‘Smart’ Self-Management: Programs To Improve Self-Determination In People With Chronic Disease

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Diabetes and Diabetes self-management education

- Diabetes is an increasing health problem worldwide and its prevalence is expected to increase exponentially in the coming decades
- Diabetes self-management education (DSME) has been widely recognised as an integral part of diabetes care and as an important contributor to improved health outcomes[1,2,3]
- Improved self-management of diabetes can lead to:
  - Decreased risk of short-term diabetes related complications
  - Reduction of long-term diabetes related complications
  - Decreased economic burden on the health system[4]

1. Funnell, M. M., Brown, T. L., Childs, B. P., Haas, L. B., Hosey, G. M., Jensen, B., ... & Siminerio, L. M. (2009). National standards for diabetes self-management education. *Diabetes care*, *32*(Supplement 1), S87-S94.
2. Norris, S. L., Engelgau, M. M., & Narayan, K. V. (2001). Effectiveness of self-management training in type 2 diabetes: a systematic review of randomized controlled trials. *Diabetes care*, *24*(3), 561-587.
3. Norris, S. L., Lau, J., Smith, S. J., Schmid, C. H., & Engelgau, M. M. (2002). Self-management education for adults with type 2 diabetes: a meta-analysis of the effect on glycemic control. *Diabetes care*, *25*(7), 1159-1171.
4. Menzin, J., Korn, J. R., Cohen, J., Lobo, F., Zhang, B., Friedman, M., & Newmann, P. J. (2010). Relationship between glycemic control and diabetes-related hospital costs in patients with type 1 or type 2 diabetes mellitus. *Journal of Managed Care Pharmacy*, *16*(4), 264-275.

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Smart Series

- Series of structured self-management education programs – intensive information on a particular diabetes-related topic
- Developed by Diabetes WA – now delivered nationally under the NDSS
  - 2-3 hours in duration and are delivered by trained facilitators
- Based on constructs of social learning theory and underpinned by a philosophy of person centered care

CarbSmart workshop

Program Aim:

To empower participants to effectively manage their diabetes by increasing competence and confidence in incorporating quality sources and quantity of carbohydrates into their daily meals

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MedSmart workshop

Program Aim:

To empower participants to effectively manage their diabetes by increasing their competence and confidence in health decisions related to their prescribed medications

Evaluating effectiveness of Smarts using Diabetes Empowerment Scale – Short Form (DES-SF)

- Our objective was to evaluate the effectiveness of the 'Smart' DSME in relation to diabetes empowerment in individuals living with diabetes
- Diabetes Empowerment was measured pre and post-program participation and at 3 month follow up

