Published in final edited form as:
Nurse Educ Today. 2015 January ; 35(1): 38–43. doi:10.1016/j.nedt.2014.05.005.

IMPACT OF THE GERIATRIC MEDICATION GAME® ON NURSING STUDENTS EMPATHY AND ATTITUDES TOWARD OLDER ADULTS

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Abstract

Background—Nurses should be well-prepared to improve and address health-related needs of older adults, but students may have difficulty understanding and empathizing, as they may not yet have personally experienced aging-related challenges. Simulation games can be used to help students understand the experiences of others, but limited information is available on the impact of simulation experiences on student empathy.

Objective—The objective of this study was to examine the impact of participation in an aging simulation game on nursing students' empathy and attitudes toward older adults as well as their understanding of patients' experiences in the healthcare system.

Design—This study used a quasi-experimental, pretest-posttest design.

Setting—A school of nursing in the Midwestern United States.

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Participants—The convenience sample included 58 sophomore-level baccalaureate nursing students.

Methods—Students played the role of an older adult during a 3-hour laboratory aging simulation game, the Geriatric Medication Game® (GMG). Students completed the (1) Kiersma-Chen Empathy Scale (KCES, 15 items, 7-point Likert-type), (2) Jefferson Scale of Empathy – Health Professions Students (JSE-HPS, 20 items, 7-point Likert-type), and (3) Aging Simulation Experience Survey (13 items, 7-point Likert-type) pre- and post-game to assess study objectives. Descriptive statistics and paired t-tests (were performed in SPSS v.21.0, as the data were normally distributed.

Results—Students' empathy (N=58) toward older adults significantly improved overall (KCES $p=0.015$, JSE-HPS $p<0.001$). Improvements also were seen on seven out of 13 questions related to attitudes and healthcare understanding ($p<0.05$). In the post-test, students agreed that they experienced frustration and impatience during the GMG.

Conclusions—Students may not be aware of older adults' feelings and experiences prior to experiencing aging-related changes themselves. Simulation activities, such as the GMG, can be a useful mechanism for addressing empathy and caring during student education.

Keywords

nursing student; empathy; geriatrics; attitude

INTRODUCTION

The proportion of older adults within the United States is increasing, and by 2025, nearly 18 percent of the United States population will be at least 65 or older (U.S. Census Bureau, 2012). Prevalence of chronic disease also is increasing among older adults (Pearson, Bhat-Schelbert, & Probst, 2011). Nurses need to be well-prepared to address the needs of the growing population of older adults. However, students and novice nurses may have difficulties in understanding and empathizing with older adults, as they may not have personally experienced aging-related challenges, such as disability and disease.

Empathy and understanding are critical skills, as health provider attitudes have been found to influence the quality of care provided (Courtney et al., 2000; Eymard & Douglas, 2012).The National Institute of Nursing Research and the Institute of Medicine advocate that the quality of care provided to older adults needs to be improved (Institute of Medicine, 2008; National Institute of Nursing Research, 2006). By incorporating activities within the undergraduate nursing curriculum to address attitudes and empathy, future generations of nurses may demonstrate positive attitudes and empathy, thus improving the quality of care provided. Furthermore, in baccalaureate nursing education, the American Association of Colleges of Nursing (AACN) emphasizes the importance of empathy and caring as part of the professional role and integral to all healthcare interactions (American Association of Colleges of Nursing, 2008).

In order to foster patient-centered care and meet accreditation standards, it is important to incorporate curricular activities that increase nursing student empathy and attitudes towards

a variety of patient groups. To address this, a simulation-based educational activity was incorporated into a clinical course.

BACKGROUND

Empathy consists of two distinct aspects: the ability to comprehend and see the world from others' perspectives (cognitive empathy) and to connect to others' experiences or feelings (affective empathy) (Davis, 1994). Decades ago, nurses often had negative views of aging and were not empathetic toward older adults (Bonstelle & Govoni, 1984; Marte, 1988; Slevin, 1991). Since then, incorporating geriatric-specific education within the undergraduate nursing curriculum has improved some attitudes (Damron-Rodriguez, Kramer, & Gallagher-Thompson, 1998; Douglass, Henry, & Kostiwa, 2008; Eymard, Crawford, & Keller, 2010; Lookinland & Anson, 1995). For example, effective methods to improve student attitudes toward older adults have included clinical experiences, mentoring by older adults, interviews with older adults, older adult care issue debates, reflections on personal perceptions, and role modeling of positive attitudes by faculty (Burbank, Dowling-Castronovo, Crowther, & Capezuti, 2006; Cozort, 2008; Damron-Rodriguez et al., 1998). However, negative attitudes continue to persist among students and nurses (Courtney, Tong, & Walsh, 2000; Eymard & Douglas, 2012; Gallagher, Bennett, & Halford, 2006; Wells, Foreman, Gething, & Petralia, 2004) and incorporating clinical experiences may not be enough to alter attitudes (Sheffler, 1995).

