Age and gender differences in health service utilization

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Abstract

Background This study of age and gender profiles of health care populations fills a gap in the research literature by providing a population study of both single health agency and inter-agency ‘Shared Care’ populations.

Methods It combines anonymized data to link individual cases across Community Health (N = 82 751), Mental Health (N = 19 029) and Social Services (N = 19 461) populations in one county Health Authority (N = 646 239) over 3 years. It compares age and gender characteristics of single care populations and overlapping inter-agency ‘Shared Care’ populations.

Results Approximately two-thirds of all care populations were female compared to half (513.1) in the general Health Authority population. These differences were accentuated for almost all inter-agency ‘Shared Care’ populations, where, whilst a younger care profile emerged for mental health and social services dual agency clients, for other shared populations a distinct care profile emerged of greater proportions of older, female and older female patients. Gender differences were also apparent for different care groups within a total Community Health care population. Whilst females made much more use of services overall, in Community Health, older males were more likely to receive rehabilitative support services.

Conclusion Age and gender profiles of health care agency and inter-agency populations clarify service use patterns and identify high proportions of women in health and social care populations, particularly in older care populations. This type of care population analysis could inform single agency and inter-agency shared care planning and commissioning.

Keywords: age, gender, shared care, case-linkage

Introduction

Gender and age are fundamental dimensions in agency use, yet are seldom taken into account when planning service provision, particularly for shared (inter-agency) health and social care populations. This is reflected in the absence of focus on gender issues in many policy areas, for example, in the National Service Frameworks for Older People, despite recent research that has led to a recognition that gender differences in old age can influence health, the assessment of need for care and utilisation of services. It is possible that this may be partly because agency ‘care population’ data are not available to inform debate.

It has been shown that women have less direct access to health and social care services and older women are particularly disadvantaged. Fewer studies indicate that men have less access to some types of service. However, our present understanding is largely based on epidemiological or small-scale clinical studies, surveys using random samples, or patients’ accounts of their health and there is little research which is based on studies of total patient or care populations. To date there is only one other UK study of adult shared health and social care populations and this is limited to a 1 day period.

This paper reports on such a study of health care populations and inter-agency ‘shared care’ health and social care populations in the United Kingdom over a 3 year period. It provides perhaps the first step in providing the objective information about age and gender in shared care populations needed to inform inter-agency health and social care planning and commissioning.

Methods

The case linkage method used in this study was initially created by Acheson and Baldwin and developed by Goldacre and colleagues. It has previously been limited to health populations. The method has been used here to combine information about total health and social care agency populations by anonymizing individual records with a software encryption package. (For a full account of the methodology and its constraints see Keene et al.) The PHLS SOUNDEX system was used by agency staff to anonymize data prior to access. In this way it was possible to study the characteristics of single and shared agency populations. Selection or sample bias within agencies was avoided through using total population data sets. The format of data collected was uniform and computer compatible. Ethical clearance was obtained from all agency and NHS ethics committees. Quality checks and data validation procedures
were implemented utilizing the Health Authority database to confirm boundaries for service populations.

The amalgamated database combined 3 years data for the total adult population (over 16 years) for one county including: a coterminous Mental Health Trust population (N = 19,029); a Community Health Trust population (N = 82,751), a Social Services population (N = 19,461) and a total Health Authority population including all residents registered with a GP (N = 646,239). The Health Authority database covered 98 per cent of the resident population. These three care agencies were responsible for all community health, mental health and statutory social care within the County Health Authority area.

The UK county studied was classified as ‘Coast and Country’ on the basis of features such as population density and employment patterns, with both affluent and socially deprived areas. Jarman index scores and DoE index of deprivation scores were average for Coast and Country ‘peer group’ counties. The county had an age concentration in the middle and upper ages, but the main urban centre had a relatively young population. Mortality rates were slightly lower than average for England and Wales. Ethnic minority groups were poorly represented in this county and did not have high unemployment rates compared with the white population.

