# Impact of an Interprofessional Health Student Education Program on Older Adult Participants

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## Abstract

Training health professional students to work with older adults will improve future workforce capacity to meet growing needs. Additionally, older adults may benefit from health education and interactions with health professional students. We analyzed survey responses from older adults who had participated in an interprofessional health student education program regarding their experiences. Qualitative data were summed and averaged, and quantitative survey data were analyzed with Fisher's Exact Test. At least 60% of participants reported receiving information for health needs or making changes to physical activity, dental care, or diet. The most significant differences in lifestyle modifications were noted among racial and ethnic minorities and among speakers of different primary languages. 64% of the qualitative responses reflected positive affirmation of the program. Our data suggest that interactions with health students are meaningful experiences for older adults, are associated with healthy habit changes, and reflect demographic differences in response to health education.

#### Keywords

education, community, survey, race/ethnicity

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## Introduction

The growth of the older adult population in the United States underscores the importance of training health professionals (HP) to care for this demographic. Past studies have described HP students' learning to assist older adults, either by addressing health needs directly or by participating in simulated interactions to build future geriatric workforce competency. These studies focus on changes in student attitudes toward or aptitude for older adult care. Several interventional studies suggest an increase in students' positive attitudes toward older adults through various efforts to foster more engagement with this age group (Chen et al., 2011; Conti et al., 2016; Denton et al., 2009; Patel et al., 2020; Roane et al., 2012; Shah et al., 2005; Smith & Barry, 2013; Walsh et al., 2008). One review examining measurement tools for student attitudes toward older adults identified at least 24 additional interventional studies, which resulted in either increases in positive attitudes toward older adults or no changes (Wilson et al., 2018).

Relatively fewer studies have assessed older adults' perceptions, attitudes, and health changes after HP student clinical or educational interventions. Programs described in the literature involve students in nursing (du Plessis et al., 2013; Latimer & Mezey, 2001; Livsey et al., 2020; Reitmaier et al., 2015), physical therapy (Vincenzo & Patton, 2021), dentistry (Hjertstedt et al., 2014; Northridge et al., 2017), and medicine (Liang En et al., 2011). Additional studies represent collaborative efforts between students of different disciplines: Medical and nurse practitioner students (Kaplan et al., 2017; Kata et al., 2018); exercise physiology, physical therapy, nursing, and nutrition students (Seymour & Cannon, 2010); and nursing, nutrition, and pharmacy students (Lee et al., 2013). These studies have reported that HP students help gather medical information, create positive experiences for the older adults, and provide motivation for older adults to engage in healthy habits.

This study presents an interprofessional, longitudinal education program at the Keck School of Medicine of

<sup>1</sup>Keck School of Medicine of the University of Southern California, Los Angeles, USA

#### **Corresponding Author:**

John Rodgers, BS, Keck School of Medicine of the University of Southern California, 1975 Zonal Avenue, Los Angeles, CA 90033, USA.

Email: jcrodger@usc.edu

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## Methods

## Population

Seventy-five cognitively intact, adult volunteers over age 60 were recruited from ethnically diverse, lowincome community housing settings in Los Angeles between 2016 and 2020 to participate as part of an interprofessional geriatric education and training program. All older adult participants attested that they spoke sufficient English to be able to hold a conversation.

#### Program Description

The Interprofessional Geriatrics Curriculum (henceforth referred to as the "program") is a voluntary program offered to HP students every academic year and is described in more detail elsewhere (Reilly et al., 2014, 2021). The program has included students from 8 HP disciplines: dentistry, medicine, occupational therapy, pharmacy, physical therapy, physician assistant, psychology, and social work who were in their second, third, or fourth years of training. The students attended four didactic sessions during the program, learning about common older adult health concerns, medications, mental health (depression, anxiety), cognition, gait and balance, home safety, nutrition, oral health care, and community resources. In addition, the students received didactic training on teamwork and were able to practice these concepts in teams of five to seven students. Each student team had a faculty mentor to facilitate interaction and was paired with a community dwelling older adult resident in a low-income housing site. Teams met with their assigned older adult for 1.5 hours in the older adults' apartments during three separate sessions over 5 months to form social connections, perform assessments using common screening tools, and provide health education as appropriate to each older adult's circumstances (e.g., inquiring about diet and exercise habits and learning about medication adherence). During the 4 years that are being studied, there was consistent participation of students from six disciplines. One discipline, dentistry, withdrew from participation during the 2018 to 2019 academic year, and in that same year, a small number of psychology students joined the program. Thus, there were seven HP disciplines during any one timeframe of the program.