Simulation games can be a valuable method for teaching abstract concepts, such as caring attitudes and empathy, by allowing students to be actively involved in the learning process (Bonstelle & Govoni, 1984; Schmall et al., 2008). An added benefit for student learning is the opportunity to experience and react to situations in an environment that does not have actual consequences (Bonstelle & Govoni, 1984). These activities also can be incorporated prior to clinical experiences, allowing for students to gain insight and understanding before working with patients (Bonstelle & Govoni, 1984; Schmall et al., 2008). Furthermore, scenarios can be utilized in simulation experiences that allow students the opportunity to develop empathy for another person, such as a patient (Schmall et al., 2008).

Several aging-related simulation games have been used successfully with nursing students and other healthcare professionals to improve student attitudes and knowledge (Bonstelle & Govoni, 1984; Schmall et al., 2008). Most games, however, focus on overall aging and little on medication issues, such as *Into Aging*, where students role-play older adults who move from independent living to long-term care arrangements as they encounter disability and disease (Marte 1988; Bonstelle & Govoni, 1984). *The Geriatric Medication Game® (GMG)*, however, specifically incorporates medication-related challenges during the simulation (Oliver et al., 1995; Evans et al., 2005). The GMG has been shown to improve attitudes of pharmacy students (Chen et al., 2011; Evans et al., 2005) but has not routinely been used with nursing students. Furthermore, the impact of simulation games on nursing student empathy is limited. Therefore, a modified version of the GMG was incorporated into a sophomore level nursing course to examine the impact of participation on nursing students' empathy and attitudes toward older adults as well as their understanding of the healthcare system.

METHODS

Institutional review board approval (exempt status) was obtained prior to data collection.

Activity description

The Geriatric Medication Game® (GMG), developed by the St. Louis College of Pharmacy, is an aging simulation game that specifically addresses the challenges of older adults (Evans, Lombardo, Belgeri, & Fontane, 2005; Oliver et al., 1995) and is designed to impact student attitudes and understanding regarding older adults and the healthcare system. In the GMG, students "become" or role-play older adults by experiencing physical, psychological, and financial problems while navigating the healthcare system and performing challenges (e.g. reciting their medication list, accurately filling a weekly pill box). A modified version was implemented, as described previously (Chen et al., 2011). In brief, students first were asked to select three personal characteristics from a list they wished to have as an older adult (e.g., energetic, good-looking, good memory). Then, students were randomly assigned simulated physical disabilities (e.g., vision loss, hearing loss, dexterity loss, difficulty with balance, general disability, or mobility loss). For example, students who had vision loss received petroleum jelly-coated goggles. Students also were assigned financial status (high, middle, and low income) and given "health credits" accordingly to pay for co-pays (Chen et al., 2011; Oliver et al., 1995).

Next, students were asked to navigate a simulated healthcare system with six different stations: physician's office, pharmacy, nurse practitioner, laboratory tests and healthcare benefits, home, and activities (activities of daily living and instrumental activities of daily living, such as buttoning up a shirt or opening a food package). At each station, students drew a card that gave them a new station to visit, added a new disease or medication, or asked them to perform an activity, such as reciting their medication list. Similar to the healthcare system, healthcare professionals displayed varying levels of empathy and caring, and students had to "wait" in line to see a healthcare provider. Also, while students were waiting, "fate" (played by a facilitator) visited them and could take away or add personal characteristics, diseases, disabilities, or medications (Chen et al., 2011; Oliver et al., 1995).

No student actually "won" the GMG, but all students engaged in a reflective discussion with the facilitator at the end of the GMG. This allowed the facilitator to identify and discuss any misperceptions regarding older adults (e.g., not all older adults are disabled) and the healthcare system (Chen et al., 2011). Station facilitators and "fate" were nursing and pharmacy faculty members and graduate students. Overall GMG facilitators were the study researchers.

