



Assessing the impact of a Fire Safety Intervention

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Introduction

Following the introduction of the *Fire and Rescue Services Act 2004*, **Cheshire Fire and Rescue Service (CFRS) has undergone a number of transformational changes** including a **strategic shift** in focus from **response to prevention**. In order to meet the goals of this act, CFRS has pioneered an approach to prevention with the delivery of a fire safety intervention, the **Home Safety Assessment (HSA)**. CFRS were delivering an average of **67,000 HSAs** annually up until 2009 and previous research has found that there was a relationship between the HSAs and the reduction in Accidental Dwelling Fires across Cheshire (Arch & Thurston, 2013). CFRS have since begun to **target the delivery** of the HSA (enabled by data-sharing from the NHS) at those **most at risk in the community**, specifically the **elderly population**, with an annual target of delivering **29,000 HSAs**.

There has not been any research investigating if the HSA directly influences individuals to change their behaviour in the home. However, previous research has identified the role of **self-efficacy** and a number of other factors in supporting behaviour change (see Bandura, 1986, Bandura, 1998, Schwarzer & Fuchs, 1995).

Research aims

The primary aim of this study was to investigate **the impact of the HSA** by:

1. Exploring if participants reported they **changed their behaviour after the HSA**
2. Seeing if participants were **continuing to follow the advice**
3. Examining if participants were **testing their smoke alarm more often** since the HSA
4. Investigating if participants reported that they **felt safer in their home** after the HSA

The secondary aim of this study was to examine the role of **other factors** in the uptake of fire safe behaviours by:

1. Investigating the role of **self-efficacy**
2. Examining if the **advice provided** in the HSA was thought to be **valuable** influenced behavioural change

Method: Cross-sectional Questionnaire Design

A **short paper questionnaire** was posted to **2000** residents of Cheshire. These were randomly sampled from those who had received a HSA in the past 3 years. 311 questionnaires were returned, however, after inspecting these for missing data a number were removed. **233 participants** were retained, the majority were aged between **70-79 (43% of the sample)** and more **males** responded to the questionnaire (**55% of the sample**).

The short paper questionnaire included questions on demographics, time since the last HSA and the following:

- The participants rating of the HSA and how valuable the advice provided was
- The response to the HSA; did participants follow the advice, if they were still following this advice, if they felt safer and if they tested their smoke alarm more often
- The participant's understanding of the importance of testing their smoke alarm
- Self-Efficacy scale (adapted from the Health-Specific Self-Efficacy scale, Schwarzer & Renner, 2009)
- Questions on what behaviours they had changed, if they had not changed their behaviours and the reasons for not changing (*not reported here*)

Results

Since the HSA, the majority of participants reported that they took steps to make their home safer, still follow the majority of the advice, test their smoke alarm more often, and feel safer in their home.

86% reported that they were provided valuable advice that could be used to make their home safer ($N = 201$)

79% reported that they took steps to make their home safer after the HSA ($N = 183$)

90% reported that they still follow the majority of the advice ($N = 211$)

72% reported that they test their smoke alarm more often since the HSA ($N = 167$)

83% reported that they test their smoke alarm ($N = 193$)

79% reported that they felt safer in their home because of the HSA ($N = 184$)

A maximum likelihood factor analysis with direct oblimin rotation was conducted on the self-efficacy scale. One factor was extracted, with an eigenvalue of 3.95 and $\alpha = .93$. All factor loadings were above .7. A composite score for the self-efficacy scale was computed ($M = 3.98$, $SD = .8$).

Self-Efficacy was significantly and positively correlated with taking steps to make their homes safer ($r = .50$, $p < .001$), still following the advice given during the HSA ($r = .52$, $p < .001$), testing smoke alarm more often ($r = .56$, $p < .001$), and the advice rated as valuable ($r = .42$, $p < .001$)

The advice rated as valuable was significantly and positively correlated with taking steps to make their homes safer ($r = .63$, $p < .001$), still following the advice given during the HSA ($r = .60$, $p < .001$), feeling safer in the home because of the HSA ($r = .69$, $p < .001$), and testing smoke alarm more often ($r = .43$, $p < .001$)

Advice rated as valuable, self-efficacy and the HSA rating predicted if steps were taken to make the home safer

Advice rated as valuable ($\beta = .40$, $p < .001$), self-efficacy ($\beta = .23$, $p < .001$) and the HSA rating ($\beta = .16$, $p = .012$) were significant, positive predictors of steps taken to make the home safer, $R^2 = .47$, $F(4,277) = 50.65$, $p < .001$. Age was not a significant predictor.

Advice rated as valuable, self-efficacy and the HSA rating predicted if the majority of the advice was still being followed

Advice rated as valuable ($\beta = .36$, $p < .001$), self-efficacy ($\beta = .29$, $p < .001$), and the HSA rating ($\beta = .14$, $p < .05$) were significant, positive predictors of still following the advice, $R^2 = .46$, $F(5,221) = 37.06$, $p < .001$. Age and time since HSA were not significant predictors.

Self-efficacy and the importance of testing smoke alarms predicted if smoke alarms were tested more often since the HSA

Self-efficacy ($\beta = .38$, $p < .001$) and the importance of testing smoke alarms ($\beta = .22$, $p < .001$) were significant, positive predictors of the participants testing their smoke alarms more often since the HSA, $R^2 = .38$, $F(6,220) = 22.46$, $p < .001$. Age, time since HSA, HSA rating, and advice rated as valuable were not significant predictors.

Discussion and Conclusions

- The study highlights **the usefulness of the HSA in promoting fire safety advice**
- The findings indicate that the HSA is likely to **lead to continued fire safety behaviours and increased feeling of safety in the home**
- The findings propose that those with **higher self-efficacy** are **more likely to continue** with the fire safe behaviours after the HSA
- Interestingly, the findings suggest that **how valuable** the individual perceives the **advice provided** was a **key factor** in fire safety lifestyle changes
- These findings have implications for the future delivery of fire safety interventions and the delivery of home safety assessments

References

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