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Title: Student Radiographers' Attitudes Towards the Older patient – A Longitudinal Study

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*Abstract

Student Radiographers' Attitudes Towards the Older patient – A Longitudinal Study

Purpose: To design, implement and evaluate the effect of an educational intervention on student radiographer attitudes across their educational tenure.

Methods: In the first phase, an educational intervention that involved didactic lectures, reflective exercises and simulation suits, aimed at improving student radiographer attitudes towards the older person, was designed and implemented. Kogan's attitudes towards older people (KoP) scale was administrated at five test points; pre-intervention; post-intervention; 6 months post intervention; 12 months post intervention and 24 months post intervention. At the final test point these quantitative data was supplemented with qualitative data for triangulation of the findings.

Results: Students held positive attitudes towards older people pre intervention, these increased significantly post intervention ($p=0.01$). However, this increase in positive scores was not noted at 6 months and 12-months post intervention. At 24-months post intervention, although there was a slight increase in positive attitudes when compared to the 6 and 12 month scores, this increase was not found to be significant ($p=.178$)

Conclusion: The results post-intervention suggested that an educational intervention can have a significant impact on student radiographer's attitudes towards older people. However, the qualitative data suggests that experiences on initial clinical placement can be detrimental to attitudinal scores, particularly if the intervention does not include Dementia care strategies.

Key words
Attitudes; education; Kogan's attitude towards older people scale; radiography; simulations

Highlights

- Reports the effects of an intervention to improve attitudes to older people
- Post-intervention attitudes were significantly more positive
- At 6 months and 12 months post-intervention mean positive scores were reduced
- At 24 months post-intervention scores had again increased
- The qualitative data suggests interventions should include Dementia care

Introduction

Increasing life expectancy in the western world has resulted in many healthcare services progressively handling larger proportions of older adults. In 2012, 34% of the population admitted to Norwegian hospitals were aged over 67[1] and it is now the case that the majority of patients examined in UK medical imaging departments are aged 65 years and over.[2] Despite this upward trend in frontline clinical practice, a strong body of contemporary evidence suggests that negative staff/trainee attitudes towards older people remain prevalent in a number of healthcare domains, including radiography itself.[3-8] The consequences of this situation for patient care is logically a matter of some concern,[5,9] though the history of social psychology shows us that establishing a defensible *causal* link between expressed attitudes and practical behaviours in any domain remains a problematic task at best.[10] It is certainly the case that no study in radiography has to date explored, in any manner, the impacts of given professional attitudes towards older patients in direct clinical practice.

This paper is the third of three emerging from a broader longitudinal study assessing the quantitative outcomes of a tailored educational intervention, designed to promote positive attitudes towards older people, for a sample of Norwegian student diagnostic radiographers. Using Kogan's attitude scale,[11] measurements were taken pre-intervention, and then in the short, medium and longer terms across the course of the participants' training. Specifically reported here are results from the final phase of the study, addressing the longer-term impacts of the intervention.[a] Furthermore, and as subsequently outlined in greater detail, these statistical data are then triangulated against qualitative findings derived from focus groups, conducted with participating students at the very end of the study. This mixed-method approach, it is contended, not only helps clarify some emergent concerns that do not lend to

[a] The short and medium-term findings are described in two previously-published papers [references redacted for blinded peer review].

straightforward explanation, and allows participants to contextualise them in terms of their own real-world activities, but also shines a novel critical light on the extent to which the findings of this research can be generalized to real-life settings of attitude-based research.

Background and intervention

Education is widely viewed as a key component in preventing or reversing the development of negative attitudes towards older people, especially among student healthcare practitioners.[7,12] The importance of *early* intervention, in this respect, is emphasised by Kearney et al (2000), who argue that these individuals are particularly at risk of developing intractably 'ageist' attitudes over time, even where they might not have previously held them.[3] Difficult encounters with the frailer and sicker segment of the older population, and the corollary workload and stress that can accumulate, they maintain, all have the capacity to engender an adherence to prejudicial stereotypes among clinical workers.[3,9,13]

In a widely-cited study, Collins and Brown (1989) highlight how nurses who are initially exposed to frail and unwell older patients are more likely to develop generalised negative attitudes than those whose early contacts are with older patients who are generally fit and healthy.[14] This echoes the commonly documented theme in social psychological studies of prejudice, that consistent and/or vividly-remembered difficult experiences with particular members of a particular 'class' of persons often results in a negative aspect towards all individuals that belong to that socio-demographic.[15] In short, the immediate clinical problem is that practitioners might be inclined to pre-judge any older person in terms of the stereotypes associated with their social group, and anticipate that all of the problems potentially associated with that group will then likely apply *in* that case.

