

## Development and Evaluation of an Educational Display for Older Adults: Journey Through Health

### Abstract

The Journey Through Health educational display was developed using the Health Belief Model and provided information on how the Dietary Guidelines Consumer Brochure messages can positively influence nutrition and physical activity choices to prevent or delay age-related changes throughout the body. The display consisted of 12 posters, educational scripts, and handouts. Evaluation of the display with 142 older adults revealed the display was positively received. The evaluation also showed increased awareness of age-related changes and associated health risks, knowledge of the benefits of nutrition and physical activity in health promotion, and self-efficacy towards following the Dietary Guidelines Consumer Brochure messages.

### Seung Eun Jung

Department of  
Human Nutrition &  
Hospitality  
Management  
The University of  
Alabama  
Tuscaloosa, Alabama  
[sejung@ches.ua.edu](mailto:sejung@ches.ua.edu)

### Janice Hermann

Adult and Older Adult  
Nutrition Specialist  
Oklahoma  
Cooperative  
Extension Service  
Department of  
Nutritional Sciences  
Oklahoma State  
University  
Stillwater, Oklahoma  
[janice.hermann@okstate.edu](mailto:janice.hermann@okstate.edu)

### Stephany Parker

Associate Research  
Professor  
Department of  
Nutritional Sciences  
Oklahoma State  
University  
Stillwater, Oklahoma  
[steph.parker@okstate.edu](mailto:steph.parker@okstate.edu)

### Brenda J. Smith

Professor  
Department of  
Nutritional Sciences  
Oklahoma State  
University  
Stillwater, Oklahoma  
[bjsmith@okstate.edu](mailto:bjsmith@okstate.edu)

## Introduction

Older adults face age-related changes and associated health risks (Centers for Disease Control and Prevention, 2013). Although older adults are aware of the importance of nutrition and physical activity in maintaining health and independence, many are overwhelmed by numerous recommendations (Jung, Hermann, Parker, Shin, & Phelps, 2013).

The Dietary Guidelines Consumer Brochure (DGCB) provides a manageable set of nutrition and physical activity messages, which can positively influence nutrition and physical activity choices to prevent or delay age-related changes (United States Department of Agriculture, 2011). The four overarching DGCB messages are:

- Build a healthy plate,

Cut back on foods high in solid fats, added sugar and salt,

- Eat the right amount of calories for you, and
- Be physically active your way.

This article describes the development and evaluation of an older adult educational display titled "Journey Through Health." The display illustrated how the four overarching DGCB messages can have a powerful impact on health promotion throughout the body.

## **Educational Display**

The Journey Through Health display consisted of 12 posters (2.5' x 4') mounted on pull-up Velcro banners (3' x 6.5'), 12 educational scripts and 12 handouts. Educational delivery strategies for older adults were incorporated throughout the display development (Parker, et al., 2011).

The 12 posters included an opening poster introducing the DGCB messages and 11 posters conveying the DGCB message connections to 11 key body sites affected by aging (Figure 1):

- Eyes
- Mouth
- Teeth and gums
- Stomach
- Intestines
- Heart and blood vessels
- Muscles
- Bones
- Pancreas
- Kidneys
- Immune system
- Brain

**Figure 1.**  
Journey Through Health Posters



A short educational script (2-3 minutes) and large print handout was developed for each poster. The entire Journey Through Health display using all 12 posters and scripts took approximately 30 minutes to present. The educational scripts and large print handouts were developed using the Health Belief Model (HBM) constructs of perceived threat, perceived benefits, and self-efficacy as the framework (Contento, 2007).

Objectives of the display were to:

- Educate older adults about age-related changes and associated health risks (HBM construct: perceived threat).
- Educate older adults about the benefits of nutrition and physical activity, consistent with the DGCBC messages, in health promotion (HBM construct: perceived benefits).
- Improve older adults' self-efficacy toward following the DGCBC messages (HBM construct: self-efficacy).

