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**Title**

Student radiographers' attitudes towards the older patient: Six and twelve months post intervention

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Many thanks

Dr. Lisa Booth

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## **Abstract**

**Purpose:** To design and evaluate the effects of an educational intervention on Norwegian student radiographer attitudes towards older people.

**Design:** A longitudinal study design, using pre-test and post-test data was used to determine student attitudes to older people across their educational tenure. Attitudes were measured using Kogan's attitudes towards older people scale. This paper, the second in the series, reports on the changes in student radiographer attitudes, post an educational intervention and post their first experience of clinical placement.

**Results:** Although students initially demonstrated significantly improved attitudes towards older people ( $p=0.01$ ), this significance was not noted at 6 months and 12 months post intervention. In fact average scores reduced to an almost identical level to those found pre-intervention

**Conclusion:** Whereas an educational intervention can have an initial positive effect on student attitudes towards older people, the experience of clinical placement reduces these initial effects.

## **Highlights**

Reports the effects of an intervention to improve attitudes to older people

Pre-intervention students had generally positive attitudes to older people

Post-intervention attitudes were significantly more positive

At 6 months and 12 months post-intervention mean positive scores were reduced

Some questions score significantly more negatively than others

## **Keywords**

attitudes; student radiographer; clinical placement; Kogan's attitude scale; older people

## **Introduction**

It is well documented that the world's population is ageing<sup>(1,2)</sup> and in Norway it is estimated that 20% of the population will be aged over 67 by 2060<sup>(3)</sup>. With this decreasing mortality comes an additional burden of increasing morbidity<sup>(4)</sup>. However, “[T]he extent to which population ageing is inevitably accompanied by an increased prevalence of chronic disease and disability...remains controversial”<sup>(5)</sup>. Andrews cites the work of Fries, who argues that incapacity and invalidity are more often seen in those aged over 85 years and due to this there is a “compression of morbidity” between the later stages of life and death. In 2012 the United Nations reported that “people aged 80 years or over accounts for 14 per cent of the population aged 60 years or over”<sup>(6)</sup> (p.1). They proceed to state that the over-80s are the fastest growing segment of the population and as a consequence “...by 2050, 20% of the older population will fall into this age group”. Therefore, the growth in this age group and subsequent compression in morbidity has implications for both health and social care policy<sup>(7)</sup>. Whether or not one agrees with the argument that decreasing mortality creates a burden of increased morbidity, it is well documented that some diseases are indeed associated with later life. Vascular and cardiac disorders, cancer, arthritis, osteoporosis and dementia are clear examples thereof<sup>(8,9,10,11)</sup>.

In Norway, we see that 34% of hospital admissions are patients aged 67 years or older<sup>(8)</sup>. This hospitalisation is not without its risks. A number of studies comment on functional decline associated with hospitalisation, a decline that persists even once the original acute complaint has been treated<sup>(12,13,14)</sup>. This decline is, furthermore, associated with nursing home admission and, in some cases, death<sup>(12,14)</sup>. Graf<sup>(13)</sup> argues that although functional decline is associated with hospitalisation, certain measures can be put in place for

its prevention. For example: ambulation programmes, feeding assistance and sensory stimulation.

Central to preventing functional decline in older patients is the body of staff charged with care of these patients<sup>(13)</sup>. Prior research, however, has investigated the older person's experiences of hospital care, and found that they were made to feel passive and inferior by staff, which in turn led to feelings of helplessness, isolation and depression<sup>(15)</sup>. The inquiry at the Mid-Staffordshire trust (UK) in 2009<sup>(16)</sup> supports this finding, with complaints made against staff regarding their unsympathetic moving and handling of clients, their failure to use given names, and also rudeness and hostility. Feeding assistance, as discussed by Graf<sup>(13)</sup>, is important for preventing functional decline. Nevertheless, it was reported in the inquiry to be sub-optimal, as were attending to patients' basic needs such as assistance with mobilising to and from the toilet<sup>(16)</sup>. The passiveness and inferiority felt by older patients as reported in Ekman's study<sup>(15)</sup> is correspondent with the findings of the mid-Staffordshire inquiry, with patients "characterised by a reluctance to insist on basic care or medication for fear of upsetting the staff"<sup>(16)</sup>. Although there were a number of contributing factors to the poor care patients experienced at Mid-Staffordshire NHS trust, the inquiry is damning with respect to how (a) staff attitudes, (b) poor communication and (c) a general acceptance of poor standards contributed to this.