**Results**

**Age and gender profiles**

**Age and gender in single agency populations**

The age and gender profiles of the adult care populations were first compared with the general Health Authority population.

Table 1 shows differences in age and gender between agency care populations. As expected, the profile for patients aged between 16 and 44 varied substantially between agencies. Figures for the mental health population (543.5) are slightly higher than those in the Health Authority population as a whole (455.3), whereas those for Community Health and Social Services populations were as expected, much lower (277.9 and 185.1, respectively). Similarly, the profile for older groups varied for different agencies for example, patients aged 75–84 years varied from 281.9 in the Social Services population and 203.6 in Community Health to 79.7 in Mental Health (compared to 80.7 in the Health Authority overall).

Of more interest were the gender differences in agency population profiles: almost two-thirds of all three agencies care populations were women (633.6 in Community Health, 604.6 in Social Services, 580.2 in Mental Health) while the proportion of women in the Health Authority was only 513.1.

**Age and gender in shared care (dual agency) populations**

These differences were accentuated in those populations of individuals who attended two or three of these agencies. These overlapping ‘dual agency’ or ‘multiple agency’ populations were defined for the purposes of this study as inter-agency ‘shared
care’ populations. Although it was unclear whether this shared care was co-ordinated, as agencies had no information about shared populations prior to this study.

In the ‘shared care’ dual agency populations, the proportion of women was greater in shared (overlap) agency populations than in single or combined agency populations. Whilst the proportion of younger people (16–44 years) was greater for shared Mental Health/Social Services populations than for Social Services alone; for all other shared care (overlap populations), the proportion of older people (over 65 years) was greater than in the combined single agency populations.

In order to compare age and gender differences in the overlapping ‘shared care’ populations with single agency populations, each shared ‘overlap’ population should be compared with its equivalent ‘combination’ population (i.e. minus the shared overlapping clients). So, for example, it can be seen that the proportion of 16–44 years attending both mental health and social services is greater than the proportion attending the combination population of either mental health or social services. (The overall total of 38 490 for both Mental Health and Social Services, minus the overlapping population of 3626 gives the ‘combined’ single agency user population of 34 864.)

This indicates that that social services and mental health ‘shared care services’, provided more joint services for younger clients and community health and social services provided joint services more frequently for women and older clients.

Combined age and gender profiles

Table 2 illustrates the findings when age and gender were combined.

Combined age and gender in single agency populations

When age and gender were combined, it could be seen that younger men (16–44 years) were less likely to utilize services. In contrast, approximately almost twice as many older women as older men utilized services: For example, in the Social Services care population, older women between 65 and 74 years (97.4) compares to older men (69.5). These figures for older women increase with age, for the 75–84 age group (183.9:96.7), and the 85+ group (122.8:44.7).

For the older age groups these figures reflect increasing proportions of women in the Health Authority population as a whole, but for the age group 65–74, this is less pronounced. These proportions of increasing older women in single agency populations can also be seen for Community Health and Mental Health agencies.

Combined age and gender in shared care (dual agency) populations

These figures can then be compared with populations of individuals who attended two or three of these agencies, as before. Again it is interesting that the smaller proportions of young men and larger proportions of older women are accentuated in shared care populations. When age and gender were taken together, it can be seen that young men received more joint care from Mental Health and Social Services, whereas older women were more common in the shared care population for Community Health and Social Services (and also the population shared between all three agencies.)

In summary, for all single agency, ‘non-shared combined agency’ and the ‘shared care agency’ populations, differences between age, gender and age + gender are statistically significant thus the demonstrating an association between service use and the age and gender of the users.

Whilst it is recognized that many variables including diagnosis, assessed needs, and organizational factors will influence the population profiles of single and shared care populations, these data raise interesting questions about age and gender differences in service utilisation within particular types of health care populations. The following section gives an example, by examining age and gender differences in the types of care utilized within the Community Health population.

Gender differences in different care groups within a total Community Health Care population

The Community Health population database was examined to identify age and gender differences in the type of care accessed by patients. The care aims are classified as (i) enabling, curative and rehabilitative and (ii) maintenance and support (Tables 3 and 4).