Nursing students enrolled in a sophomore-level clinical course focusing on the care of older adults participated in a three-hour GMG as part of course activities. Students completed survey instruments (Kiersma-Chen Empathy Scale©, Jefferson Scale of Empathy – Health Professions Students, and Aging Simulation Experience Survey©) prior to beginning the skills laboratory to determine baseline empathy and attitudes towards older adults, and their understanding of the healthcare system. Students also completed the instruments after

participating in the GMG to measure changes. An anonymous identifier was used to link the pre- and post-tests.

Measures

Student empathy was measured using the Kiersma-Chen Empathy Scale (KCES), a newly-validated measure of empathy and a traditional measure of student empathy, the Jefferson Scale of Empathy – Health Professional Students (JSE-HPS). The JSE-HPS measures empathic qualities and tendencies and was modified from the Jefferson Scale of Empathy to include health profession students. This scale contains 20 items (7-point Likert-type, 1=Strongly Disagree, 7=Strongly Agree), with 10 items negatively-worded (which were reverse-coded when scored) (Fields et al., 2011; Hojat et al., 2002; Hojat et al., 2001; Ward et al., 2009). Higher scores on the JSE-HPS indicate greater student empathy, and scores can range from 20–140. The JSE-HPS is a reliable measure in nursing students (Cronbach's α=0.78) (Fields et al., 2011).

The Kiersma-Chen Empathy Scale (KCES) was recently validated for use in nursing students (Cronbach's α=0.75) (Kiersma et al., 2013). The KCES was developed from a theoretical perspective of empathy, measuring cognitive (the ability to understand and view the world from other people's perspective) and affective (ability to connect to the experiences or feelings of others) (Davis, 1994). Participants rate their level of agreement with statements using a 7-point Likert-type scale, where 1=Strongly Disagree and 7=Strongly Agree. Higher scores on the KCES indicate greater student empathy, and scores can range from 15–105.

The Aging Simulation Experience Survey (ASES), a quantitative questionnaire, was created from four consecutive years of pharmacy student completed open-ended questionnaires after participating in the Geriatric Medication Game®. Content analysis was performed on the open-ended questionnaires, and using the predominant themes (Chen et al., 2011), ASES was developed to assess students' perceptions of older adults. Thirteen items (7-point Likert-type, 1=Strongly Agree, 7=Strongly Disagree) were completed pre/post-GMG. An additional 8 questions (7-point Likert-type, 1=Strongly Agree, 7=Strongly Disagree) were included on the post-GMG instrument related to student experiences of navigating the healthcare system as an older adult. In addition, participant age, gender, feelings and emotions experienced, and prior experience with older adults were obtained as part of the post-test ASES.

Statistical analyses

Statistical analyses were performed utilizing IBM® SPSS v. 21.0 for Windows (Armonk, New York), with an *a priori* level of statistical significance $\alpha = 0.05$. Frequencies were calculated for demographic items. Pre-post changes were assessed using paired t-tests since the data were normally distributed.

RESULTS

Demographic characteristics and overall experience

The nursing students (N=58) were mostly female (87.9%) and between the ages of 19–21 (94.8%). Most had close relationships or prior work experience with older adults (Table 1). At least 75% of students experienced annoyance, frustration, and impatience while completing the GMG, particularly when they lost an ability, were unable to complete a task easily, or when they had to wait in line. Students believed that their attitude toward older adults changed as a result of completing the GMG and agreed that they plan on providing assistance to older adults in their future practice.

Student empathy and attitudes toward older adults and understanding of the healthcare system

The nursing students had high empathy toward older adults at the pre- and posttest on the KCES (Table 2) and the JSE-HPS (mean ± SD, pre-test: 111.41±11.41, post-test: 117.39 ± 10.78, maximum score possible = 120). There was a statistically significant increase in student empathy after completing the GMG on both the KCES ($t=2.508$, $p=0.015$) and the JSE-HPS ($t=3.846$, $p<0.001$). In the individual item analysis of the KCES, 4 of the 15 items showed statistically significant improvement ($p<0.05$; need for healthcare providers to comprehend someone else's experiences, ability to comprehend someone else's experiences, considering feelings necessary to provide patient-centered care, healthcare provider should be influenced by someone's feelings when determining the best treatment).

