The physiotherapy workforce is ageing, becoming more masculinised, and is working longer hours: a demographic study

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Australia

**Question**: Is the physiotherapy workforce significantly older in 2001 than 1986? What is the cumulative attrition of the workforce to 2001 and what is the predicted attrition by 2026? Is the workforce becoming masculinised? Is the workforce working longer hours? **Design**: Observational study using Australian Bureau of Statistics census data from 1986 to 2001 to predict workforce characteristics in 2026. **Participants**: All physiotherapists who responded to the 1986, 1991, 1996 and 2001 censuses: 5928, 7106, 8788 and 10039 respondents in each year respectively. **Results**: The physiotherapy workforce has aged significantly since 1986 \( (p < 0.001) \), and women are older than men \( (p < 0.001) \). Forty-one percent of the 2001 physiotherapy workforce is predicted to retire by 2026, although around one-third of physiotherapists continue working after age 65. While physiotherapy remains a female-dominated profession, the proportion of males is increasing and has risen from 16% in 1986 to 27% in 2001. Physiotherapists are working longer hours than they did in the past, and while this is partly due to the increasing proportion of males in the workforce, generation X and Y females are also more likely to work longer hours than their predecessors. **Conclusion**: The retirement of older, mostly female, physiotherapists may exacerbate existing workforce shortages, particularly in the public and aged care sectors. However, the growing proportion of male physiotherapists and their generally higher workforce participation may go some way to improving labour force capacity overall. [Schofield DJ, Fletcher SL (2007) The physiotherapy workforce is ageing, becoming more masculinised, and is working longer hours: a demographic study. Australian Journal of Physiotherapy 53: 121–126]

**Key words**: Health Manpower, Health Services Research, Censuses, Australia, Physiotherapy Workforce

**Introduction**

The Australian physiotherapy workforce, like the Australian population, is ageing. The imminent retirement of the large baby boomer cohort has been predicted to seriously reduce the capacity of the medical, nursing, and dental workforces (Schofield and Beard 2005, Schofield and Fletcher in press) and is also likely to have an impact on physiotherapy.

Australia is currently experiencing a national shortage of physiotherapists, with the situation particularly critical in the public sector, rural and remote areas, and aged care (Australian Health Workforce Advisory Committee (AHWAC) 2006, Robertson et al 2003, Tasmanian Department of Health and Human Services (DHHS) 2003). Demand for physiotherapy services continues to increase due to the ageing population, population growth, and the rising incidence of chronic disease and survival of accidents or illness (Australian Institute of Health and Welfare (AIHW) 2000, Johansson 1999, Smith et al 2000). While physiotherapist numbers have been increasing (AHWAC 2006, AIHW 2000, Anderson et al 2001), the mostly female physiotherapy workforce is limited in its ability to meet demand. Indeed, in 2001, 40% of Australian physiotherapists worked less than 35 hours per week (AIHW 2003). Part time work has increased in recent years (Anderson et al 2005, Loveridge et al 1998) and, as the workforce ages, hours worked are likely to decrease even further (Anderson et al 2005).

The physiotherapy gender imbalance is particularly evident in the older age groups (NSW Health 2003, ABS 1999). With more than half the female physiotherapists over the age of 40 (Anderson et al 2005), significant numbers can be expected to retire in the coming years. Furthermore, high attrition of younger males means that they are unlikely to fill the gap left by retirees (Anderson et al 2005, Higgins et al 2001).

This study used previously unpublished data from the ABS Census of Population and Housing (ABS 2006b) to examine trends in the ageing, retirement patterns, and work practices of physiotherapists, and to project future retirement. The research questions were:

1. Is the physiotherapy workforce significantly older in 2001 than in 1986?
2. What is the cumulative attrition of the workforce to 2001 and what is the predicted attrition by 2026?
3. Is the workforce becoming masculinised?
4. Is the workforce working longer hours?
Method

Design: Grouped data on the demographic characteristics (age, sex, and hours worked) for physiotherapists were obtained from the ABS Censuses of Population and Housing for the years 1986, 1991, 1996, and 2001 (ABS 2006b). The next census was undertaken in 2006 and data will not be available for a year or more. Separation of the health professions was specially requested as all health professions are generally combined into a single category. The methods in this study are similar to those used by Schofield and Beard (2005).

