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[1].
- They coordinate care provided by various health professionals using a person-centred approach[2].
- 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 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 system (RCT); attended the service at least twice (CS).
- Sample sizes:
  ◊ 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 met with researcher in waiting room at baseline (Time 1) and six month follow-up (Time 2)
  ◊ time 1: completed psychosocial questionnaire in waiting room; biomedical and clinical outcomes extracted from client records
  ◊ time 2: As above
- CS study:
  ◊ researcher approached potential 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 ANOVAs 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.
- Regarding diabetes distress, there was a non-significant trend in favour of IDEAS in both studies.
- 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)*

	RCT				CS study				
Sample characteristic	IDEAS n=27	Hospital n=29	p	Total sample	Sample characteristic	IDEAS n=59	Hospital n=33	p	Total sample
Age^	54±14	58±11	0.26	56±12	Age^	63±10	63±9	0.87	63±10
Diabetes duration^	8±8	9±6	0.96	8±7	Diabetes duration^	12±9	14±7	0.29	13±9
Women	10 (37)	8 (28)	0.50	18 (32)	Women	28 (48)	19 (58)	0.35	47 (51)
Insulin use	7 (26)	18 (62)	<0.01	25 (45)	Insulin use	37 (63)	22 (67)	0.11	59 (64)
Employed	16 (59)	10 (35)	0.24	26 (55)	Employed	20 (34)	7 (21)	0.32	27 (29)
No. of complications	1.07±1.38	1.86±1.94	0.09	1.5±1.7	No. of complications	1.9±1.9	1.1±1.9	0.29	1.8±1.8
No. of clinic visits		N/A			No. of clinic visits	6.0±2.9	4.7±1.4	<0.01	5.5±2.5

Data presented as mean±SD or n (%). *Missing data on some categorical variables; frequencies do not always add to total sample size. ^In years.

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

Diabetes distress[a]		RCT (N=56)				CS (N=92)			
		Adjusted mean ±SD		F	p	Adjusted mean ±SD		F	p
		Time 1	Time 2						
	IDEAS	27.18±20.04	26.44±19.16	0.91	0.35	IDEAS	22.63±19.43	2.81	0.10
	Hospital	29.25±23.50	27.23±19.26			Hospital	30.38±19.89		

Diabetes-specific self-efficacy[b]		RCT (N=56)				CS (N=92)			
		Adjusted mean ±SD		F	p	Adjusted mean ±SD		F	p
		Time 1	Time 2						
	IDEAS	3.89±0.56	3.95±0.68	0.40	0.53	IDEAS	3.73±0.71	0.35	0.56
	Hospital	3.64±0.73	3.71±0.67			Hospital	3.54±0.99		

HbA1c (%)		RCT (N=56)				CS (N=92)			
		Adjusted mean ±SD		F	p	Adjusted mean ±SD		F	p
		Time 1	Time 2						
	IDEAS	8.61±1.36	7.62±1.56*	0.79	0.38	IDEAS	7.95±1.37	1.66	0.20
	Hospital	9.61±2.01	7.15±0.54*			Hospital	8.28±1.45		

Quality of care[c]		Pooled RCT and CS data (N=148)						F	p
		Adjusted mean ±SD							
	IDEAS	70.18±18.48						6.15	0.01
	Hospital	62.38±19.10							

All means adjusted for covariates: age, diabetes duration, primary treatment (RCT only), baseline outcome variable score (RCT only), number of appointments (CS only). [a]Measured by PAID scale. [b]Measured by DES-SF. [c]Measured by PEQD. *Significant change (at p<0.05) from Time 1 to Time 2.

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

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