Mid-Staffordshire was not the first evidence to suggest that practitioners' attitudes towards older patients can be lacking. Research conducted by Lovell<sup>(17)</sup> in nursing, for example, found a negative attitude towards the older patient. Cozort<sup>(18)</sup> also reports that there is a general reluctance to work in gerontological care, as it is seen to be boring, labour intensive and related to death and dying. Moreover, elderly patients are seen as frustrating and depressing. In radiography, Fowler<sup>(19)</sup> demonstrates that radiographers find working with older adults difficult, especially in a busy environment - a view also supported by Kearney<sup>(20)</sup>.

It is against this backdrop that the current study was undertaken. We have previously reported on the initial phase of a longitudinal study that was designed to evaluate the impact of an educational intervention on Norwegian student radiographers' attitudes towards older people<sup>(21)</sup>. This study, undertaken before students had embarked on the clinical component of their education, revealed that at the start of their training students generally had positive attitudes towards older people. After intervention, however, these positive attitudes increased significantly ( $p=0.01$ ).

The intervention took place over two days, and consisted of didactic lectures around ageing, pathology and ageing processes, and also role play where the conditions of ageing were simulated using ageing simulation suits (Sakamoto Model M176). The intervention was based on the work of Aday and Campbell<sup>(22)</sup> and Blundell et al<sup>(23)</sup>, who found improvements in attitudes towards older patients post intervention. However, we could find few studies that demonstrated the effects of interventions over time and particularly once students have been exposed to clinical placement. This paper reports on student radiographer's attitudes towards older people, six months and twelve months post intervention.

## **Materials and Methods**

### ***Participants***

At the point of sampling, in 2014, N=42 undergraduate radiography students were registered on the BSc Radiography course at Bergen University College. All agreed to take part in the study, however only N=38 of these completed the training programme. The results from the training programme have been previously reported by Booth and Kada<sup>(21)</sup>. As the research progressed a further nine students left the course, therefore N=29 students remained in the study at the terminal point. The mean age of these students was 24.41, (SD 5.67). 72% were female. As students had been given a unique study code, it was possible to remove the nine

withdrawals from initial data. As such, the initial data with these nine individuals removed was analysed using Wilcoxon. Very little difference is noted in the originally reported findings<sup>(21)</sup> and those that are reported here.

## **Measures**

Kogan's attitude towards older people scale (KOP)<sup>(24)</sup> has been used consistently throughout the research, i.e. at all four time points allowing direct comparisons to be made. The KOP has been historically employed in gerontological research, and shows high levels of reliability and validity<sup>(21)</sup>. The KOP was translated into Norwegian using the translation-back-translation procedure, though as we previously reported<sup>(21)</sup>, this is not the first time the KOP has been translated into a Nordic language<sup>(25)</sup>. The scale itself is made up of 17 positive statements and 17 negative statements around attitudes towards older people. Students were asked to indicate how strongly they agreed 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 34-238, with a score of 136 indicating a neutral attitude; scores above 136 signify a more positive attitude<sup>(24)</sup>.

## **Procedure**

The study followed ethical guidelines for research conducted on students in Norway. Once approval was given from the Dean of the Faculty of Health and Social Sciences, Bergen University College, students were informed of the study. They were informed that although a study code number would be assigned, it would not be used to identify them and anonymity was promised. They were also informed that they could withdraw at any time.

Students completed the KOP at four time points. Six months into the course, prior to embarking on clinical practice and prior to the intervention (pre-test). Students then attended the two-day intervention, and were asked to complete the questionnaire again (post-test). The intervention has been previously described in detail by Booth and Kada<sup>(21)</sup>. The first day consisted of didactic lectures, whereas day two involved the use of simulation suits that mimic many of the conditions associated with ageing e.g. muscle fatigue, sight and hearing loss. Both days were designed to dispel many of the myths and stereotypes surrounding older people as discussed by Palmore<sup>(29)</sup>. The interventions were delivered by two experienced radiography lecturers, one of whom has researched extensively in the field of older patients in radiography, the other with a background in research related to patient care in radiography. Six months after this intervention, (therefore 12 months into their training), students completed a questionnaire again, immediately on their return from their first clinical placement. This consisted of 5 weeks nursing experience. Finally they completed a fourth questionnaire 12 months post intervention (therefore 18 months into their training), at this point students had also undertaken their second clinical placement which consisted of 8 weeks in the radiology department.