Participants: As individuals cannot be followed from one census to the next, age groups were followed as cohorts. Boundaries were applied which aligned with the five year age groups of the data. The cohorts for the current study were defined as: Pre-depression (born before 1929), War and Depression (born 1929–1945), Older Baby Boomers (born 1946–1956), Younger Baby Boomers (born 1957–1964), Generation X (born 1965–1974), and Generation Y (born after 1975).

Data analysis: The data within these generational cohorts were used to examine demographic trends and to calculate attrition as physiotherapists left the workforce (because of factors such as retirement, change of profession, ill health, or death). Cumulative attrition was calculated for physiotherapists aged 50 years and over in 1986 in 5-year age groups. These 5-year age groups were drawn from the pre-depression and war and depression cohorts. Attrition was calculated for each census year as the percentage of physiotherapists in each of the older age groups who had left the workforce since 1986 using the formula:

\[
CAR = 1 - \frac{N_{ti}}{N_{t1}}
\]

where \( CAR \) = cumulative attrition rate, \( N \) = number of people, \( t_i \) = census date, and \( t_1 \) = first census in series (1986)

These rates were then applied to younger physiotherapists to predict attrition from the workforce over the next 20 years. Tests of association between categorical variables were carried out using Pearson’s \( \chi^2 \) tests. All tests were conducted at a 0.01 level of significance.

Results

Aging of the physiotherapy workforce: Physiotherapist numbers in Australia increased substantially between 1986 and 2001 (Table 1), while the proportion of physiotherapists in the older age groups declined. Around one-third of physiotherapists in 1986 belonged to the two oldest cohorts; however, they constituted a much smaller proportion of the profession in 2001. Older baby boomers made up 29% of the workforce in 1986 and 19% of all physiotherapists in 2001. The younger half of the baby boomer cohort was slightly larger, and made up 39% and 31% of the workforce in 1986 and 2001 respectively, Generation X, not yet working in 1986, accounted for one-third of the 2001 labour force.

Table 2 shows significant ageing of the physiotherapy workforce between 1986 and 2001 (\( p < 0.001 \)). In 1986, 32% of physiotherapists were aged over 40; that figure had increased to 43% by 2001. There was a lower proportion of physiotherapists aged 20–29 in 2001, falling from 39 in 1986 to 26% of the total workforce in 2001.

Female physiotherapists were significantly older than males in both 1986 and 2001 (\( p < 0.001 \)). In 2001 47% of female physiotherapists were aged over 40, compared to 32% of males. Only very small proportions of either sex were aged over 55.

Attrition of the physiotherapy workforce: As the physiotherapy workforce ages, analysis of current patterns of attrition is important in order to predict the future workforce structure. Cumulative attrition was calculated from 1986 to 2001, for physiotherapists aged between 50 and 64 in 1986.

Calculated attrition includes physiotherapists leaving the workforce for a variety of reasons including change of career or family reasons, however it is expected that retirement accounts for the majority of attrition in the older age groups. Table 3 shows that just under half (48%) of older war and depression physiotherapists (aged 50–54 in 1986) left the workforce before 1996, and 70% before 2001 (when they were aged 65–69).

Applying calculated attrition to the younger cohorts of physiotherapists, attrition from the physiotherapy workforce was predicted from 2006 through to 2026. Fifteen per cent of the labour force is projected to retire by 2016. By 2026 around two-fifths (41%) of physiotherapists practising in 2001 are expected to retire (Fig. 1).

Masculinisation of the physiotherapy workforce: While physiotherapy remains a female-dominated profession, the proportion of males is increasing and has risen from 16% in 1986 to 27% in 2001. Males are better represented in the younger age groups, and in 2001 made up 33% of the generation X cohort and 26% of younger baby boomers, compared to 19% of older baby boomers and 11% of war and depression physiotherapists. The increasing proportion of men in each successive generation can be seen in Table 4. The relatively large proportion of men in the pre-depression cohort is likely a reflection of the small sample size (45 physiotherapists in 2001) and the earlier retirement age of women. The trend towards masculinisation of physiotherapy looks set to continue. While most of generation Y had not yet entered the workforce in 2001, 34% of those who were working in that year were male.

