

Concordance of diabetes clinicians' decision making – face-to-face versus telemedicine clinics: a feasibility trial

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Background:

A feasibility trial was conducted to determine the potential for telemedicine to replace alternate diabetes review appointments in the care of those with gestational diabetes (GDM). One of the aims of this study was to assess concordance of clinical decision making between diabetes clinic visits and telemedicine review sessions.

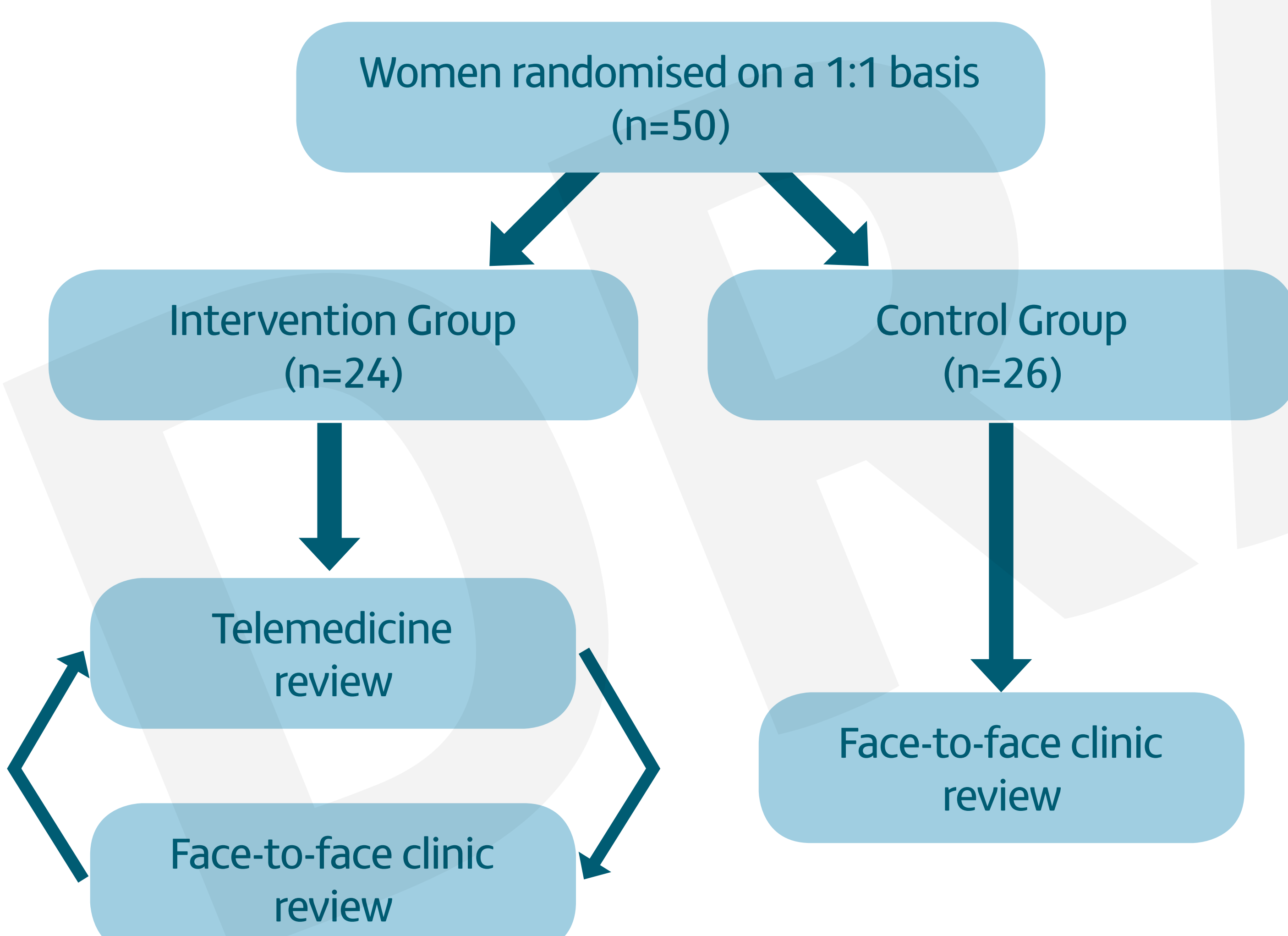
Methods:

50 women with GDM were randomised to usual care (n=26) or usual care plus telemedicine (n=24). Telemedicine entailed weekly blood pressure and weight measurements and transmission of this data, along with blood glucose readings, for review by the health care team.

The management decisions made for the intervention group at each clinic and telemedicine review were recorded under one of 6 categories. Recall bias was minimised by conducting the telemedicine review 2 days before the clinic review.

It was not possible to ensure the same clinician performed both the telemedicine and corresponding clinic review making it necessary to measure inter-rater (between clinician) and intra-rater (within the same clinician) agreement. 20 vignettes, short clinical scenarios, were developed based on information which would be available at telemedicine or clinic review. Each clinician was asked to record a management decision for these vignettes (measuring inter-rater agreement) and to repeat this after a number of weeks (measuring intra-rater agreement).

Cohen's kappa was used to quantify the proportion of agreement in excess of the amount of agreement that would be expected by chance.



Results:

Cohen's kappa was 0.54 for telemedicine and face-to-face review, indicating moderate or fair to good agreement in terms of the management decisions made. This compared to 0.65 (substantial or fair to good agreement) for inter-rater agreement and 0.44 (indicating moderate or fair to good agreement) to 0.77 (indicating substantial or excellent agreement) for intra-rater agreement.

TABLE 1: Telemedicine and face-to-face review

		Face-to-face review				TOTAL
		Add/Increase insulin	Add/Increase oral hypoglycaemic	Keep same	Other	
Telemedicine review	Add/Increase insulin	10	0	1	1	12
	Add/Increase oral hypoglycaemic	0	1	1	0	2
	Keep same	5	0	15	0	20
	Other	1	0	0	0	1
	TOTAL	16	1	17	1	35

Cohen's kappa was 0.54, p<0.001 indicating moderate or fair to good agreement

TABLE 2: Inter-rater agreement

		Time 2				TOTAL
		Add/Increase insulin	Add/Increase oral hypoglycaemic	Keep same	Other	
Time 1	Add/Increase insulin	41	0	5	1	47
	Add/Increase oral hypoglycaemic	1	9	5	0	15
	Keep same	0	2	12	0	14
	Other	2	0	1	1	4
	TOTAL	44	11	23	2	80

Cohen's kappa was 0.65, p<0.001 indicating substantial or fair to good agreement

TABLE 3: Intra-rater agreement

HCP	Cohen's Kappa	Significance	Interpretation of Cohen's Kappa
AC1	0.76	p<0.001	Substantial or excellent agreement
AC2	0.77	p<0.001	Substantial or excellent agreement
AC3	0.44	p<0.01	Moderate or fair to good agreement
LC1	0.52	p<0.001	Moderate or fair to good agreement

Conclusion:

Telemedicine allows clinicians to make comparable management decisions as diabetes clinic review.