Building the evidence for integrated care for adults with type 2 diabetes: A pilot study

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**Background**
- Integrated care models hold promise for reducing fragmentation in the health system and improving diabetes outcomes.
- They coordinate care provided by various health professionals using a person-centred approach.
- The Integrated Diabetes Education and Assessment Service (IDEAS) is one example of such a model.
- IDEAS is an integrated, multidisciplinary, community-based service in Melbourne for adults with type 2 diabetes (T2DM).

**Aim**
- To assess the psychosocial and biomedical outcomes of adults with T2DM attending IDEAS relative to hospital-based outpatient diabetes clinics.

**Method**

**Study Design & Outcome Measures**
- Two studies were conducted:
  - A real-world, 6-month, multi-site pilot randomised controlled trial (RCT) comparing the impact of the IDEAS model relative to usual hospital-based outpatient care.
  - A cross-sectional (CS) study of adults with T2DM attending each service.
- Both studies were undertaken at two IDEAS clinics and two hospital-based outpatient clinics.
- Primary outcome: diabetes distress assessed by Problem Areas In Diabetes (PAID) scale.
- Secondary outcomes:
  - perceived quality of diabetes care assessed by Patient Evaluation of the Quality of Diabetes Care (PEQD).
  - diabetes-specific self-efficacy assessed by Diabetes Empowerment Scale – Short Form (DES-SF).
- Average blood glucose over past 2 - 3 months (HbA1c).

**Participants & Sample Sizes**
- Adults with T2DM in Melbourne’s east were eligible if:
  - aged ≥ 18 years; proficient in English; absence of cognitive impairment/mental illness/acute serious disease; new referral into diabetes clinics.
- RCT study N=56. 48% IDEAS; 52% Hospital.
- CS study N=92. 64% IDEAS; 36% Hospital.

**Data Collection**

**RCT:**
- Recruited and screened for eligibility over the phone by a diabetes educator.
- Participant approached potential participant in waiting room.
- Completed psychosocial questionnaire in waiting room; biomedical and clinical outcomes extracted from client records.
- Time 1: Time 1 data (RCT only), age, diabetes duration, primary treatment, number of clinic visits (CS study only) entered as covariates.
- Time 2: As above.

**CS:**
- Recruiter approached participant in waiting room.
- Completed psychosocial questionnaire in waiting room prior to clinic appointment.
- Biomedical / clinical outcomes extracted from client records.

**Data Analysis**
- Independent samples t-tests to compare baseline and demographic characteristics between groups.
- ANCOVAs on Time 2 RCT and CS outcome data.
  - Time 1 data (RCT only), age, diabetes duration, primary treatment, number of clinic visits (CS study only) entered as covariates.
  - Repeated-measured ANCOVAs by group on RCT data for diabetes distress, diabetes-specific self-efficacy, HbA1c.

**Results**
- Sample characteristics are displayed in Table 1.
- Findings from ANCOVA and repeated-measures ANOVA analyses are presented in Table 2.
- Diabetes-specific self-efficacy did not differ between settings on either study.
- Perceptions of quality of care favoured IDEAS in both studies (p=0.01).
- In the RCT, HbA1c improved significantly overall, but there was no effect of service setting.
- In the cross-sectional study, HbA1c was equivalent between settings.

**Table 1. Sample characteristics of RCT participants at baseline (N=56) and cross-sectional study participants (N=92)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>IDEAS (n=27)</th>
<th>Hospital (n=29)</th>
<th>p</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age*</td>
<td>54±14</td>
<td>58±11</td>
<td>0.26</td>
<td>56±12</td>
</tr>
<tr>
<td>Diabetes duration*</td>
<td>8±8</td>
<td>9±6</td>
<td>0.96</td>
<td>8±7</td>
</tr>
<tr>
<td>Insulin use</td>
<td>7 (26)</td>
<td>18 (62)</td>
<td>&lt;0.01</td>
<td>25 (45)</td>
</tr>
<tr>
<td>Employed</td>
<td>16 (59)</td>
<td>10 (35)</td>
<td>0.24</td>
<td>26 (55)</td>
</tr>
<tr>
<td>No. of complications</td>
<td>1.07±1.38</td>
<td>1.64±1.94</td>
<td>0.09</td>
<td>1.5±1.7</td>
</tr>
<tr>
<td>No. of clinic visits</td>
<td>1.19±1.9</td>
<td>1.14±1.9</td>
<td>0.29</td>
<td>1.5±1.8</td>
</tr>
</tbody>
</table>

**Table 2. Descriptive and test statistics on outcome variables for RCT and CS studies.**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>RCT (N=56)</th>
<th>CS (N=92)</th>
<th>F</th>
<th>p</th>
<th>Adjusted mean ±SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes distress</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>IDEAS</td>
<td>27.18±20.04</td>
<td>26.44±19.16</td>
<td>0.91</td>
<td>0.35</td>
<td>IDEAS</td>
<td></td>
<td></td>
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<tr>
<td>Hospital</td>
<td>29.25±23.50</td>
<td>27.23±19.26</td>
<td></td>
<td></td>
<td>Hospital</td>
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<tr>
<td><strong>Diabetes-specific self-efficacy</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>IDEAS</td>
<td>3.89±0.56</td>
<td>3.95±0.68</td>
<td>0.40</td>
<td>0.53</td>
<td>IDEAS</td>
<td></td>
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<tr>
<td>Hospital</td>
<td>3.64±0.73</td>
<td>3.71±0.67</td>
<td></td>
<td></td>
<td>Hospital</td>
<td></td>
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<tr>
<td><strong>HbA1c (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDEAS</td>
<td>8.61±1.36</td>
<td>7.02±1.56*</td>
<td>0.79</td>
<td>0.38</td>
<td>IDEAS</td>
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<tr>
<td>Hospital</td>
<td>9.61±2.01</td>
<td>7.15±0.54*</td>
<td></td>
<td></td>
<td>Hospital</td>
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**Conclusions**
- This pilot study was the first to evaluate the IDEAS model of T2DM care.
- Differences in diabetes distress and self-efficacy between service settings did not reach statistical significance, however studies were likely underpowered to detect differences.
- Patients’ evaluations of the quality of diabetes care at IDEAS were very positive, and this is likely to be the key strength of the model.
- Importantly, this positive patient experience was not at the expense of glycaemic outcomes.
- The IDEAS model holds promise for people with T2DM who need more specialist/multidisciplinary care than can be provided in primary care.

**References**

**Acknowledgements**
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