Given the above, a two-day programme was designed to 'set' student radiographer attitudes as positively as possible at an early stage in their training, such that they might be resilient to the factors that might result in a deterioration of these attitudes for reasons so far documented. The first day was based on the work of Palmore,[16] and his extensive research on ageism, attitudes and stereotypes. Didactic lectures were organised to dispel the common myths around ageing e.g. loneliness, poverty, intelligence and mental decline as well as how ageism is perpetuated both in the media and in health care. Sessions around the normal processes of ageing, and figures that demonstrate compression morbidity were used for education and debate.[17] Day 2 made use of workshops and role play and was based on the work of Aday and Campbell (1995) and Blundell et al (2011)[13,18]. Here students were dressed in simulation suits (Sakamoto Model M176), that mimicked some of the pathophysiological processes associated with ageing e.g. muscle fatigue, movement restriction as well as sensory loss e.g. macular degeneration and hearing loss. These were used to encourage students to reflect upon how they might better empathise with the older patient in the x-ray room, such that sensory and physical deficits might be better accommodated. Research was then conducted to explore the consequences of this intervention.

Method

Ultimately, a mixed-method approach is reported here, the facility of which has been well-documented within radiography research.[19,20] The qualitative component reported was not, however, an original feature of the research design, but (as previously noted) a post-hoc strategy for triangulating, and thus making sense of, some of the quantitative findings that had been difficult to explain. As such, the methodological concerns pertinent to the two phases of

data collection and analysis central to this paper are outlined independently, in the way that they procedurally arose.

Design I

The primary quantitative study was grounded in a longitudinal survey of undergraduate radiography students' attitudes towards older people. Using the Kogan attitude towards older people (KOP) scale,[11] a trusted tool in this order of contemporary social research, comparisons were made across multiple time-points. For the purposes of this study, the KOP was translated into Norwegian using the translation-back-translation procedure though, as reported in published literature, this is not the first time the scale has been translated into a Scandinavian language.[21] In total, five measurements were taken:

- One pre-intervention; before any clinical placement (January 2014);
- One immediately post-intervention; also before any clinical placement (January 2014);
- six months' post intervention (directly after the participants' first clinical placement, (July 2014));
- One year after the intervention (after the participants' second year of clinical placements, (January 2015));
- Two years after the intervention (after the participants have third year clinical placements, (January 2016)).

This paper reports results from the last measurement, further drawing upon prior papers to illuminate the present discussion.

Participants I

At the initial point of sampling, N=42 undergraduate radiography students were registered on a BSc Radiography course at a single Norwegian University. All, with full institutional ethical approval, and after giving informed consent, agreed to take part in the study. Of these, N=38 completed the two-day intervention (four were unable to attend the full two days due to student sickness). As the research progressed, nine students departed the course, leaving N=29 students participating at the 5-month and 12-month points. Two years post-intervention, a further three students had left the course. Therefore, responses from N=26 students were measured at the final testing point. The mean age of these students was 25.38, (SD = 6.00). 73% were female, 27% male. As students had been allocated a unique identifier at the beginning of the research, it was possible to remove withdrawals from the data presented previously.[b]

Analysis I

The KOP scale itself is made up of 17 positive statements and 17 negative statements around attitudes towards older people. Participants are asked to indicate how strongly they agree or disagreed with each statement using a seven point Likert scale. Response alternatives include, strongly agree (7), slightly agree (6), agree (5), uncertain (4), disagree (3), slightly disagree (2) and strongly disagree (1). Negative statements are reversed scored when analysed. The total score ranges are from 34 to 238, with a score of 136 indicating a neutral attitude; scores above 136 signify a more positive attitude.

Summary statistics (frequencies and percentages) are presented here for the KOP scores across the 5 testing points.[c] Statistical comparisons were made using the Friedman test

[b] The data with these individuals removed was therefore re-analysed using Wilcoxon. Very little difference is noted in the originally reported findings (references redacted for blinded review) and those that are reported here.