There was a statistically significant improvement on 7 of the 13 items on the ASES (Table 3). After completing the GMG, students felt they had significantly more understanding of how disabilities make everyday tasks challenging ($p=0.023$) and gained more respect for older adults ($p<0.001$). Students also understood the challenges older adults face within the healthcare system ($p=0.001$) including visiting more than one healthcare provider to resolve an issue ($p<0.001$) and that healthcare professionals need to improve communication with one another ($p<0.001$). Finally, students felt patients may be treated differently by healthcare professionals based on insurance type ($p<0.001$) or age ($p<0.001$).

DISCUSSION

Incorporating the Geriatric Medication Game® (GMG) into a nursing course resulted in significant improvement in student empathy toward older adults and greater understanding of the healthcare system and older adults experiences. Incorporating games into the curriculum can be a useful educational strategy and can encourage learning in a low-risk environment (Schmall et al., 2008). While the GMG has not been previously utilized with nursing students, other aging simulation games or experiences, such as "Into Aging," "Aging Game," or "Take a Walk in My Shoes" have been successfully utilized to improve nursing student empathy (Bonstelle & Govoni, 1984; Eymard et al., 2010; Henry, Ozier, & Johnson, 2012).

Nursing students had high levels of empathy toward older adults prior to completing the activity, according to the JSE-HPS and the KCES, but demonstrated even more

improvement in empathy after completing the GMG. While the KCES is a newly-validated measure, others have evaluated undergraduate Australian and US nursing student empathy and obtained similarly high levels of empathy, although not specifically pertaining to older adults (McKenna et al., 2012; McMillan & Shannon, 2011). Many students, as part of the clinical course, already had the opportunity to provide care and interact with older adults. Students, on average, indicated that they had personal connections and work experiences with older adults. Working with older adults can lead to more positive attitudes and empathy (Chen et al., 2011; Courtney et al., 2000; Stewart, Giles, Paterson, & Butler, 2005), and spending time with older adults could dispel any preconceived ideas or societal stereotypes and help students better understand the experiences of older adults. However, registered nurses may have experiences in an environment with pervasive negative attitudes or little empathy toward older adults; therefore, simulation experiences may provide valuable opportunities for students to gain empathy or dispel preconceived perceptions prior to encountering older adults in the practice environment.

Despite high baseline levels of empathy, there continues to be a need for improvement among students, particularly when considering individual items. For example, on the KCES, students indicated at baseline that they somewhat agreed that a healthcare practitioner should not be influenced by someone's feelings when determining the best treatment. However, incorporating patient feelings is an important aspect of clinical empathy. With empathetic care, nurses are expected to understand patients' experience and feelings, communicate their understanding, and then incorporate that understanding as part of evidence-based practice (Mercer, 2002).

Incorporating the GMG into the course resulted in improvements in student empathy, according to the JSE-HPS and the KCES. The GMG has been successfully utilized with pharmacy students to improve empathy, knowledge, and understanding regarding the experience of older adults within the healthcare system. (Chen et al., 2011; Evans et al., 2005). Other aging simulation games also have improved health professions student attitudes and empathy toward older adults (Bonstelle & Govoni, 1984; Douglass et al., 2008; Kennedy, Fanning, & Thornton, 2004; Varkey, Chutka, & Lesnick, 2006).

Many students have had limited experience in the patient role, since younger adults make less visits to healthcare professionals than older adults (U.S. Census Bureau, 2011); yet, they should be aware of how the healthcare system functions, in order to better care for their patients. In the GMG, students experienced a simulated healthcare system and had to navigate several healthcare provider visits, wait in line for an appointment, and pay for healthcare services, which is often similar to actual patient experiences. The students who participated in the GMG had significant improvements in their understanding of several aspects of the patient experience in the healthcare system. Greater understanding of the healthcare system and the patient experience may help student nurses empathize with their patients and fulfill their caring role.

Limitations

This activity was incorporated into a small, clinical course related to older adults, leading to a small sample size and limited generalizability. Students taking this course may already be interested in working with older adults and also may have greater empathy and understanding than their peers. Many nursing students enrolled in the clinical course had already been exposed to older adults through experiential education and may have had greater empathy at baseline. While students were asked about whether or not they perceived they had more experience than their peers, the average response was neutral. Therefore, these results should be validated prior to student experiences with older adults to better determine the effect on student empathy and understanding.