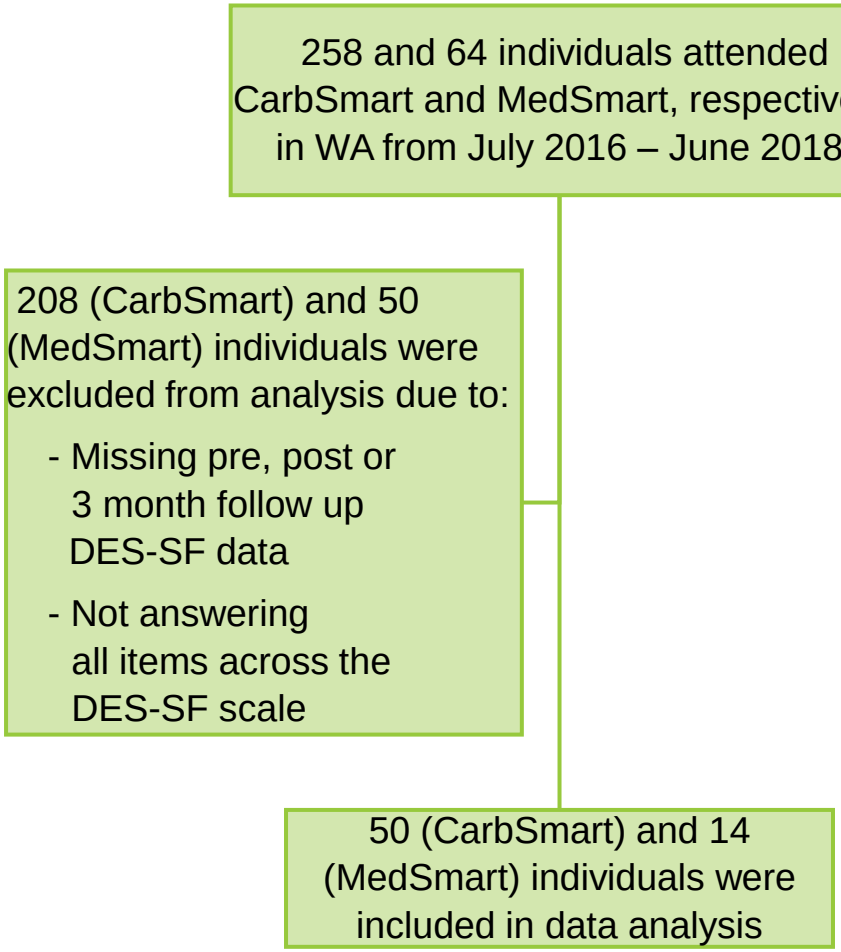

Figure 1. Flow chart for inclusion in analysis

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Diabetes Empowerment Scale (DES-SF)

- Diabetes empowerment refers to individuals having the knowledge, skills, confidence and self-efficacy to effectively manage their diabetes
- 8 Item, 5 point-likert scale with scores ranging from 8-40

In general, I believe that:	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
1. I know what part(s) of my diabetes management I am not satisfied with.	1	2	3	4	5
2. I am able to turn goals for my diabetes management into a workable plan.	1	2	3	4	5
3. I can explore ways to overcome barriers to achieving my diabetes management goals.	1	2	3	4	5
4. I can find ways to feel better about living with diabetes.	1	2	3	4	5
5. I know positive ways I can cope with diabetes-related stress.	1	2	3	4	5
6. I can ask for support relating to my diabetes when I need it.	1	2	3	4	5
7. I know what helps me to stay motivated to manage my diabetes.	1	2	3	4	5
8. I can make choices about my diabetes management that are right for me.	1	2	3	4	5

- DES-SF scale represents:
  - Managing the psychosocial aspects of diabetes
  - Assessing dissatisfaction and readiness to change
  - Setting and achieving goals

