Characteristics and effectiveness of Memory Assessment Services in England: A Longitudinal Study

Min Hae Park
London School of Hygiene & Tropical Medicine, UK

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Background

• Prime Minister’s Challenge on Dementia (2012): commitment to increasing national diagnosis rate.

• Referral of people with suspected dementia to Memory Assessment Services (MASs; memory clinics):
  ▪ Ambulatory clinics
  ▪ Provide access to assessment, treatment and rehabilitation services
  ▪ ~220 in England (population: ~53 million)
  ▪ ~£125m p.a. (2014)
Research questions

1. How do MASs vary in terms of the services they provide and the way they manage patients?
2. What are the characteristics of people who attend MASs?
3. How effective are MASs in improving patient outcomes?
4. Are characteristics of patients or MASs associated with improvements in outcomes?
Evaluation of MAS Study

- 73 randomly selected MASs across England.
- Consecutive new referrals + lay caregivers; 25 patients per site.
- Data collection at initial visit (baseline) & 6 months:
  - Disease-specific HRQL (DEMQOL, DEMQOL-Proxy)
  - Generic HRQL (self- and proxy-reported EQ-5D-3L)
  - Clinical characteristics (comorbidities, cognitive function, diagnosis)
  - Caregiver burden (short-form Zarit Burden Interview)
  - Caregiver HRQL (EQ-5D-3L)
  - Service use (e.g. anti-dementia medications, psychosocial interventions)
Data

Baseline
73 MAS
1420 patients,
1020 caregivers

Organisational data: 73 MAS

Organisational data:
• Cross-sectional survey
• Structural characteristics, e.g. staffing levels, workload, skill mix, volume, provision of post-diagnostic interventions
• Process characteristics, e.g. waiting time, length and number of appointments

6 months
69 MAS
883 patients,
569 caregivers

12 months
71 MAS
Analysis underway

24 months
Ongoing
Analysis

• Baseline data:
  • Description of patient and clinic characteristics
  • Multivariable regression analyses (robust SE):
    Relationships between patient characteristics (age, sex, ethnicity, deprivation, number of comorbidities) and:
    1. Cognitive function (tertiles of MMSE score)
    2. HRQL (DEMQOL & DEMQOL-Proxy scores)

• 6 months:
  • Multivariable regression analyses (robust SE):
    o Patient characteristics (plus diagnosis) and change in HRQL
  • Multilevel models:
    o Post-diagnostic intervention use (medications and psychosocial) and change in HRQL, in patients with dementia
    o MAS characteristics and change in HRQL
MAS characteristics: workload

The graph shows the frequency distribution of the number of new patients per whole-time equivalent (WTE) staff. The x-axis represents the number of new patients per WTE staff, ranging from 0 to 20. The y-axis represents the frequency, ranging from 0 to 25. The data indicates a peak at around 5 new patients per WTE staff, with a decline as the number of patients increases.
MAS characteristics: length of first appointment

1E. Length of First Appointment (mins)

- Length of first appointment in minutes
  - Frequency distribution
  - X-axis: Length of first appt. (mins)
  - Y-axis: Frequency
  - Data points:
    - 0-50 minutes: 30
    - 51-100 minutes: 50
    - 101-150 minutes: 10
    - 151-200 minutes: 5
    - 201-250 minutes: 3
    - 251-300 minutes: 2

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MAS characteristics: time to first follow-up appointment

1F. Time to First Follow-Up Appointment (weeks)

Time to first follow-up appt. (weeks)

Frequency
Characteristics of patients at first appointment

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N=1420</th>
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<tbody>
<tr>
<td>Mean age (years)</td>
<td>78 (8.5)</td>
</tr>
<tr>
<td>% Female</td>
<td>52%</td>
</tr>
<tr>
<td>% White/White British</td>
<td>94%</td>
</tr>
<tr>
<td>Deprivation (quintiles)</td>
<td></td>
</tr>
<tr>
<td>Least deprived</td>
<td>25%</td>
</tr>
<tr>
<td>Most deprived</td>
<td>16%</td>
</tr>
<tr>
<td>Cognitive function (tertiles)</td>
<td></td>
</tr>
<tr>
<td>Highest (MMSE ≥28)</td>
<td>29%</td>
</tr>
<tr>
<td>MMSE 24-27</td>
<td>29%</td>
</tr>
<tr>
<td>Lowest (MMSE &lt;24)</td>
<td>42%</td>
</tr>
<tr>
<td>Diagnosis (at 6 months)</td>
<td></td>
</tr>
<tr>
<td>Dementia</td>
<td>54%</td>
</tr>
<tr>
<td>Mild cognitive impairment</td>
<td>24%</td>
</tr>
<tr>
<td>Other diagnosis</td>
<td>5%</td>
</tr>
<tr>
<td>No diagnosis took place</td>
<td>17%</td>
</tr>
</tbody>
</table>

Poorer cognitive function associated with:
- Older age
- Female sex
- Non-white ethnicity
- Greater deprivation

Lower self-reported HRQL associated with:
- Younger age
- Non-white ethnicity
- Greater deprivation
- More comorbidities

Lower proxy-reported HRQL associated with:
- Female sex
- Greater deprivation
- More comorbidities
**Impact on HRQL: 6 months**

- HRQL improved:
  - DEMQOL +3.4 points (effect size 0.28 SD)
  - DEMQOL-Proxy +1.3 points (effect size 0.14 SD)

- Change in HRQL not associated with any patient characteristics.
- Larger improvement associated with presence of allied health professionals at MAS.
Post-diagnostic interventions

Among participants with diagnosis of dementia:

• Use of anti-dementia drugs associated with greater improvement in HRQL (DEMQL +4.6 points).

• Use of psychosocial therapies associated with smaller improvement (DEMQL +2.4 points).
Conclusions

• Structure and activities of MASs vary widely, but no clear typology.
• Large proportion of first-time referrals have moderate to high cognitive function.
• Socio-demographic variation (inequity) in the use of MASs.
• HRQL improves in the 6 months after the first appointment at MASs, irrespective of diagnosis.
• Use of anti-dementia drugs associated with greatest improvement in HRQL among those with diagnosed dementia.
• Long term outcomes and cost-effectiveness being investigated.
Acknowledgements

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