[c] Statistical Package of Social Sciences (SPSS) Version 22.0 (IBM SPSS, NY, USA) and program R (R Foundation for Statistical Computing, Vienna, Austria) were used for the statistical analysis.

to identify if there were any significant differences between the mean scores. The threshold of significance for Friedman test was p = ≤0.05. Differences between two points were carried out by Wilcoxon signed rank test with Bonferroni correction, p=≤0.008 (0.05/6).

Design II

Three focus groups were employed to triangulate the results obtained from the statistical work. It should be noted here that the interviews were only undertaken in the final phase of the study. The qualitative data that emerges from this type of approach is well-documented to illuminate a range of issues pertinent to participants themselves, with the additional facility of giving them an opportunity to voice their experiences in the way that they usually would in the company of peers.[22] A semi-structured schedule, informed by the findings from the quantitative results, was administered. Participants were invited to explore the reasons behind particular responses in as open a manner as possible, and also to reflect on the questions they had been asked. The mean duration of the focus groups was one hour. All facilitation was undertaken by the third author, a seasoned academic nurse with extensive working experience in qualitative healthcare research. Questioning was open, and invited inter-participant discussion. E.g.: Explain your views on attitudinal changes during the study periods and your view towards older patient over the two years since the intervention. How was your experience working with the older people at clinical departments? What are your views now about the intervention? Again, full informed consent was obtained from all participants, and all collection and data management procedures were handled in full correspondence with the ethical requirements of the governing institution.

Participants II

Of the N=26 participants who completed the final round of the KOP survey, N=20 consented to take part in the focus groups. The composition of the individual groups is summarised in Table 1.

Table 1: Focus group composition

Analysis II

The focus group data were transcribed verbatim. Thematic analysis, as recommended by Braun and Clarke[23], was utilized without the use of qualitative data analysis software, due to a relatively small amount of data. Consistent codes, and key themes, were developed from the raw data in discussion by all authors, to complete an advanced process of triangular consensus validation.[23,24] Emergent global themes were then used to reflect upon the statistical data.

Results I

The mean pre-intervention KOP score was 160.31 (SD 14.38), indicating a generally positive attitude. At immediate post-intervention, this significantly increased to 170.19 (SD 17.28, p= < .001). At the six month post-intervention point, the mean regressed to a level similar to that of pre-intervention measurement (163.73 / SD 17.46), and this remained true at the one year point (163.0 / SD 18.14). At the point of two years post-intervention, however, the mean KOP score returned to a point significantly greater than the pre-intervention measurement (p= < .001), and similar to that of the immediate post-intervention score (p=0.178), see figure 1. Total mean scores for each question across the five time points are shown in Table 2.

Figure 1 – Mean scores across the five testing points

Friedman test only showed a significant difference in mean scores across the five time points for question 23 "*Old people should have power in business and politics*" (p =0.009). Analysis using Wilcoxon Signed rank with Bonferroni correction also demonstrates a significant difference in mean scores for this question, between one year and two years post intervention (p= 0.003). No other significant differences in individual questions, across the time points, were identified.

Table 2 – Total Mean scores for all questions across all time points

Results II

Analysis of participant contributions rendered relevant two global themes pertinent to the business of making sense of the quantitative findings:

1. Physical interventions and psychological symptoms
2. Age in general, and older persons in medical care

1. Physical interventions and psychological symptoms: Issues of intervention

While drawing attention to the training they had received around ageing during the intervention, a substantial number of the focus group participants also addressed how some of the older patients they had subsequently handled were not just 'older', but also suffered from dementia. Thus, while the intervention had given them useful tools with which to handle the physiological and sensory needs of the older patient, they remained at a loss and "feeling insecure" when:

"[Y]ou go to the first placement and don't know how to handle the elderly, if they have dementia, how to get them on the table, you are not prepared how to talk to them"

"[T]he focus on the elderly at the college [was] 5 minutes together in the radiology department, not them on the wards"

This has significant import for the study at hand. While natural physiological and sensory ageing' was illustrated to the students, the issue around a patient's cognitive impairment was not a component of the intervention. Consequently, we might see the participants' assimilation of the intervention as initially literal and, after time, adaptive. Hence, the initial dip, and subsequent improvement in scores, as the students progressively learned to contextualise the content of the intervention within the more complex environments of real practice.