The GMG was a single experience and pre-post assessments with a single activity may not be reflective of student empathy and perceptions long-term and may not translate to empathy when performing patient care. Additional active-learning activities should be added within the curriculum and assessed longitudinally to reinforce these concepts in order to maintain or improve these outcomes. The goal of incorporating these types of activities into the curriculum is to impact student empathy toward older adults and have these attitudes and knowledge reinforced by practice experiences throughout the curriculum. There is potential for this activity to have lasting impact, as others have incorporated an aging simulation game and found a lasting impact on medical students (Galanos & Cohen, 1993).

Since students were asked to report their self-perceptions of empathy and understanding toward older adults, there may be bias due to social desirability. Students may have tried to minimize or avoid socially undesirable traits or statements (i.e., negative attitudes) and to maximize socially desirable traits or statements (i.e., positive attitudes) (Nederhof, 1985). Despite the survey being anonymous and voluntary, students may not have answered items honestly, positively skewing the results. These results with regard to empathy are consistent with peer-reviewed literature, but further research should be conducted to validate the results, particularly from the KCES (empathy) and ASES (experiences in GMG).

Furthermore, the results may not reflect student empathy and perceptions in practice due to the use of self-report measures. Students may believe that they are demonstrating empathy towards patients but may lack empathy in the actual practice setting. Further research should evaluate the relationship between these self-perceptions and observable measures, such as faculty, staff, or patient perceptions of empathy displayed in practice settings.

CONCLUSIONS

Development of curricular strategies, such as incorporation of the Geriatric Medication Game®, can emphasize the importance of empathy and caring to students. Students may not be aware of older adults' feelings and experiences prior to experiencing aging-related changes themselves, and simulation activities can be a useful mechanism to allow students to "walk in the shoes" of an older patient. Instruments such as the JSE-HPS, the KCES, and the ASES are tools that can be utilized to inform and guide faculty regarding whether a simulation activity or other educational activities result in improved student empathy and

perceptions of older adults. These curricular strategies can assist future generations of nurses in improving attitudes and empathy toward older adults, resulting in improvements in the quality of care provided.

Acknowledgements

Support for this project was provided by the Purdue University Learning Outcomes Assessment Grant and the Purdue University College of Pharmacy. Support for Aleda Chen while a graduate student was provided by the National Institute on Aging (T32AG025671) and the Purdue University Center on Aging and the Life Course as well as from the American Foundation for Pharmaceutical Excellence.

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RESEARCH HIGHLIGHTS

- When the Geriatric Medication Game (GMG), an aging simulation game, was incorporated, nursing students' empathy toward older adults significantly improved.
- Students learned about navigating the healthcare system as a result of participating in the GMG.
- Simulation activities, such as the GMG, can be a useful mechanism for addressing empathy and caring during student education.

Table 1

Demographic Characteristics and Experiences

Item	
Age, N(%)	
19–21	55 (94.8)
22–24	1 (1.7)
31–33	2 (3.4)
Gender, N(%)	
Male	2 (3.4)
Female	53 (87.9)
Missing	5 (8.6)
Experience with Older Adults, Mean ± SD*	
I have a close relationship with an older adult (i.e., family member or friend).	1.79 ± 1.28
I believe I have more experience working with older adults than my peers.	3.04 ± 1.77
Emotions Experienced During the Game, N(%)	
Annoyance	51 (87.9)
Frustration	45 (77.6)
Impatience	45 (77.6)
Tired	43 (74.1)
Helplessness	36 (62.1)
Anger	22 (37.9)
Upset	20 (34.5)
Confusion	19 (32.8)
Embarrassment	17 (29.3)
Sad	10 (17.2)
Student Experiences During Game,* Mean ± SD	
I experienced frustration when I lost an ability.	2.08 ± 1.21
My attitude toward older adults did not change as result of this experience.	5.38 ± 1.43
I plan to be patient with older adults when I am working.	1.72 ± 1.36
I experienced frustration when I was unable to complete a task easily.	1.92 ± 1.21
I became impatient when I had to wait in line to see a healthcare provider.	1.48 ± 1.04
I plan to provide assistance to older adults in my future practice.	1.58 ± 0.93
When I was not treated well by a provider, it upset me.	1.92 ± 1.25
In the future, I will try to ensure that older adults comprehend the directions I give.	1.32 ± 0.51