## Data

Older adult participants were contacted 1 to 2 weeks following the completion of the program and asked to respond to an anonymous survey regarding their perceptions of the program and its effects on their health-related habits. The survey was completed either during an inperson interview with staff or through direct written responses from the older adults themselves. The survey included both quantitative and qualitative information (Appendix A).

#### Quantitative Survey

The quantitative survey consisted of the older adult participants' demographic information (age, gender, race/ethnicity, primary language, number of sessions attended). Subsequently, there were five questions regarding the participants' experiences and perceptions of the program, each with a yes/no response or a ranked response on a scale from 1 to 5 with 1 meaning "strongly disagree" and 5 meaning "strongly agree." Finally, there were eight yes/ no questions asking if certain habit changes were made as a result of participating in the program.

## Qualitative Survey

The qualitative survey used open-ended questions that asked participants to provide examples of changes made as a result of participating in the program and to suggest how the program could be improved.

## Data Analysis

Four years of participant data (2016–2020) were analyzed. The quantitative survey responses were categorized according to age, gender, race/ethnicity, primary language, number of sessions attended, and year of participation in the program. Ranked responses were sorted into two categories: either 5/5 ranking or less than 5/5 ranking. Data were analyzed using expanded versions of the Fisher's Exact Test. In addition, simple summation and percentages were calculated; results here are rounded to the nearest percentage point. Qualitative survey responses were grouped according to common themes, and the number of responses in each thematic category was tabulated.

## Results

Survey results from 75 older adult program participants over 4 years were analyzed. These participants ranged in age from 60 to over 80 years old, the majority (78%) were female, and most (65%) attended all three sessions. Participants came from a multitude of racial and ethnic backgrounds and are grouped in this study into the broad categories of White, Hispanic, Black, Asian, and Other. Additionally, several languages were represented, with

 Table I. Program Participants' Demographic Information.

Demographic Characteristic	Ν
Year	
2016–2017	11
2017–2018	24
2018–2019	17
2019–2020	23
Age	
74 and below	26
75–79	17
80+	30
Gender	
Μ	16
F	56
Race/Ethnicity	
White	22
Hispanic	14
Black	6
Asian	25
Other	5
Primary Language	
English	37
Spanish	8
Tagalog	8
Other/Multilingual	15
Number of Sessions Participated In	
1	9
2	17
3	48

Note. The total number of participants over 4 years was 75. Demographic subtotals do not add up to 75 if participants did not provide the particular information.

Spanish and Tagalog being the most common non-English primary languages (Table 1).

The older adult participants had a strong positive regard for the program when asked about their experiences, with a majority of responses either being a "Yes" answer or a 5/5 ranking depending on the question format (Table 2).

Of eight questions inquiring about particular changes made as a result of participation, older adult participants responded to four questions affirmatively. Specifically, 60% or more of participants responded "Yes" that they had increased physical activity or exercise, received information for health needs, made changes in dental care, or made changes to their diet after completion of the program (Figure 1).

## Race and Ethnicity

When grouping by race and ethnicity, an analysis using Fisher's Exact Test yielded significant results in four areas of change (Figure 2).

Three-quarters (75%) of participants reported increasing their physical activity or exercise as a result of the program, and there were significant overall

differences between racial and ethnic groups (p=.005). A post-hoc analysis of pairs of racial and ethnic groups yielded additional significant results: about half (48%) of White participants reported increasing their daily physical activity compared to 92% of Hispanic participants and 91% of Asian participants (p=.01 and p=.002, respectively).

Almost half (47%) of participants reported making changes to improve apartment safety. There were significant overall differences between racial and ethnic groups (p=.0005). Upon post-hoc analysis, 15% of White participants reported making these changes, while two-thirds (67%) of Black participants and over threequarters (77%) of Asian participants did the same (p=.02 and p=6.47×10<sup>-5</sup>, respectively). There was also a significant difference between the affirmative responses from Hispanic participants (39%) and Asian participants (77%) making changes to apartment safety (p=.03).

About two-thirds (66%) of participants reported receiving information about community resources or activities that would support their health needs, with significant overall differences between racial and ethnic groups (p=.03). Upon post-hoc analysis, there were significant differences between the percentage of White participants (38%) who received this information compared to all Black participants and three quarters (75%) of Asian participants (p=.01 and p=.03, respectively).

40% of participants reported receiving resources or information that helped them better understand their medical insurance benefits, particularly regarding Medicare and Medicaid. While there were no overall significant differences between racial and ethnic groups, there was a significant difference upon post-hoc analysis between the percentage of White participants (15%) and Asian participants (55%) who reported having received these resources (p=.02).

## Primary Language

When grouping by the primary language spoken by the older adult participants, there were significant results in two areas: physical activity or exercise and apartment safety (Figure 3).