An evaluation instrument was developed to assess how the Journey Through Health display affected participant behavior-related changes. The instrument included two demographic questions on gender and age range. Six post-then-pre questions, evaluated the HBM constructs of older adults' perceived threat, perceived benefits, and self-efficacy using a 5-point Likert scale (strongly agree, agree, neither agree or disagree, disagree, and strongly disagree). Three questions evaluated older adults' comprehension and acceptance of the display using the same 5-point Likert scale. Post-then-pre has been used to evaluate older adult education programs (Hermann, Johnston, Brosi, & Jaco, 2012)

A panel of four experts in the Department of Nutritional Sciences from Oklahoma State University and a panel of 28 county Extension educators reviewed the display posters, scripts, and evaluation instrument to assure expert face validity. Indigenous input was also collected from a panel of eight adults, 65 years of age and older.

## Evaluation

Participants in this display evaluation included a convenience sample of adults, 65 years of age and older. The entire Journey Through Health display was presented and evaluated in eight sites, including two Extension sites, one senior center, two Older American Act Nutrition Program sites, two retirement community centers, and one older adult faith based group. The evaluation protocol was approved by the Oklahoma State University Institutional Review Board for Human Subjects.

Evaluation instrument Likert scale response options were coded as: strongly agree = 5, agree = 4, neither agree nor disagree = 3, disagree = 2, and strongly disagree = 1. Data were analyzed using PC SAS for Windows, Version 9.1 (SAS Institute, Cary, NC). Significance level was set at  $P < 0.05$ . Frequency procedures were used to analyze demographic data, percent of participants who increased question rankings from then-pre to post, and participant rankings for comprehension and acceptance of the display. Differences in mean question rankings from then-pre to post were analyzed using Wilcoxon matched-pairs signed-ranks test.

## Results

One hundred and forty-two participants, 65 years of age or older, completed the evaluation instrument. Participants were predominately female (68.4%), and ages ranged from 65 to over 90 (Table 1).

**Table 1.**  
Demographic Characteristics of  
Journey Through Health Display  
Participants

	N	%
<b>Gender (n= 136)</b>		
Female	93	68.4
Male	43	31.6
<b>Age range (n=142)</b>		
65-69	23	16.2
70-74	33	23.2
75-79	26	18.3
80-84	33	23.2
85-89	15	10.6
90	12	8.5

Differences in mean question rankings from then-pre to post and the percent of participants' who

increased question rankings from then-pre to post are presented in Table 2. A significant increase was observed in the mean question ranking evaluating participants' perceived threat of age-related changes and associated health risks. Significant increases were also observed in the four mean question rankings evaluating participants' perceived benefits of nutrition and physical activity. In addition, a significant increase was observed in the mean question ranking evaluating participants' self-efficacy toward following the DGCB messages.

**Table 2.**  
Differences in Mean Question Rankings and Percent of Participants Who Increased Question Rankings from Then-Pre to Post

Questionnaire Items	N	Then-Pre <sup>1</sup> (Mean* ± SE)	Post <sup>2</sup> (Mean* ± SE)	P Value <sup>3</sup>	Increased Rank <sup>4</sup> (%)
Changes occur with aging which can increase my risk of health problems?	134	4.31±0.05	4.77±0.03	< 0.0001	61%
Building a healthy plate can provide health benefits as I age?	134	4.34±0.05	4.79±0.03	< 0.0001	43%
Cutting back on foods high in solid fats, added sugars and salt can provide health benefits as I age?	134	4.34±0.06	4.79±0.04	< 0.0001	42%
Eating the right amount of calories for you can provide health benefits as I age?	134	4.29±0.05	4.75±0.04	< 0.0001	43%
Being physically active your way can provide health benefits as I age?	134	4.31±0.06	4.81±0.03	< 0.0001	45%
The Dietary Guidelines are a manageable set of messages I feel I can follow?	127	4.01±0.07	4.62±0.05	< 0.0001	51%
<sup>1</sup> Retrospective Pre mean ± standard error questionnaire item rank. <sup>2</sup> Post mean ± standard error questionnaire item rank. <sup>3</sup> P value calculated using Wilcoxon matched-pairs signed-ranks test. <sup>4</sup> Percent of participants who increased questionnaire item rank from retrospective-pre to post.					