Hours worked by the physiotherapy workforce: The number of hours worked by physiotherapists is an important contributor to workforce capacity. The census asks respondents to report the hours they worked in the previous week, adding in any overtime or extra time worked. Therefore the results are likely to reflect the actual number of hours worked by physiotherapists, rather than simply the hours they are contracted to work. The following analyses did not include physiotherapists who did not report their hours and those who reported working zero hours (4% of physiotherapists in 1986 and 5% in 2001). Results for pre-depression physiotherapists should be interpreted with caution due to small sample size.

There is a shift towards physiotherapists working more hours, with 18% of the workforce working more than 41 hours per week in 1986 compared to 27% in 2001. This trend towards longer working hours is partly due to the increasing proportion of males in physiotherapy, as males are more likely to work very long hours than are females (\( p < 0.001 \)). In 2001 one-third of the male workforce worked 49 or more hours per week, while just 8% of females did...
Table 1. Number (%) of physiotherapists making up the workforce by cohort in 1986 and 2001.

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Birth years</th>
<th>1986</th>
<th>2001</th>
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<tbody>
<tr>
<td>Pre-depression</td>
<td>Before 1929</td>
<td>421 (7)</td>
<td>45 (0)</td>
</tr>
<tr>
<td>War and depression</td>
<td>1929–1945</td>
<td>1455 (25)</td>
<td>743 (7)</td>
</tr>
<tr>
<td>Older baby boomers</td>
<td>1946–1956</td>
<td>1728 (29)</td>
<td>1924 (19)</td>
</tr>
<tr>
<td>Younger baby boomers</td>
<td>1957–1964</td>
<td>2324 (39)</td>
<td>3079 (31)</td>
</tr>
<tr>
<td>Generation X</td>
<td>1965–1975</td>
<td>0</td>
<td>3269 (33)</td>
</tr>
<tr>
<td>Generation Y</td>
<td>After 1975</td>
<td>0</td>
<td>979 (10)</td>
</tr>
<tr>
<td>Total workforce</td>
<td></td>
<td>5928</td>
<td>10 039</td>
</tr>
</tbody>
</table>

Note: Generation Y, the oldest aged 20–24 in 2001, had not completed its entry into the workforce in 2001. Similarly, not all of the youngest members of the baby boomer cohort (aged 20–24 in 1986) had entered the workforce in 1986. The smaller number of baby boomer physiotherapists in 1986 than in 2001 is also due to female withdrawal from the Australian workforce to raise children.

Table 2. Age distribution of physiotherapists in 1986 and 2001.

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>14%</td>
<td>25%</td>
<td>16%</td>
<td>13%</td>
<td>10%</td>
<td>8%</td>
<td>6%</td>
<td>4%</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
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</tr>
<tr>
<td>2001</td>
<td>10%</td>
<td>16%</td>
<td>16%</td>
<td>14%</td>
<td>16%</td>
<td>11%</td>
<td>8%</td>
<td>4%</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
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</tbody>
</table>

Table 3. Five year cumulative attrition of older physiotherapists from 1986 to 2001.

<table>
<thead>
<tr>
<th>Year</th>
<th>Age</th>
<th>50–54</th>
<th>55–59</th>
<th>60–64</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>14%</td>
<td>46%</td>
<td>77%</td>
<td></td>
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<tr>
<td>1996</td>
<td>48%</td>
<td>67%</td>
<td>89%</td>
<td></td>
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<tr>
<td>2001</td>
<td>70%</td>
<td>86%</td>
<td>91%</td>
<td></td>
</tr>
</tbody>
</table>

Age groups can be followed down the columns of the Table. For example, 14% of physiotherapists aged 50–54 in 1986 left the workforce by 1991, when they were aged 55–59.

Figure 1. Predicted five year cumulative attrition of physiotherapy workforce from 2006 to 2026.