* 1=Strongly Agree, 7=Strongly Disagree

Table 2

Pre-Post Changes in Nursing Student Empathy (N=58)

Items	KCES Pre-Test Mean ± SD	KCES Post-Test Mean ± SD	p
It is necessary for a healthcare practitioner to be able to comprehend someone else's experiences.	6.29 ± 0.82	6.60 ± 0.49	0.003*
I am able to express my understanding of someone's feelings.	6.07 ± 0.77	6.10 ± 0.67	0.659
I am able to comprehend someone else's experiences.	5.75 ± 0.93	5.98 ± 0.77	0.031*
I will not allow myself to be influenced by someone's feelings when determining the best treatment.**	3.34 ± 1.47	3.71 ± 1.67	0.085
It is necessary for a healthcare practitioner to be able to express an understanding of someone's feelings.	6.47 ± 0.66	6.38 ± 0.81	0.374
It is necessary for a healthcare practitioner to be able to value someone else's point of view.	6.69 ± 0.54	6.62 ± 0.52	0.419
I believe that caring is essential to building a strong relationship with patients.	6.88 ± 0.66	6.84 ± 0.37	0.419
I am able to view the world from someone else's perspective.	5.76 ± 0.82	5.93 ± 0.93	0.159
Considering someone's feelings is not necessary to provide patient-centered care.**	6.10 ± 1.09	6.38 ± 0.88	0.015*
I am able to value someone else's point of view.	6.29 ± 0.65	6.22 ± 0.86	0.484
I have difficulty identifying with someone else's feelings.**	5.68 ± 0.86	5.47 ± 1.20	0.090
To build a strong relationship with patients, it is essential for a healthcare practitioner to be caring.	6.71 ± 0.56	6.69 ± 0.60	0.709
It is necessary for a healthcare practitioner to be able to identify with someone else's feelings.	6.36 ± 0.74	6.52 ± 0.63	0.060
It is necessary for a healthcare practitioner to be able to view the world from another person's perspective.	6.36 ± 0.64	6.45 ± 0.57	0.322
A healthcare practitioner should not be influenced by someone's feelings when determining the best treatment.**	3.86 ± 1.55	4.53 ± 1.73	0.002*
Total Score	89.16 ± 5.55	90.91 ± 6.39	0.015*

*Statistically significant, p<0.05 1=Strongly Disagree, 7 = Strongly Agree

**= reverse coded, 1 = Strongly Agree, 7 = Strongly Disagree

Table 3

Nursing Student Perceptions of Older Adults and Understanding of the Healthcare System (N=58)

Items	Pre-Test Score Mean ± SD	Post-Test Score Mean ± SD	p
Disabilities make it challenging for older adults to accomplish tasks.	1.72 ± 0.97	1.36 ± 0.68	0.023*
I am aware of older adults' challenges in the healthcare system.	2.30 ± 0.85	1.85 ±0.72	0.001*
Patients need to visit one health provider in order to resolve a health issue.	4.08 ± 1.59	5.15 ± 1.84	0.000*
I am aware of older adults' feelings.	1.19 ± 0.40	1.21 ± 0.41	0.742
Healthcare can be costly for patients.	2.73 ± 1.17	2.48 ± 1.16	0.150
Young people take good health for granted.	2.38 ±1.00	2.25 ± 0.98	0.278
I have patience toward older adults.	1.23 ± 0.54	1.36 ± 0.59	0.128
Patients are treated differently based on their type of health insurance.	2.96 ± 1.32	2.34 ± 1.32	0.000*
Older adults spend a lot of time in the healthcare system.	1.87 ± 0.76	1.89 ± 1.07	0.890
I have respect for older adults.	3.72 ± 1.50	2.45 ± 1.35	0.000*
The amount of communication between providers is acceptable.	2.34 ± 0.96	1.57 ± 0.75	0.000*
When I am a healthcare practitioner, I plan to be understanding toward older adults.	1.26 ± 0.45	1.23 ± 0.42	0.485
Providers treat older adults differently because of their age.	3.75 ± 1.31	4.62 ± 1.56	0.000*

*Statistically significant, $p<0.05$ 1 = Strongly Agree, 7 = Strongly Disagree