Approximately one in seven patients received services for both care aims. This should be seen in the context of this 3 year study, where patients could and did move from one care aim to another. Fewer than two-thirds of the patients received enabling, curative and rehabilitation provision. Whilst, the proportions of males and females in the Community Health population as a whole were males, 355.1, and females, 633.6, per thousand, it is apparent that gender was not a major factor in determining the services provided overall, though males received more enabling treatment than females (686.0 compared with 622.2 per thousand) and females received more maintenance services overall (485.5 and 453.9, respectively) (Table 3).

When age and gender are combined it can be seen that whilst males were more likely overall to receive enabling services, the proportion of young men (16–44) receiving these services was high (843.7) whilst the use of enabling services is reduced in men over the age of 74 years (Table 4).

Discussion

In conclusion, it is clear that care populations have distinct age and gender profiles; there are large gender differences in younger and older single agency care populations, and that these differences are accentuated in inter-agency shared care populations. The results confirm the significance of age and gender identified in the research literature but identify possible inequities of care for males rather than females, despite
Table 2 Combined age and gender profiles

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Female 16–44</th>
<th>Female 45–64</th>
<th>Female 65–74</th>
<th>Female 75–84</th>
<th>Female 85+</th>
<th>Male 16–44</th>
<th>Male 45–64</th>
<th>Male 65–74</th>
<th>Male 75–84</th>
<th>Male 85+</th>
</tr>
</thead>
<tbody>
<tr>
<td>HA</td>
<td>646239</td>
<td>145229</td>
<td>224.7</td>
<td>102186</td>
<td>158.1</td>
<td>42318</td>
<td>65.5</td>
<td>30761</td>
<td>47.6</td>
<td>11271</td>
<td>17.4</td>
</tr>
<tr>
<td>CH</td>
<td>82751</td>
<td>15424</td>
<td>186.4</td>
<td>12173</td>
<td>147.1</td>
<td>8816</td>
<td>106.5</td>
<td>10694</td>
<td>129.2</td>
<td>5320</td>
<td>64.3</td>
</tr>
<tr>
<td>SS</td>
<td>19461</td>
<td>1848</td>
<td>95.0</td>
<td>2056</td>
<td>105.6</td>
<td>1896</td>
<td>97.4</td>
<td>3578</td>
<td>183.9</td>
<td>2389</td>
<td>122.8</td>
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<tr>
<td>MH</td>
<td>19029</td>
<td>5837</td>
<td>306.7</td>
<td>2339</td>
<td>149.2</td>
<td>877</td>
<td>46.1</td>
<td>1034</td>
<td>54.3</td>
<td>454</td>
<td>23.9</td>
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<td>Overlap: H/MH</td>
<td>5354</td>
<td>1442</td>
<td>269.3</td>
<td>775</td>
<td>144.8</td>
<td>429</td>
<td>80.1</td>
<td>674</td>
<td>125.9</td>
<td>321</td>
<td>60.0</td>
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<tr>
<td>Overlap: Ch/SS</td>
<td>8179</td>
<td>586</td>
<td>71.5</td>
<td>743</td>
<td>90.8</td>
<td>804</td>
<td>98.3</td>
<td>1867</td>
<td>228.3</td>
<td>1360</td>
<td>166.3</td>
</tr>
<tr>
<td>Overlap: MH/SS</td>
<td>3626</td>
<td>824</td>
<td>227.2</td>
<td>543</td>
<td>149.8</td>
<td>188</td>
<td>51.8</td>
<td>369</td>
<td>101.8</td>
<td>191</td>
<td>52.7</td>
</tr>
<tr>
<td>Overlap: Ch/MH/SS</td>
<td>1536</td>
<td>288</td>
<td>187.5</td>
<td>217</td>
<td>141.3</td>
<td>117</td>
<td>76.2</td>
<td>261</td>
<td>169.9</td>
<td>153</td>
<td>99.6</td>
</tr>
<tr>
<td>Combined: Ch + SS</td>
<td>94033</td>
<td>16687</td>
<td>177.5</td>
<td>13486</td>
<td>143.4</td>
<td>9908</td>
<td>105.4</td>
<td>12405</td>
<td>131.9</td>
<td>6349</td>
<td>67.5</td>
</tr>
<tr>
<td>Combined: Ch + MH</td>
<td>96426</td>
<td>19819</td>
<td>205.5</td>
<td>14237</td>
<td>147.6</td>
<td>9264</td>
<td>96.1</td>
<td>11054</td>
<td>114.6</td>
<td>5453</td>
<td>56.6</td>
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<tr>
<td>Combined: MH + SS</td>
<td>34864</td>
<td>6861</td>
<td>196.8</td>
<td>4352</td>
<td>124.8</td>
<td>2585</td>
<td>74.1</td>
<td>4243</td>
<td>121.7</td>
<td>2652</td>
<td>76.1</td>
</tr>
</tbody>
</table>