CarbSmart
&
Diabetes
Empowerment

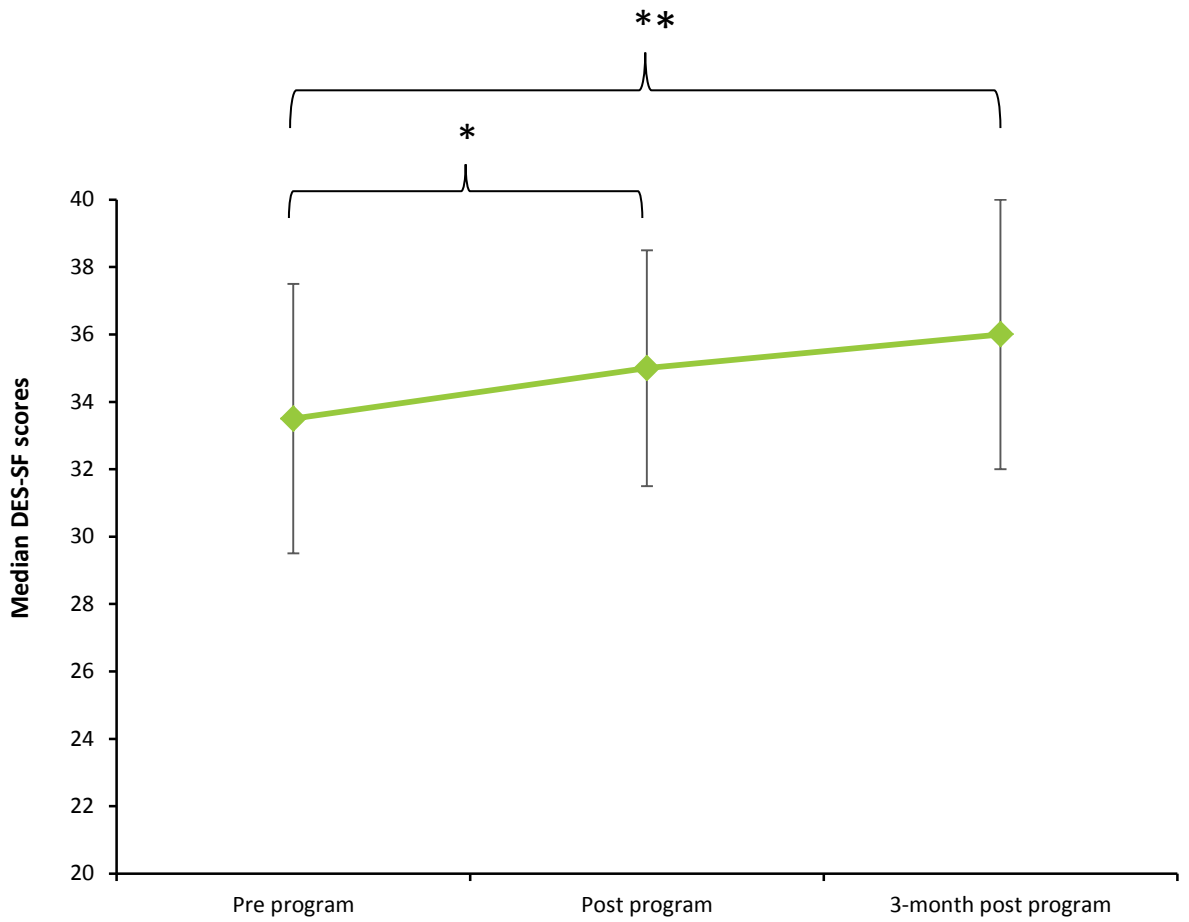

Figure 2. Median DES scores pre, post and 3 month follow up in 50 program participants.
DES scores are expressed as median scores. Error bars represent interquartile ranges.
* z = -3.45, p<0.001 ** z = -3.54, p<0.001

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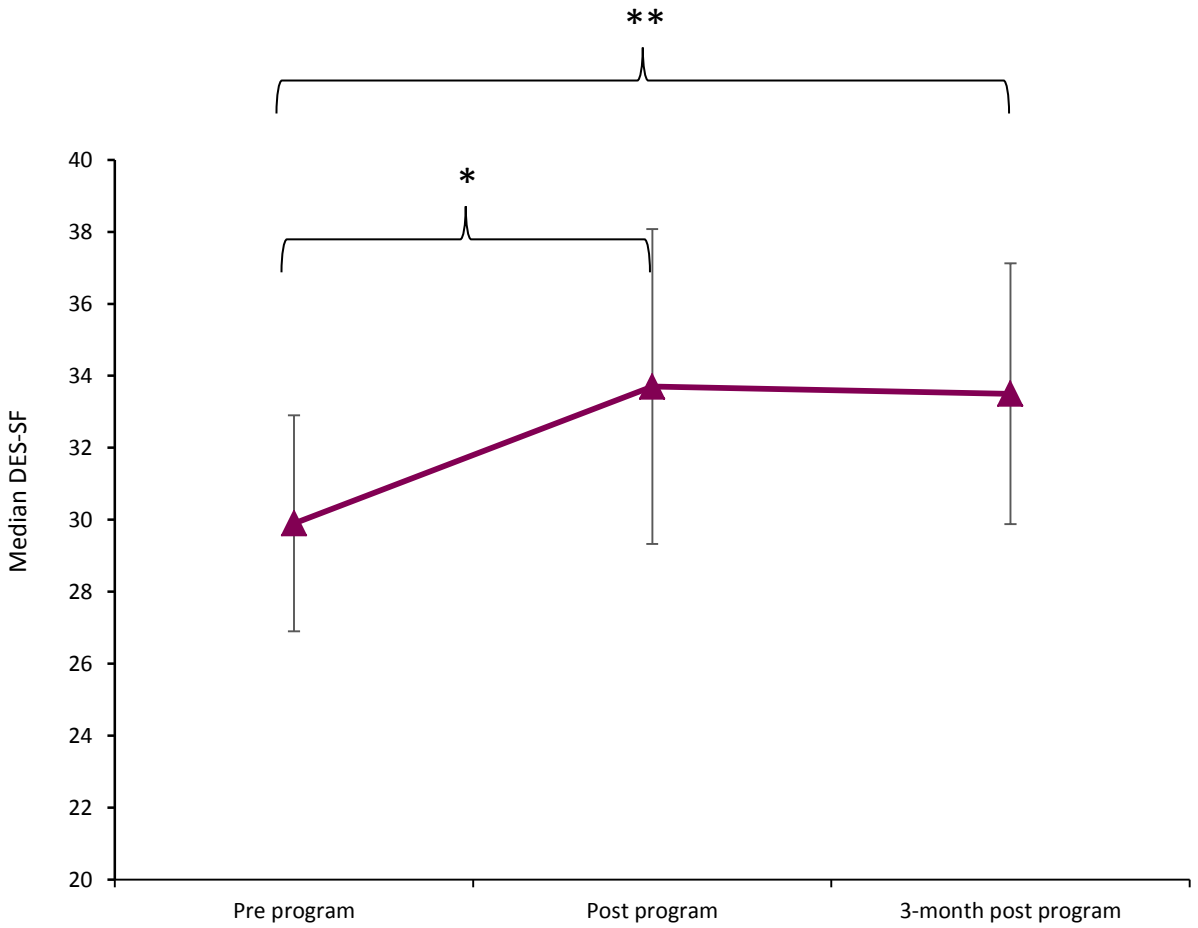