2. Age in general, and older persons in medical care : Issues of measurement

A number of participants discussed how, in the period post-intervention, they had frequently observed phenomena such as older people complaining that younger people do not stand up for them on the bus. As some actively asserted, several KOP items (e.g. Item 31: "One seldom hears old people complaining about the younger generation.") had encouraged an attention to potentially difficult matters in broader social life, and that this may have coloured their attitudes across the earlier stages of the survey. However, following extended time in clinical placement, participants (almost universally) reported that in healthcare itself, they had found older patients to be more accommodating, and more appreciative of the younger radiographers, than were many younger patients.

"[older] *patients, don't complain, they're grateful and appreciative of the younger radiographers*

In these terms it seems that at the six month and one year points, the participants were responding to the KOP (and partially as a result of the KOP) in regards to their broader social experience. At the two-year measurement point, they were responding according to their clinical experiences. Indeed, seeing older persons within these contexts had engendered an attitude that had overridden their previous social stereotypes in some cases:

"Seeing [older] *patients endure….experience pain…they are tough"*

"Initially I did not agree…but after visiting older people in their homes [nursing placement] *I now agree"*

"You don't change personality just because you get older…some are polite….some are rude"

"[W]*ith patients with Dementia, even with the same diagnosis they are quite different, you have to approach them in a different way"*

They had, in short, accumulated sufficient clinical experience to be able to contextualise the requirements of the KOP as an account of their attitudes as they relate to radiography.

Discussion

Although it may be difficult to generalise the findings of this study to the wider population due to the small sample size, its longitudinal nature, coupled with the triangulation of qualitative data enables us to give some insight into the use of interventions to improve attitudes towards older people. For example, following a 'deterioration' in positive attitude between the post-intervention measurement and the six-month point (which remained stable at the one-year point), there was subsequent uplift in mean KOP scores at the two-year point. These findings are, in some respects, consistent with Fowler's work regarding radiography students[8], although Fowler's work speculated the impact of qualified staff on student radiographer attitudes, therefore a limited account is provided therein for why such results may have arisen. We might speculate that, particularly given the already positive scores pre-intervention and immediate uplift resulting from the targeted intervention itself, the six month and one year results are simply evidence of regression to the mean; the two-year measurement, meanwhile, could be an output of increasing clinical confidence born of greater experience largely unconnected to the intervention. This was certainly found to be the case in mental health nursing, where it was found that clinical experience in the area of mental health positively influenced the attitudes of nursing students towards mental health patients, particularly if the students had been satisfied with that clinical experience[25]. The active contributions of the participants involved in the focus groups, however, give us cause to consider some different possibilities.

Firstly, and at the substantive level, it is important to reflect upon how the participants' increasing clinical experience with older people was inherently bound-up with their experience of handling patients with dementia. It is perhaps worth noting here that the initial placements for these students were not in the radiography department, but in nursing homes and wards. Here students are expected to develop skills such as moving and handling, wound dressings and communication skills. In these terms, the participants found it initially difficult

to find the relevance of the intervention provided, which focussed on the care of the older patient in a radiology department and did not include information on how to communicate with patients who have dementia. However, they were increasingly able to contextualise what they had learned over time once they found themselves in the radiology department.

Secondly, and at a more functional level, educational interventions are widely noted to be only as effective as the target audience's ability to adapt them to personally-relevant empirical circumstances[26]. This is a well-documented problem with public health interventions. For example, recent public health campaigns regarding the dangers of smoking have had distinctly limited demonstrable effect on smoking rates in the UK[27]. However, there is a strong correlate between individuals personal experiences and their capacity to quit[26]. This gives us cause to reflect upon how situationally-relevant the original intervention might have been for the participants involved on several counts. The participants involved in the focus groups drew attention to how the original intervention had made them more empathic towards older people in general. However, due to their lack of clinical experience, the KOP had encouraged them to be attentive to the aspects of everyday social interactions with older people. This leads us to be critical of the KOP in the initial phases of the research, in that it measured the students' societal attitudes towards older people, rather than those that are more relevant to the health care setting.

For a relatively untrained individual, who only has their social experience on which to primarily draw, this is hugely significant. It reflects strongly upon the interrelation between research design and findings. In this case, asking a novice set of radiographers how they rate their observations of 'older people' will result in them scoring their views based on their experiences in general. As professional experience develops, however, and as suggested by the additional qualitative data, the influence of broader social experience diminishes and the healthcare professional is increasingly able to compartmentalise their social experience from

their clinical work, it is this that perhaps explains the uplift in attitudinal scores in the latter stages of the research.