Almost three-quarters (73%) of participants reported increasing their daily physical activity or exercise as a result of program participation, and there was a significant overall difference between language groups (p=.03). Upon post-hoc analysis, over half (60%) of English speakers and all Tagalog speakers reported making these changes (p=.04). Of note, all Spanish speakers also reported such habit changes, but the comparison with English speakers was not statistically significant.

Almost half (47%) of participants reported making improvements to apartment safety, with a significant overall difference between language groups (p=.003). Upon post-hoc analysis, there were significant differences

Question	Response type	% Yes answer or 5/5 ranking		
The program was what I expected	Yes/No	97		
I understood the purpose of the program	Yes/No	95		
I was satisfied with the program	Out of 5	89		
l would participate again	Out of 5	80		
I would recommend participation to a fellow resident/friend	Out of 5	86		

Table 2. Participants' Experience with the Program According to Five Survey Questions.



Figure 1. Percentage of "Yes" responses to eight questions regarding health habits changed or resources received as a result of participating in the program.



**Figure 2.** Percentage of "Yes" responses by racial and ethnic groupings regarding four health habit or resource questions. Note: Significant differences are designated with asterisks.



**Figure 3.** Percentage of "Yes" responses by primary language groupings regarding two health habit questions. Note: Significant differences are designated with asterisks.

between the percentage of Spanish speakers (0%) and English speakers (39%) compared to Tagalog speakers (86%) making these changes (p=.005 and p=.04, respectively). Finally, there were significant differences between the affirmative responses of Spanish speakers (0%) and speakers of other or multiple primary languages (70%) (p=.01).

#### Qualitative Questions

When older adults provided written comments about the changes they made due to program participation, 48% indicated that they had made changes in their diet and exercise, 28% indicated that they had made changes in their dental hygiene, and 26% reported making a change in a medication or the manner of taking medication. Smaller numbers of participants reported improving the safety of their residence (13%), increasing their general medical knowledge (11%), and making a change to improve their general quality of life (7%). Ultimately, two-thirds (64%) of the older adult participants gave responses that included some form of affirmation of the program, as exemplified by the following:

"The program encouraged me to exercise and students showed me how to exercise in my home. Students showed me how to brush my teeth and tongue."

"It was an enjoyable learning experience meeting with [the] students. It reinforced knowledge of my nutritional diet ideas and the importance of doing exercise and right timing of taking medications."

The most common themes in the participants' suggestions to improve the program include having more visits and providing more specific education about medical conditions or healthy lifestyle, especially as they grow older. Examples of these suggestions include:

"I request to give us more written information about our needs as [older adults] to be more independent in our daily activities/life."

"I suggest that they give the list of food that is good for diabetics."

"What about a seminar on 'How to cope with growing old' or 'the psychology of [aging].'"

## Discussion

Designed as an educational program to enhance HP student's knowledge, attitudes, and familiarity with community dwelling older adults, the program also seemed to improve older adults' health behaviors. Both the quantitative and qualitative survey results demonstrate that many of the older adults made positive health behavior changes after participating in the program with HP students, particularly increasing their physical activity, making changes in dental care, and making changes to their diet. As shown in previous literature, studentfacilitated health education can have a positive impact on the health behaviors of older adult participants (Hjertstedt et al., 2014; Liang En et al., 2011; Livsey et al., 2020). In addition, older adults find HP student interactions meaningful and important (du Plessis et al., 2013; Reitmaier et al., 2015; Vincenzo & Patton, 2021). It is clear that HP students can provide older adults with meaningful health and safety education, further supporting the needs of people in this growing segment of our society.

The analysis yielded several significant results when sorting the data by self-reported racial and ethnic groups. These trends were also identified among speakers of different primary languages. Older adult White participants were less likely to change their health behaviors than their Asian counterparts after participation in the program. Other racial and ethnic groups had mixed patterns of health behavior change but still made changes at higher percentages compared to White participants. Possible factors that may explain these differences include: (1) White participants may have already made changes or were already more knowledgeable about their health prior to the program due to greater access to health resources or medical education; (2) Greater selfrecognized need among certain participants to make changes or ask for health information; (3) Differences in the receptivity to HP students' knowledge and suggestions between racial and ethnic groups; or (4) Differences in the ability to make changes because of comorbid conditions that reduced physical ability or a lack of community or health resources. Any one or a combination of these factors could have contributed to differences in behavioral health changes after program participation and should be considered for further investigation.

Previous literature has described differences in health education among different ethnic groups, including knowledge and perceptions of medical conditions. Two studies examined knowledge of Alzheimer disease (AD) and found that Hispanic, Asian, and African American participants generally had less knowledge about AD or had certain perceptions about the disease that may delay treatment compared to White counterparts (Ayalon & Areán, 2004; Gray et al., 2009). A third study found a lower level of knowledge about the risks and benefits of breast cancer treatment options among patients from ethnic minority groups (Hawley et al., 2008). These findings support the possibility that there were different baselines in health education among racial and ethnic groups in our survey data, leading to varying amounts of health habit changes. The complementary trends found among speakers of different primary languages suggest that the same factors may have been at play.