Table 4. Proportion of men making up the physiotherapy workforce in 1986 and 2001.

<table>
<thead>
<tr>
<th>Year</th>
<th>Generation X</th>
<th>Younger boomers</th>
<th>Older boomers</th>
<th>War and depression</th>
<th>Pre-depression</th>
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<tbody>
<tr>
<td>1986</td>
<td>20%</td>
<td>17%</td>
<td>10%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>33%</td>
<td>26%</td>
<td>19%</td>
<td>11%</td>
<td>33%</td>
</tr>
</tbody>
</table>
Conversely, women are more likely to work part time, with 51% working fewer than 35 hours per week in 2001 compared to only 13% of males.

Table 5 shows the hours worked per week for both male and female physiotherapists in each of the cohorts in 1986 and 2001. While the increase in hours worked by physiotherapists is partly explained by masculinisation, it is also due to generation X females working more hours than their predecessors. A greater proportion of generation X women worked more than 41 hours per week than any of the other cohort in either 1986 or 2001.

Although younger physiotherapists tend to work longer hours than their older counterparts (Table 6), 14% of physiotherapists aged over 70 in 2001 continued to work more than 49 hours per week, while the proportion of baby boomers working these long hours increased from 9 to 15% and from 6 to 16% among the older and younger members of the cohort respectively.

Generation Y, although not a complete workforce cohort in 2001, shows a similar pattern in hours worked to generation X. Fewer of these young physiotherapists are working part time or long hours. Instead, the majority (61% of generation Y) are working standard weeks of 35–40 hours.

**Discussion**

Current shortages in physiotherapy are likely to be exacerbated as the baby boomer and older cohorts, currently making up over half the labour force, retire. However, retirement of older physiotherapists may have an impact on physiotherapy later than in some other health care sectors. Female physiotherapists, who make up over 85% of physiotherapists aged over 50, appear to retire later than the average Australian female retirement age of 47 (ABS 2006a). While two-thirds of nurses retire before age 65 (Schofield and Beard 2005), only 48% of physiotherapists do the same.

The reduction in workforce capacity caused by retirements is likely to be mitigated somewhat by increasing numbers of males in the workforce and a decline in the number of physiotherapists working part time. The physiotherapy student population has a higher proportion of males than does the employed workforce (AIHW 2000). While large numbers of older physiotherapists are predicted to leave the workforce in coming years, these retirees will be mostly females who work part time. They will be replaced by younger males who are likely to work longer hours and take fewer career breaks (Rozier et al 1998a). The longer hours worked by generation X and Y females and increasing numbers of physiotherapy students (AHWAC 2006, AIHW 2000, Tasmanian DHHS 2003) will also assist in overcoming the shortages created by the retirement of older, part time physiotherapists.

It is likely that the steady rise in numbers of male physiotherapists will continue. Men are more attracted to professions with high prestige, while the prestige of a profession is related to the proportion of males within it (Turner 2001, Westbrook et al 1979). Indeed, the status of physiotherapy has risen substantially over the last two decades, and Australian physiotherapy students rate the profession more highly than other health disciplines such as nursing (Turner 2001). The rising proportion of males in physiotherapy may encourage other men to join.
the workforce, as might the increasing involvement of physiotherapists in high profile areas such as professional sport (Scutter 1990).

On the other hand, males may continue to be discouraged from joining the physiotherapy workforce for financial reasons. Female dominated professions typically have lower average salaries than male dominated professions. Just 6% of physiotherapists earn more than $78 000 annually, compared to 54% of general practitioners and 21% of optometrists (AIHW 2003). Physiotherapists are less likely to leave the profession if they feel successful, with men often defining career success in terms of salary (Rozier et al 1998a). Thus, the lower salary of physiotherapists than other health professions may be a serious disincentive for many men. However, the rising numbers of males and growing prestige of physiotherapy may translate into increased salaries, encouraging men not only to join but to remain in the profession.