### **Data analysis**

There were four testing points (pre-test, post-test immediately after intervention, post-test six months and post-test one year after the intervention). Descriptive statistics (frequencies, percentages, means and standard deviations (SD)) were presented for the KOP summary scores for the four testing points. Statistical comparisons were made using the Friedman test to identify if there were any significant differences between the mean scores. The threshold of significance for Friedman test was  $p = \leq 0.05$ . Differences between two points were carried out by Wilcoxon signed rank test with Bonferroni correction,  $p = \leq 0.008$  ( $0.05/6$ ). 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.

## **Results**

The mean pre-intervention KOP score was 160 (SD 14.27), for post-intervention it was 169.93 (SD17.07), for 6 months post-intervention it was 164.07 (SD 18.16) and for one year post- intervention it was 164 (SD 18.51). Mean scores for each question across the four time points are shown in table 1. Friedman test showed significant differences in mean scores across the four time points ( $p=0.033$ ) and Friedman test (using R) identified significant differences between individual questions for question 5 ( $p=0.021$ ), question 7 ( $p=0.018$ ), question 9 ( $p=0.047$ ), question 19 ( $p=0.017$ ), question 23 ( $p=0.010$ ), question 30 ( $p=0.047$ ) and question 34 ( $p=0.037$ ) across the four test points.

Wilcoxon Signed rank test identified differences between pre- and post-test scores, as previously reported<sup>(21)</sup>. This significance was higher for question 10 ( $p=.0.008$ ), question 15 ( $p=0.005$ ) and question 27 ( $p=0.004$ ). When comparing post intervention test scores to those collected at six months post-test, we see a reduction in mean total score, however Wilcoxon finds that this reduction was not significant ( $p=0.218$ ). Between post intervention test scores and one year post-intervention, again we see a reduction in total mean scores, but again this was not found to be significant ( $p=0.170$ ). It should also be noted that although the decrease in positive scores across the four time points was not significant, the initial significant increase in positive scores from pre-intervention to immediately post intervention is not seen from pre-intervention to post intervention at 6 months ( $p= 0.358$ ) and from pre-intervention to post intervention at 12 months ( $p=0.487$ ) according to Wilcoxon Sign Test.

Analysis of individual questions (immediately post-test compared to twelve months post-test) using Wilcoxon Signed rank with Bonferroni correction shows significantly lower mean scores for question 23 ( $p=0.006$ ) and question 30 ( $p=0.007$ ) (note scores are reverse scored for negative questions). No other significant differences in individual questions, across these two time points (or between any other time points), were identified using Wilcoxon Sign test with Bonferroni correction.

**Table1. Mean score for each question across four points**

Items (N= Negative; P= Positive)	Pre-test	Post-test	Post-test six months	Post-test one year
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
1. It would probably be better if most old people lived in residential units with people their own age (N).	4.66 (1.84)	5.41 (1.18)	4.93 (1.56)	4.86 (1.36)
2. Most old people are cheerful, agreeable, and good humored (P)	4.34 (1.49)	4.97 (1.32)	5.00 (1.39)	5.17 (1.47)
3. Most old people are constantly complaining about the behavior of the younger generation (N)	3.86 (1.51)	4.34 (1.37)	4.48 (1.12)	4.55 (1.45)
4. People grow wiser with the coming of old age (P)	4.28 (1.56)	4.72 (1.41)	4.79 (1.08)	4.79 (1.52)
5. Old people have too much power in business and politics (N)	5.00 (1.31)	5.24 (1.18)	4.55 (1.27)	4.62 (1.35)
6. When you think about it, old people have the same faults as anybody else (P)	4.72 (1.65)	4.69 (1.71)	5.07 (1.73)	5.21 (1.63)
7. In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it (N)	6.00 (1.10)	5.86 (0.88)	5.28 (1.28)	5.28 (1.10)
8. Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody (P)	4.66 (1.23)	5.41 (1.38)	5.24 (1.12)	4.90 (1.52)
9. Most old people tend to let their homes become shabby and unattractive (N)	5.72 (0.92)	5.55 (1.09)	5.34 (1.01)	5.03 (0.94)
10. Most old people seem quite clean and neat in their personal appearance (P)	4.48 (1.35)	5.07 (1.28)	5.17 (1.10)	5.14 (1.19)
11. Most old people are irritable, grouchy, and unpleasant (N)	5.21 (0.86)	5.83 (0.97)	5.45 (1.18)	5.59 (1.02)
12. Most old people need no more love and reassurance than anyone else (P)	2.52 (1.50)	2.28 (1.36)	2.45 (1.55)	2.00 (1.31)

