

Home Modifications by EMS: Effectiveness in Lowering Emergency Service Demands

Authors and Affiliations

INTRODUCTION

Home modifications enhance the safety and usability of living spaces, yet accessibility to resources can be limited in populations that need these interventions the most. This study evaluated the effect of EMS-provided home modifications on all-cause 9-1-1 activations.

METHODS

A pre-post analysis of a single fire-based EMS agency's delivery of grab bars to residents between 13 September 2017 and 13 August 2023 was completed. Data was queried from the EMS patient care report system and their community paramedicine software that was used for non-emergent services. Inclusion in analysis was limited to community-dwelling adults aged 50 and older who had at least one 9-1-1 activation in the pre-installation period. The Wilcoxon Signed-Rank Test was used to compare the activations in the twelve months before and after the intervention for all-cause 9-1-1 activations. A subset of

this group was also studied: individuals who had a fall call (defined as a fall or lift assist) prior to grab bar installation and the fall call activations were assessed for the twelve months before and after the intervention. Fear of falling was evaluated using the Falls Efficacy Scale (FES).

RESULTS

ALL-CAUSE ACTIVATIONS

172 home modification recipients met inclusion (57.2 % female, 98.3% white, median age 81 (SD: 9.514)). The number of grab bars installed ranged from one to eight per household, but most commonly two were requested (34.9%). The installation of grab bars



was not associated with an overall reduction in all-cause 9-1-1 activations.

FALL CALLS

The subset of recipients that had a fall call prior to installation (n=66) were primarily male (59%) with a mean age of 78 (SD: 10.645). Receipt of grab bars was associated with a significant reduction of the number of 9-1-1 calls for individuals who had a fall call prior to installation (P < 0.001).

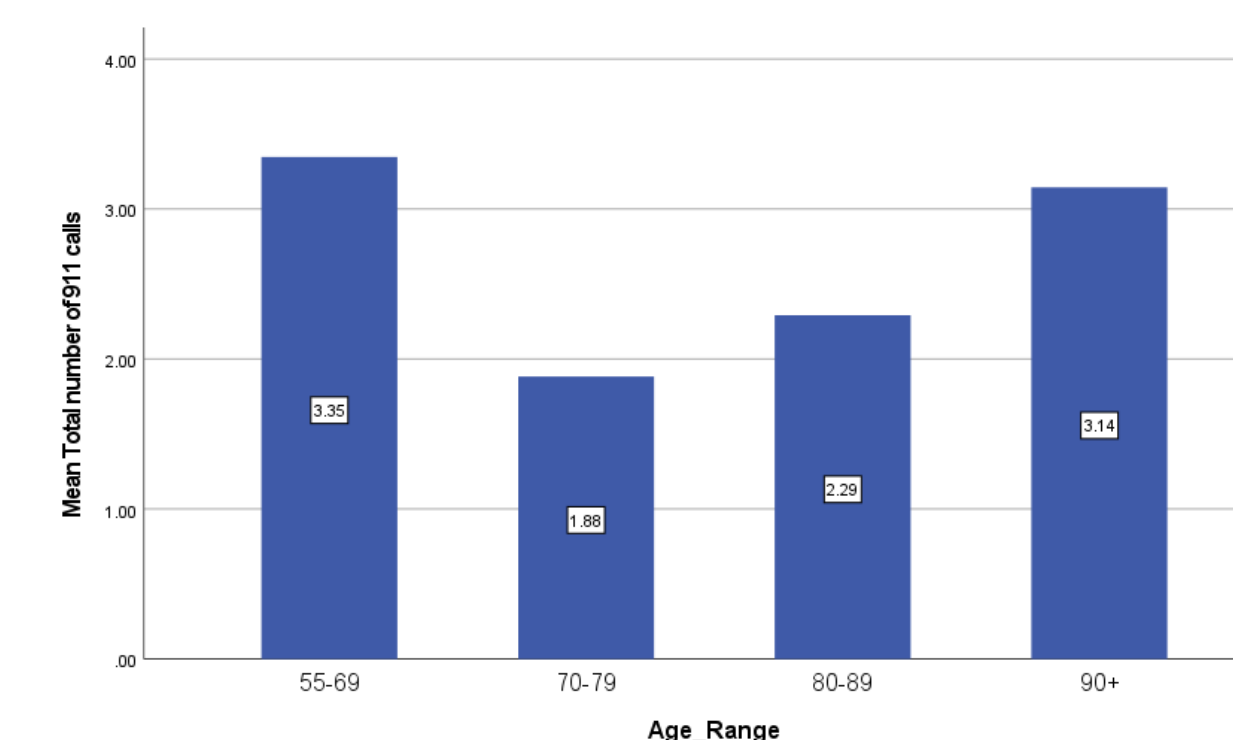
FEAR OF FALLING

Individuals with a completed FES before and after grab bar delivery (n=46) had a non-significant decrease in fear of falling post-intervention (p = 0.617).

DISCUSSION

Home modifications are an evidence-based approach to practical fall prevention. This study evaluated the effect of grab bar installations by EMS on 9-1-1 activations. The intervention appears to be an effective intervention for reducing falls and lift assists among those with prior history. The significant

Figure 1. Mean 9-1-1 activations by age group over 24 months



reduction in calls suggests both individual and systemic benefits. However, the varied individual responses highlight the need for personalized approaches in fall prevention strategies.

CONCLUSIONS

EMS-provided home modifications yielded a meaningful difference in the frequency of 9-1-1 calls before and after the installation of grab bars for community-dwelling adults with a fall call. This practical approach to prevention may be a powerful tool for EMS-led public health initiatives.