All differences in the percentages of males/females and different age groups between Community Health (CH), Mental Health (MH), Social Services (SS) and Health Authority (HA) groups were statistically significant (p < 0.001).
previous research findings that women have less access to services and that older women are particularly disadvantaged. This is not the case for the three care populations included in this study where males were under-represented, and where approximately two-thirds of each care population was female and older females substantially outnumbered older males.

In contrast our findings are similar to those of Godden et al who found that women aged 25–34 and the over-65s were more likely to use health services and that the over 65 s were significantly more likely to receive social services support.

These differences were accentuated for dual agency or ‘shared care populations’, where older people, women and older women were more likely to receive the services of two or three different types of agency. The exception was for Mental Health and Social Services where younger groups and males, and young males received more joint care.

There are three limitations of this type record linkage method. First, because it is concerned only with service utilization, it does not monitor problems relating to administrative, resource and organisational factors, which influence utilization of services. Secondly, it does not examine how service uptake is influenced by wider socio-economic inequalities, which are of particular significance for women and older people. Thirdly, it does not monitor clinical need or actual need in total geographical populations.

However, within these constraints, the study has provided much needed information on age and gender differences in health and social care populations by describing differences in service utilization. At present, service development is based on the assumption that service provision reflects assessed need. It is therefore suggested that these service utilization data could be used to inform the development of planning, particularly for shared care initiatives, where planners often lack information about the characteristics and service use of their shared care populations.

It is also hoped the study will raise questions for future researchers, by providing, for the first time in the United Kingdom, an overall map of service use across health and social care agencies for a 3 year period, to add to wider surveys of need and concurrent research on organisational and socio-economic factors.

### Table 3 Community health population: age and gender difference in care groups

<table>
<thead>
<tr>
<th>Total</th>
<th>Count</th>
<th>Enabling, curative and rehabilitative services</th>
<th>Maintenance and support services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Count</td>
<td>Per 1000</td>
</tr>
<tr>
<td>Total</td>
<td>82 751</td>
<td>53 495</td>
<td>646.5</td>
</tr>
<tr>
<td>Female</td>
<td>52 427</td>
<td>32 620</td>
<td>622.2</td>
</tr>
<tr>
<td>Male</td>
<td>29 386</td>
<td>20 159</td>
<td>686.0</td>
</tr>
<tr>
<td>16–44</td>
<td>22 994</td>
<td>15 071</td>
<td>655.4</td>
</tr>
<tr>
<td>45–64</td>
<td>20 585</td>
<td>15 588</td>
<td>757.3</td>
</tr>
<tr>
<td>65–74</td>
<td>14 861</td>
<td>8566</td>
<td>576.4</td>
</tr>
<tr>
<td>75–84</td>
<td>16 846</td>
<td>9487</td>
<td>563.2</td>
</tr>
<tr>
<td>85+</td>
<td>7485</td>
<td>4783</td>
<td>640.7</td>
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### Table 4 Community health population: age and gender difference in care groups

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<thead>
<tr>
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### References