13. It is evident that most old people are very different from one another (P)	5.76 (1.60)	6.03 (1.40)	5.72 (1.44)	5.93 (1.33)
14. Most old people are really no different from anybody else; they're as easy to understand as younger people (P)	3.34 (1.40)	3.41 (1.68)	3.86 (1.30)	3.97 (1.68)
15. Most old people get set in their ways and are unable to change (N)	3.55 (1.64)	4.38 (1.70)	3.86 (1.64)	3.69 (1.51)
16. Most old people can generally be counted on to maintain a clean, attractive home (P)	5.28 (1.13)	5.31 (1.28)	5.45 (1.02)	5.28 (1.13)
17. It is foolish to claim that wisdom comes with age (N)	4.69 (1.51)	4.55 (1.70)	4.52 (1.48)	4.72 (1.67)
18. You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it (P)	4.00 (1.44)	4.34 (1.29)	4.34 (1.34)	4.24 (1.21)
19. There are a few exceptions, but in general most old people are pretty much alike (N)	5.83 (1.17)	5.83 (1.10)	4.97 (1.61)	5.07 (1.53)
20. One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences (P)	5.66 (1.26)	5.66 (1.26)	5.31 (1.14)	5.34 (1.20)
21. Most old people spend too much time prying into the affairs of others and giving unsought advice (N)	4.72 (1.46)	5.24 (1.24)	4.76 (1.12)	5.00 (1.04)
22. Most old people should be more concerned with their personal appearance; they're too untidy (N)	5.41 (1.05)	5.69 (0.85)	5.76 (1.06)	5.24 (1.24)
23. Old people should have power in business and politics (P)	3.90 (1.57)	4.55 (1.45)	3.69 (1.23)	3.48 (1.43)
24. Most old people make one feel ill at ease (N)	5.31 (1.28)	5.41 (1.27)	5.38 (1.12)	5.52 (1.40)
25. It would probably be better if most old people lived in residential units with younger people (P)	4.28 (1.41)	4.79 (1.40)	4.34 (1.29)	4.66 (1.17)
26. There is something different about most old people; it's hard to find out what makes them tick (N)	5.14 (0.99)	5.24 (1.06)	5.31 (1.14)	5.59 (1.02)
27. Most old people are capable of new adjustments when the situation demands it (P)	4.45 (1.53)	5.38 (1.37)	4.83 (1.73)	4.76 (1.68)
28. Most old people would prefer to quit work as soon as pensions or their children can support them (N)	4.10 (1.11)	4.24 (1.30)	4.48 (1.45)	4.24 (1.41)
29. Most old people tend to keep to themselves and give advice only when asked (P)	2.86 (1.25)	3.34 (1.26)	3.59 (1.62)	3.62 (1.52)
30. If old people expect to be liked the first step is to try to get rid of their irritating faults (N)	5.76 (1.18)	6.10 (0.98)	5.72 (1.07)	5.41 (1.21)
31. One seldom hears old people complaining about the behavior of the younger generation (P)	3.41 (1.45)	3.55 (1.38)	3.72 (1.46)	3.72 (1.39)
32. Most old people make excessive demands for love and reassurance than anyone else (N)	5.86 (1.16)	6.10 (1.14)	5.83 (1.04)	5.76 (1.30)

33. Most old people are very relaxing to be with (P)	5.41 (1.15)	5.28 (1.19)	5.34 (1.20)	5.24 (1.30)
34. Most old people bore others by their insistence on talking “about the good old days” (N)	5.83 (1.10)	6.10 (0.90)	5.52 (1.45)	5.38 (1.29)
Mean total score	160 (14.27)	169.93 (17.07)	164.07 (18.16)	163 (18.51)

## Discussion

The results of the present study demonstrate that, although student radiographer attitudes towards older patients remain positive overall, the significant increase in positive scores demonstrated pre-intervention, to immediately post-intervention is not noted at 6 months and 12 months. It is recognized that these results relate to a small cohort of students from a single institution. However, there are no similar longitudinal studies undertaken in diagnostic radiography and very few in the allied health professions. For this reason we feel the study contributes to the limited knowledge in this area of radiography education, and describes a methodology that can be used in larger scale longitudinal studies.

