HEALTHY STEPS FOR OLDER ADULTS (HSOA)—A Falls Prevention Program Outcome Evaluation

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BACKGROUND

Falling in the older adult population is a significant event:

- The total cost of fall injuries was $50 billion in 2015, and 75% of this cost was financed through Medicare and Medicaid.
- The expected toll for older adult falls is expected to increase to as much as $67.7 billion by 2020 as the population of individuals ages 65 and older continues to increase.
- Falls are the leading cause of fatal injury and the most common cause of non-fatal trauma-related hospital admissions among older adults in the United States, causing over 2.8 million injuries, over 800,000 hospitalizations, and more than 27,000 deaths annually (NCOA, 2018).

Risk factors for falling and the severity of the sustained injury that results is compounded with increased age:

- Changes in hearing, vision, balance
- Muscle weakness/fatigue
- Hormonal changes and dietary habits leading to higher risks of developing osteoporosis, which contributes increased likelihood of fall-related fractures
- Increased side effects from addition of medications

Dissemination of information and behavior change modifications that address healthy aging and fall risk and prevention is paramount as the average age of the population increases:

COMPREHENSIVE EVALUATION OF THESE PROGRAMS IS NECESSARY TO JUSTIFY FUNDING, IMPROVE DELIVERY OF THE INTERVENTIONS TO THE COMMUNITY AND TO REDUCE STATISTICS RELATED TO FALLS.

METHODS

A program evaluation of the *Healthy Steps for Older Adults (HSOA)* fall prevention program was conducted under the following study parameters:

Participants

A convenience sample of twenty participants ages 58 to 81, recruited from Calvary United Methodist Church and the York Alliance Church via advertisements in the respective church bulletins.

Intervention

A two-day informational and interactive learning session conducted by certified *HSOA* facilitators. Day 1 of the session defined falls, identified fall risks, and provided information on how to reduce the risks of falling. Day 2 described balance and strength training to reduce fall risk and included a "Physical Skill Screening" to establish each participant's relative risk of falling (Low risk, moderate risk or high risk). This screening was based on performance in completing three physical tests: Get Up & Go, Chair to Stand, and One Leg Balance.

Design

Mixed method prospective longitudinal study with a focus on relative age as a predictor of the likelihood behavior modification and adherence to the intervention suggestions.

Data Collection, Analysis and Interpretation

Questionnaires given pre and post intervention, as well as a four-week follow-up phone interview, were used as the data to analyze and interpret effectiveness of the *HSOA* intervention which was defined as a ***having at least half of the participants changing one or more behaviors as a result of attending the HSOA program.***

RESULTS

Participant	Age	Risk Category (Low, Moderate or High)	Changed At Least One Behavior? (Yes/No)
1	58	Low	No
2	59	Moderate	No
3	61	Moderate	
4	64	High	
5	64	Moderate	Yes
6	64	Moderate	Yes
7	64	Moderate	
8	66	Moderate	Yes
9	67	Moderate	Yes
10	67	Moderate	Yes
11	68	Moderate	Yes
12	68	Moderate	
13	71	High	Yes
14	71	Moderate	
15	73	Moderate	Yes
16	73	Low	
17	74	Moderate	Yes
18	78	Moderate	Yes
19	78	Moderate	Yes
20	81	High	Yes
Percent of Total Who Definitively Made a Positive Behavior Change			85.71%

Positive Behavior Changes	Participants who made the change
Increasing Physical Activity	#6, 8, 9, 11, 13, 15, 17, 18 and 20
Beginning an exercise program	#5, 8, 11 and 18
Increasing exercise on their own	#5, 6, 9, 10, 13, 15, 17, 18, 19 and 20
Being evaluated by a physical therapist or occupational therapist	#9
Setting up an appointment to have vision or hearing examined	#5, 8, 11
Setting up an appointment to obtain an assistive device (cane, walker, etc.)	None
Changing to a safer type of footwear	None
Improving lighting in dark areas inside or outside the home	#9, 15, 20
Repairing steps and walkways inside or outside the home	None
Obtaining non-skid rugs or under mats	#5, 8, and 10
Fixing or removing slip/trip hazards	#8, 10 and 15
Installing indoor or outdoor handrails	#10
Installing grab bars in the bathroom or shower	#5, 8, 10 and 19

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	7.078	1709.652	.000	1	.997	1185.576
	FallRisk	-5.143	20335.479	.000	1	1.000	.006
	Constant	-430.172	100867.305	.000	1	.997	.000

DISCUSSION AND CONCLUSION

The HSOA program, for this group of 20 participants, was effective (85.71%) based on our definition.

- Age as a predictor of likelihood for positive behavior change

Binary logistic regression indicated that there was no association between age and likelihood for modifying behavior related to fall risk. However, examination of the descriptive results suggest that there may be a relationship between age and likelihood to make a positive behavior change toward reducing fall risk. A larger sample size in the future might provide a more definitive answer.

- Relative fall-risk as a predictor of likelihood for positive behavior change

The physical skills screening established a fall risk of either low, moderate or high for each participant, and the data above suggests that there may be a good correlation between knowing one's own individual fall risk and the likelihood for making a positive behavior change to reduce fall risk. The binary logistic regression was negative for this test.

- Additional conclusions

The limitations suggest that improvements can be made to better evaluate and better implement the program in future attempts, including engaging family members into the program for more accurate data collection and accountability, improving consistency between questionnaires, and establishing a standardized definition of program "effectiveness".

LIMITATIONS

Evaluation of the *HSOA* program was burdened with significant limitations:

1. **External Validity – The sample size was very small (20)** making it difficult to support trends in the data with statistically significant tests.
2. **Reliability - The majority of the data collected is self-reported data** and therefore carries intrinsic bias as well as questions of how reliable the data is. Possibly, participants are avoiding a *social desirability bias*, or are simply trying to appease the facilitator who ran their program with positive answers.
3. **The age of the participants presented an issue for data collection,** particularly the four-week follow-up data. **30%** never answered the phone when called. Of the participants that did respond, a significant portion had forgotten that they had taken the course. The data acquired in conversations with these individuals may not be completely reliable.
4. **The method of data collection** was also a limitation, especially for the four-week follow-up questionnaire. A phone call may not have been the best way to contact these participants. An email or a pre-stamped letter might have allowed for a better response rate.
5. **The setup of the program provides a challenge for retention.** Participants had to dedicate two consecutive 8-hour days. Also, the physical skills screening could be a challenge for participants in wheelchairs or who have other issues that prevent them from fully participating.
6. **Evaluating program "effectiveness"** is not standardized and is open to interpretation. Subjective interpretation of effectiveness based on the opinion of the participants does not necessarily match data that supports behavior changes based on the information learned during the intervention. Subjective *appreciation* for the lessons learned in the program may not be enough to consider the program "effective".
7. **The supplied questionnaires were lacking** in their ability to provide data for comparison. The questions asked using the *HSOA* provided pre-intervention questionnaire were different from the questions asked in the post-intervention questionnaire.

CORE COMPETENCIES

1A8 Collects valid and reliable quantitative and qualitative data, 1B2 Contributes to development of program goals and objectives, 1B4 Contributes to implementation of organizational strategic plan, 1B6 Gathers information that can inform options for policies, programs, and services, 1B7 Describes implications of policies, programs, and services, 1E5 Collaborates with community partners to improve health in a community, 1G5 Recognizes limitations of evidence.

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