As the status of physiotherapy continues to rise, the high attrition of younger males (Anderson et al 2005, Higgs et al 2001) may be a thing of the past. The increased labour power brought to the profession by the growing male contingent is therefore likely to continue, further reducing the impact of future retirements. In addition, the 1986 data in this study show that there was a rapid decline in physiotherapist numbers between the ages of 25 and 39. It may be that this reflected women leaving the workforce for long periods when they had children. By 2001 this trend had diminished substantially and with the rising proportion of males it may occur even less often in the future, further boosting workforce capacity.

Physiotherapy student numbers have increased in recent years (AHWAC 2006, AIHW 2000, Tasmanian DHHS 2003), with this trend likely to continue as courses are offered at more universities (Tasmanian DHHS 2003). However even at 2002 levels, the number of new entrants into the workforce over the next 10 years will outweigh the 1529 projected to leave (AHWAC 2006). Current shortages could therefore be expected to improve as older physiotherapists retire and the workforce becomes larger and more masculinised.

However, while the growing male contingent of the physiotherapy labour force will no doubt improve workforce capacity overall, it may have the opposite effect in some areas and worsen existing shortages. The public sector is already seriously understaffed, and the situation is unlikely to be improved by the shifting gender ratio. Men are much more likely to work in private practice (Davies 1990, McLoghlin and Westbrook 1984, Ohman et al 2001, Rozier et al 1998a,b) and while they are still outnumbered by women, it is to a much lesser extent than in the workforce overall (McLoghlin and Westbrook 1984). As the proportion of males increases, the proportion of the physiotherapists looking to work in the public sector will likely decrease and the ability of the public physiotherapy workforce to deliver services may fall short of demand.

The young, more male physiotherapy profession of the future may also be limited in its ability to provide effective aged care. People aged between 55 and 74 are most likely to consult a physiotherapist (AIHW 2000). This age group made up around 17% of the Australian population in 2003 (ABS 2004), and can be expected to grow rapidly as the baby boomers age. However, there has been little change in the number of physiotherapists working with older people (Loveridge et al 1998). Of the few physiotherapists who choose to work in this field, almost all are women aged over 41 (Morris and Minichello 1992). Older people are one of the least favoured client age groups among physiotherapy students (Ohman et al 2001, 2002). As older women retire and if progressively fewer physiotherapists are willing to take their place, the profession is unlikely to keep pace with the increasing demand of the ageing population (Loveridge et al 1998, Morris and Minichello 1992).

With female physiotherapists almost four times more likely to take career breaks than their male colleagues (Rozier et al 1998a), training and re-entry programs may be crucial in assisting women in their return to work and encouraging them to remain in the workforce longer. A return to full time work may be made more attractive by incentives such as employer-provided or -supported child care, particularly as the limited availability and cost of child care may present barriers to returning to the workforce. Increased use of physiotherapy assistants may also be necessary to improve workforce capacity (Australian Physiotherapy Association 2006, Wazakili and Mpofu 2000).

Some of the issues in the present study, for example the number and age of physiotherapists, were covered by Anderson and her colleagues in 2002. That study, however, examined the physiotherapy profession in New South Wales only and primarily used Registration Board survey data, with a response rate of around 85%. With the national focus of the current study and its use of census data, ostensibly collected from every physiotherapist in Australia, the results are likely to reflect the status of the physiotherapy profession in this country more accurately. The census counts only those physiotherapists who are in clinical practice, excluding those in administration, education, or research (AIHW 2000). Therefore, although census numbers are lower than those of other sources such as the APA and registration board data, they paint a more accurate picture of the practising physiotherapy workforce.

While the data used in this study are not current, they are the most recent census data available and paint an accurate picture of physiotherapist numbers, demographic change, and workforce attrition from 1986 up to the beginning of

<table>
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<td>16%</td>
<td>11%</td>
</tr>
<tr>
<td>2001</td>
<td>32%</td>
<td>26%</td>
<td>24%</td>
<td>17%</td>
<td>21%</td>
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this millennium. By understanding these past trends, we can plan more appropriately for the future.

While increasing numbers of males and the longer hours worked by younger cohorts will in some ways reduce current workforce shortages, the loss of older women from the profession will leave some sectors critically understaffed. Retention of currently practising physiotherapists is therefore important to ensure the continuation of patient care in the public and aged care domains.

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References