Cultural approaches to medical care may also factor into the differences in health behavior changes seen among racial and ethnic groups; however, the literature on community-based health education is limited. One study found that patients from several Asian ethnic groups were less likely to mark the highest ranked response in a survey scale compared to White patients, though there was more similarity to the response style of White patients if an Asian ethnic group had greater historical acculturation in the US (Chung et al., 2018). In our survey instrument, there were three questions with ranked responses and no significant differences among racial and ethnic groups. Additionally, there may be other cultural factors that cause intra-demographic differences in survey responses. A study on response style among Mexican Americans identified survey response differences based on the cultural values that the respondents most strongly adhered to (Davis et al., 2011). It is important to understand that cultural and linguistic nuances may impact health care, response to health education, and receptivity to health behavior change. Further studies are needed to clarify their exact roles.

This study contributes to the limited body of literature focusing on older adult perspectives in the context of health student education programs. In particular, the qualitative comments provide direct insight from the participants themselves. The older adults indicated that they value knowledge about maintaining independence while growing older, education about specific health conditions, and general tips on maximizing the quality of their lives. These comments underscore the importance of supporting older adults during time of life, which can present unfamiliar challenges. The interdisciplinary nature of a health professional student education team is well designed to meet these needs in a holistic manner while also increasing geriatric workforce competency.

There were several limitations in this study. The data from the survey are self-reported, which raises the possibility of a reporting bias from the participants. Additionally, there was no pre-program survey or comparison group, which makes it difficult to determine if the reported changes were solely based on the impact of this program. For instance, it is possible that the older adults participated in other activities that we are unaware of during the same period, which could have contributed to some of the reported health habit changes. Future iterations of this study should assess quantitative measures that document older adult nutrition, exercise, and medication-related behavioral changes such as weight, blood pressure, and medication adherence. It would be important to recruit multiple cohorts of participants with racial, ethnic, and primary language diversity to test the

reproducibility of the demographic differences that were found in this study. Finally, the implementation of a longitudinal follow-up survey could determine the sustainability of the self-reported health habit changes and the gains in health knowledge.

# Conclusion

Overall, this 4-year longitudinal study demonstrates the opportunity to positively impact the health of older adults by engaging them in service-based interprofessional education programs for the future health care workforce. Different levels of health education, availability of resources, physical ability, and cultural approaches to medical services may have contributed to the significant differences in health behavior change found among racial and ethnic groups and primary language speakers. Importantly, this study underscores the value of older adults' perspectives to better understand the impact that education has on health behaviors, including which habits are most easily changed and the information most desired.

Appendix A. IPGC Resident Survey.

Age:	60–64	65–69	70–74	75–79	80+	Gender		М	F	
Primary Lan	iguage:									
Number of	sessions you parti	cipated in (1, 2,	or 3):							
My experier	nce in the IPGC pr	rogram was what	at I expected (	Yes/No):						
l understoo	d the purpose of t	the IPGC progra	am (Yes/No):							
On a scale o	of 1–5, where 1 is	the worst and !	5 the best:		Strongly Disagree	Disagree	Neutral	Agree	Strongly	
l was satisfi	ed with the progra	m			l	2	з	4	-7gi ee 5	
I would par	ticinate again					2	3	4	5	
I would rec	ommend to a fello	w resident/frier	nd to participa	te		2	3	4	5	
As the resu	lt of participation	in IPGC, did vo	u:		•	-		·	5	
–Make chan	ges in the medicat	tions you take?						Yes	No	
-Make chan	ges in how you ta	ke vour medica	tions?					Yes	No	
-Make chan	ges in your diet?	,,						Yes	No	
-Make chan	iges in how you br	ush/care for yo	ur teeth?					Yes	No	
-Increase vo	our daily physical a	activity or exerc	ise?					Yes	No	
-Make chan	iges to make your	apartment safe	r?					Yes	No	
-Receive information about resources and/or activities in the community that would support your health needs:							Yes	No		
-Receive resources and/or information that helped you better understand your medical insurance (Medicare/Medicaid) benefits?							Yes	No		
Please prov	ide an example(s)	of a change you	made as a re	sult of par	ticipating ir	the IPGC.				
Do vou hav	e any suggestions	on how we can	improve this	program?	. 0					

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#### **IRB Number**

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#### **ORCID** iD

John Rodgers D https://orcid.org/0000-0001-6873-3196

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