Conclusion

Despite the limitations of using the KOP to measure health care attitudes in the initial phases, these data, coupled with the discussions from the focus groups suggests that the educational intervention influenced student attitudes towards older patients. However clinical experiences can be detrimental to these attitudes if the intervention itself does not give students some confidence in dealing with some of the communication challenges often associated with Dementia care. It also seems that the intervention, used in this study, did provide confidence during radiological procedures when negotiating the physiological and sensory deficits associated with ageing, as evidenced by some of the responses given in the focus groups. Nonetheless both the quantitative and qualitative findings demonstrate the importance of clinically relevant training alongside such interventions should we wish to encourage positive attitudes towards older patients.

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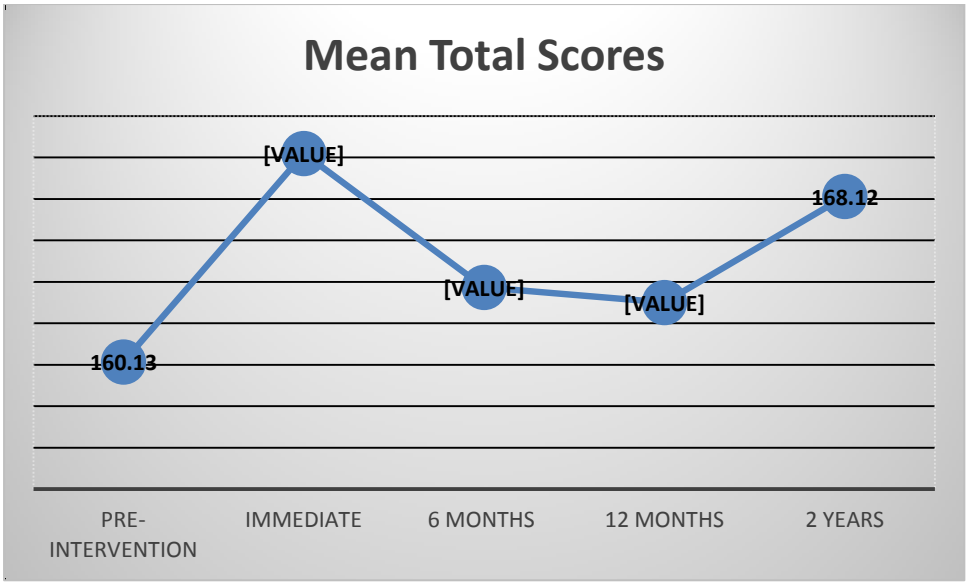
Figure(s)


Mean Total Scores
[VALUE]
168.12
[VALUE]
[VALUE]
160.13
PRE-INTERVENTION
IMMEDIATE
6 MONTHS
12 MONTHS
2 YEARS

Table(s)

Table 1

Group	**N**	**M/F**	***m* age (years) / SD**
1	6	2/4	25.2 / 5.98
2	7	2/5	23.7 / 3.09
3	7	2/5	23.8 / 5.84

Table(s)

Table 2

Items	Pre test Mean (SD)	Post test Mean (SD)	Post test six months Mean (SD)	Post test 12 months Mean (SD)	Post test 24 months Mean (SD)
1. It would probably be better if most old people lived in residential units with people their own age.	4.77 (1.73)	5.46(1.24)	4.89(1.61)	4.73(1.34)	4.73(1.38)
2. Most old people are cheerful, agreeable, and good humored	4.39(1.55)	5.04(1.37)	5.08(1.44)	5.23(1.42)	5.31(1.32)
3. Most old people are constantly complaining about the behavior of the younger generation	3.89(1.56)	4.31(1.44)	4.50(1.18)	4.54(1.53)	4.85(1.35)
4. People grow wiser with the coming of old age	4.39(1.44)	4.77(1.24)	4.96(0.82)	5.00(1.27)	4.92(1.44)
5. Old people have too much power in business and politics	4.92(1.35)	5.19(1.23)	5.58(1.33)	4.65(1.41)	4.69(1.38)
6. When you think about it, old people have the same faults as anybody else	4.81(1.70)	4.65(1.74)	5.00(1.77)	5.31(1.60)	4.65(1.44)
7. In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it.	5.96(1.11)	5.96(0.82)	5.31(1.26)	5.31(1.05)	5.69(1.23)
8. Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody	4.65(1.23)	5.39(1.42)	5.27(1.19)	4.78(1.53)	4.96(1.31)
9. Most old people tend to let their homes become shabby and unattractive.	5.69(0.93)	5.58(1.07)	5.39(1.02)	5.08(0.98)	5.50(0.99)
10. Most old people seem quite clean and neat in their personal appearance.	4.69(1.26)	5.12(1.28)	5.19(1.13)	5.08(1.02)	5.15(1.35)
11. Most old people are irritable, grouchy, and unpleasant.	5.19(0.89)	5.85(0.97)	5.53(1.14)	5.65(1.01)	5.61(1.13)
12. Most old people need no more love and reassurance than anyone else	2.42(1.48)	2.39(1.39)	2.23(1.42)	1.81(1.20)	1.96(1.11)
13. It is evident that most old people are very different from one another.	5.69(1.64)	5.96(1.46)	5.73(1.49)	6.00(1.32)	6.00(1.41)
14. Most old people are really no different from anybody else; they're as easy to understand as younger people.	3.38(1.47)	3.23(1.66)	3.73(1.28)	3.85(1.71)	3.89(1.31)
15. Most old people get set in their ways and are unable to change	3.58(1.58)	4.31(1.69)	3.89(1.68)	3.62(1.58)	3.96(1.66)

