity	Child drowning is a serious issue
Perceived benefits	Supervising young children around water prevents drowning
Perceived barriers	Other people that I know do not believe that young child can drown in shallow water
Cues to action	Seeing this advertisement reminds me to supervise my child around water
Self-efficacy	I am able to prevent my child from drowning
Social cognitive theory	
Environment	There are lots of places a child could drown in and around my home
Behavioural capability	I do not know how much water a young child could drown in
Outcome expectations	Supervising my child around water can prevent drowning
Observational learning	The celebrities in the advertisement supervise their children
Self-efficacy	I am able to prevent my child from drowning
Emotional coping responses	I turn off the television when I see disturbing images

sign a consent form and provide verbal consent to the audio recording of interviews. In addition, participant data will be non-identifiable, confidential and stored on a secure computer.

The study will form evidence-based recommendations regarding the development of child drowning prevention media campaigns. Study findings will be communicated to practitioners, researchers and policymakers through passive and active strategies,[53] including international conferences, peer and non-peer-reviewed journals, social media channels and evidence summaries. The findings will be summarised in 'plain English' for dissemination. It is hoped that dissemination of findings will provide opportunities for the translation of theory-informed evidence into practice and policy.[53] This may result in the prevention of fatal and non-fatal child drowning due to evidence-informed decision-making among practice, policymakers and researchers.

Limitations of the proposed study include the use of a single methodology to develop evidence-based recommendations for the development of child drowning mass media campaigns. It may be valuable for future studies to build on the findings of this study through different data collection approaches such as an online survey. Additionally, this study will examine the feedback of parents and carers of children aged under 5 years in one Australian state, therefore, future research in other locations will be valuable.

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