The findings of the present study do not, however, correlate with the findings of Wallace et al<sup>(26)</sup> who found an increase in positive attitudes 12 months post an educational intervention. Given this, Wallace et al worked with only eighteen nurses, who had over 2 years clinical experience, and the intervention had consisted of 24 hours teaching over an 8 week period. One explanation for the differences in results may be due to the content covered in the intervention. Another explanation may be that the participants in the present study are students, whereas Wallace et al used experienced staff. It should be noted that (at this particular institution) the students’ first experience of clinical placement was actually on nursing wards and in rehabilitation centers. Pertinently, Collins and Brown<sup>(27)</sup> found that students who were initially exposed to frail and unwell older patients tended to hold more

negative views towards older people than students who were initially exposed to well older people. Given that older people who require hospitalization are generally frail<sup>(28)</sup>, it could be argued that it was the students' initial exposure to frail older patients that contributed to the reduction in positive attitudes. This is reflected in one student's evaluation of their nursing experience which, although not part of the present study, we mention here to give some support to the conclusion above:

*“When the job is with people who are tired and cannot stand it is entirely insane”.*

It is not only the overall reduction in positive attitudes that is of interest; significant differences in responses to individual questions are also noted. For example question 5, ‘Old people have too much power in business and politics’, and question 23 ‘Old people should have power in business and politics’ are matched questions, both of which scored more negatively at 6 and 12 months post intervention when compared to immediately post intervention (Note: negative questions are reverse scored). One explanation for this finding may come from the ageist stereotype that older people do not have anything to contribute to society<sup>(29)</sup>, and this stereotype is reinforced when witnessing the frail, unwell older person in clinical practice.

This is, self-evidently, an unfair stereotype. Many older adults experience good health<sup>(6)</sup>, contributing a great deal to society in terms of caring for grandchildren, volunteer work, and church activities and so forth<sup>(29)</sup>. It may be that radiography students, due to the nature of the role, are not generally exposed to these fit and well older people in practice, reinforcing this negative stereotype. However radiography students are not alone in this view. Previous research that compared people's attitudes towards different age groups found that individuals in their 70s were considered to contribute less to society than those in their 20s, whereas people in their 40s were considered to contribute more to society than any other age

group<sup>(30)</sup>. It would be of value to investigate further the responses to individual questions using qualitative interviews, to determine why such questions score negatively.

Question 34, relates to how most old people might bore others by their insistence on talking “about the good old days”. Although a significant reduction in positive score (from immediately post intervention to 6 and 12 months post intervention) is seen for this question, it should be noted that the overall score remains positive. The work of Synnes<sup>(31)</sup> on narratives in the ageing population is worth noting herein. The discussion of the past, which is often idyllic and nostalgic, he argues, creates a sense of ‘identity in the face of adversity’ which is important for ensuring ‘continuity of the self’ when faced with much discontinuity<sup>(31)</sup>. He argues, therefore, that health practitioners should not belittle these narratives, and that practitioners should see the importance of the nostalgic narrative for the older person when facing adversity. It could be argued that these narratives should be a feature of the interventions delivered to students, in order to dispel this particular myths and stereotype that surrounds older people.

Significant reductions in positive scores, from immediately post intervention to post intervention at 6 months and 12 months, are also seen for questions 7, 9, 19 and 30. However we do not see the same significant reduction in scores for the matched questions 18, 16, 13 and 6 respectively. The authors can find no evidence in the literature as to why these questions, in particular, have received significantly lower scores and it would be of value in the final follow up study to supplement the quantitative data collected with qualitative data around responses to these individual questions. It is also of interest to the authors why question 12 has consistently scored negatively throughout the whole study, whereas the matched question 32 has always scored positively.

## **Conclusion**

This study aimed to investigate the impact of an educational intervention on Norwegian radiography students' attitudes towards older people, specifically to determine whether the effects of an intervention would sustain once students were exposed to clinical practice. Although student radiographer attitudes towards older people are generally positive, we initially saw an increase in the positive scores post-intervention. Once exposed to the clinical environment, however, these positive scores decreased. Though this reduction was not significant, and attitudes do remain broadly positive, it is of some concern to note that this reduction might sustain as these students progress into their final year. This will be investigated in the final stages of the project. As an additional issue, concerns of bias that might be discerned within a study of this order are addressed within Kogan's<sup>(24)</sup> original work, but also by the participants' own voluntarism. An opportunity sample of committed radiographers (i.e. those who stay the course) is, by definition, an optimal sample.

Of potentially greater interest is the significant reduction viewed in the responses to specific questions; however as with most quantitative research it is difficult to wrest the "meaning" behind these responses. It is the aim of the authors in the final stages of the project to supplement the quantitative data with qualitative data to determine why these particular attitudes are particularly resistant to change i.e. is it due to societal stereotypes which are reinforced in clinical practice? Or are the questions within the KOP ambiguous in some way?

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