Results of the three questions evaluating participants' comprehension and acceptance of the display

are presented in Table 3. Over 95% of participants either "strongly agreed" or "agreed" the display was educational, easy to understand, and enjoyable.

**Table 3.**  
Evaluation of Participants Comprehension and Acceptance of the Journey Through Health Display

<b>Was the Display:</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neither Agree or Disagree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Educational	103 (73%)	34 (24%)	4 (3%)	-	-
Easy to Understand	102 (72%)	35 (25%)	2 (1%)	2 (1%)	-
Enjoyable	99 (71%)	35 (25%)	4 (3%)	-	1 (1%)
Percentages in a row may not total to 100 due to rounding.					

## Discussion and Conclusion

A unique aspect of the Journey Through Health display was it addressed older adults' health throughout the body. The need for comprehensive health promotion programs addressing the aging process has been recommended (Chernoff, 2001). The display was effective at illustrating relationships between key body sites affected by aging and the benefits of nutrition and physical activity, consistent with the DGCB messages.

## Implications for Extension

The four overarching DGCB messages are a manageable set of nutrition and physical activity messages that can be used to educate older adults about the benefits of nutrition and physical activity in health promotion throughout the body.

An educational display can be an effective tool for older adult education. Posters mounted on pull-up banners can be easily seen and used in settings not conducive to multi-media presentations. The use of multiple posters allows for flexibility based on time and space available. The display could also be presented as a series to allow for more in-depth education over time.

## Acknowledgements

This project was funded in part by the Oklahoma Supplemental Nutrition Assistance Program Education (SNAP-Ed). The authors would like to acknowledge Mike Davis, Marketing Specialist, OSU Ag Communications Services, and Aaron Hermann, OSU graphic design student for design of the Journey Through Health posters.

## References

- Centers for Disease Control and Prevention. (2013, July 30). The state of aging and health in America 2013. Retrieved from: <http://www.cdc.gov/aging/help/dph-aging/state-aging-health.html>
- Chernoff, R. (2001). Nutrition and health promotion in older adults. *Journals of Gerontology: SERIES A*, 56A (special Issue II), 47-53.
- Contento, I. R. (2007). Foundation in theory and research: Increasing awareness and enhancing motivation. In: J. Mark-Geraci & J. C. Boldue (Eds.), *Nutrition education: Linking research, theory, and practice* (pp. 82-88). Sudbury, MA: Jones and Bartlett Publishers.
- Hermann, J., Johnston, J. H., Brosi, W. A., & Jaco, L. (2012). Evaluation of a cooperative extension service curriculum on empowering older adults with assistive technology to grocery shop, prepare food, and eat. *Journal of Extension* [On-line], 50(5) Article 51AW2. Available at: <http://www.joe.org/joe/2012october/iw2.php>
- Jung, S. E., Hermann, J., Parker, S., Shin, Y. H., & Phelps, J. (2013). Formative assessment using social marketing principles to identify rural older Oklahomans' perspectives of health. *Journal of Nutrition Education and Behavior*, 45(4S), S32.
- Parker, S., Powell, L., Hermann, J., Phelps, J., & Brown, B. (2011). Preferred educational delivery strategies among limited income older adults enrolled in community nutrition education programs. *Journal of Extension* [On-line], 49(1) Article 1FEA8. Available at: <http://www.joe.org/joe/2011february/a8.php>
- United States Department of Agriculture. (2011). Let's eat for the health of it (Home and Garden Bulletin No 232-CP). Washington, DC: U.S. Government Printing Office.

---

*Copyright* © by *Extension Journal, Inc.* ISSN 1077-5315. Articles appearing in the Journal become the property of the Journal. Single copies of articles may be reproduced in electronic or print form for use in educational or training activities. Inclusion of articles in other publications, electronic sources, or systematic large-scale distribution may be done only with prior electronic or written permission of the *Journal Editorial Office*, [joe-ed@joe.org](mailto:joe-ed@joe.org).

If you have difficulties viewing or printing this page, please contact [JOE Technical Support](#)