16. Most old people can generally be counted on to maintain a clean, attractive home	5.27(1.18)	5.27(1.34)	5.42(0.98)	5.19(1.13)	5.08(1.32)
17. It is foolish to claim that wisdom comes with age	4.81(1.42)	4.54(1.56)	4.58(1.30)	4.85(1.49)	4.85(1.12)
18. You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it.	4.04(1.40)	4.39(1.24)	4.27(1.37)	4.27(1.28)	4.42(1.27)
19. There are a few exceptions, but in general most old people are pretty much alike	5.69(1.16)	5.77(1.11)	4.92(1.65)	5.04(1.56)	5.15(1.32)
20. One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences.	5.61(1.30)	5.73(1.28)	5.31(112)	5.42(1.24)	5.42(1.33)
21. Most old people spend too much time prying into the affairs of others and giving unsought advice	4.96(1.21)	5.23(1.31)	4.73(1.19)	5.04(1.08)	5.46(1.03)
22. Most old people should be more concerned with their personal appearance; they're too untidy	5.31(1.05)	5.65(0.85)	5.73(1.00)	5.23(1.24)	5.61(1.20)
23. Old people should have power in business and politics	3.85(1.54)	4.54(1.48)	3.69(1.29)	3.39(1.42)	4.19(1.42)
24. Most old people make one feel ill at ease	5.27(1.28)	5.46(1.21)	5.42(1.17)	5.58(1.45)	5.73(1.34)
25. It would probably be better if most old people lived in residential units with younger people.	4.35(1.44)	5.00(1.30)	4.46(1.30)	4.73(1.19)	4.77(1.11)
26. There is something different about most old people; it's hard to find out what makes them tick	5.23(0.95)	5.23(1.03)	5.19(1.10)	5.58(1.03)	5.35(1.16)
27. Most old people are capable of new adjustments when the situation demands it.	4.39(1.58)	5.39(1.44)	4.77(1.77)	4.54(1.63)	5.15(1.52)
28. Most old people would prefer to quit work as soon as pensions or their children can support them.	4.08(1.13)	4.12(1.31)	4.35(1.41)	4.27(1.40)	4.69(1.12)
29 .Most old people tend to keep to themselves and give advice only when asked.	2.77(1.28)	3.35(1.33)	3.46(1.61)	3.42(1.45)	3.27(1.37)
30. If old people expect to be liked the first step is to try to get rid of their irritating faults	5.77(1.21)	6.15(0.96)	5.77(1.03)	5.54(1.21)	6.08(1.06)
31. One seldom hears old people complaining about the behavior of the younger generation.	3.42(1.53)	3.62(1.42)	3.65(1.52)	3.62(1.39)	3.73(1.56)
32. Most old people make excessive demands for love and reassurance than anyone else	5.85(1.19)	6.08(1.16)	5.81(0.98)	5.89(1.11)	6.08(1.02)
33. Most old people are very relaxing to be with	5.39(1.20)	5.31(1.23)	5.35(1.20)	5.23(1.31)	5.54(1.14)

34. Most old people bore others by their insistence on talking "about the good old days	5.85(1.12)	6.19(0.90)	5.58(1.42)	5.58(1.14)	5.73(1.12)