Figure 3. Median DES scores pre, post and 3 month follow up MedSmart in 14 participants.
DES scores are expressed as median scores. Error bars represent interquartile range.
* z = -2.81, p=0.005 ** z = -2.94, p=0.003

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Significance of findings

- The increase in diabetes empowerment and the sustained effect at three months follow up indicate these Smarts programs are effective in increasing an individual's skills, confidence and self-efficacy to effectively self-manage their diabetes
- Empowering people in making choices regarding their management encourages a sense of self-determination likely to result in adherence to long term self-management goals
- Understanding medications and food choices are not unique to diabetes, it is likely that the benefits seen in these Smarts programs could extend to the management of other chronic conditions

Future directions

- Increase sample size at 3 month follow up
- Target individuals with ‘lower levels’ of diabetes empowerment
- Is the increase in diabetes empowerment following Smarts participation sustained long-term (12 month follow up)?
- In relation to clinical outcomes e.g. Hb1Ac, blood pressure
- Explore the the effect of patient activation in relation to Smarts program participation
- Investigate confounding factors that could affect participants increase in diabetes empowerment e.g. support network, attendance at other self structured management programs, access to health care services, multiple chronic conditions

Thank you

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CarbSmart: Participant Characteristics

		N= 50	%*
Gender	Male	17	34.7
	Female	32	65.3
	Missing	1	
Age	Under 65 years	20	41.7
	65 and over	28	58.3
	Missing	2	
ATSI	No	50	100.0
	Yes, Aboriginal	0	0.0
	Yes, Torres Strait Islander	0	0.0
	Both Aboriginal and Torres Strait Islander	0	0.0
Language spoken at home	English only	46	92.0
	Other	4	8.0
Type of diabetes	Type 1	3	6.0
	Type 2	46	92.0
	Other	1	2.0
Length of diagnosis (months)	3 or less	10	20.0
	More than 3 but less than 6	4	8.0
	6 or more but less than 12	5	10.0
	12 or more	31	62.0
Postcode	Major Cities	43	89.6
	Inner Regional	5	10.4
	Outer Regional	0	0.0
	Remote	0	0.0
	Very Remote	0	0.0
	Missing	2	

*Excludes any missing values

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MedSmart: Participant Characteristics

		N= 14	%*
Gender	Male	4	30.8
	Female	9	69.2
	Missing	1	
Age	Under 65 years	8	57.1
	65 and over	6	42.9
ATSI	No	14	100.0
	Yes, Aboriginal	0	0.0
	Yes, Torres Strait Islander	0	0.0
	Both Aboriginal and Torres Strait Islander	0	0.0
Language spoken at home	English only	11	78.6
	Other	3	21.4
Type of diabetes	Type 1	0	0.0
	Type 2	14	100.0
	Other	0	0.0
Length of diagnosis (months)	3 or less	1	7.1
	More than 3 but less than 6	3	21.4
	6 or more but less than 12	0	0.0
	12 or more	10	71.4
Postcode	Major Cities	12	92.3
	Inner Regional	1	7.7
	Outer Regional	0	0.0
	Remote	0	0.0
	Very Remote	0	0.0
	Missing	1	

*Excludes any missing values

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Results – Extra

Carbsmart	
	DES-SF
Pre program	33.5
Post program	35
3-month post program	36
*pre-post	p<0.001
*pre-3mth	p<0.001
Effect size pre-post	
z	-3.452
n	50
sqrt n	7.07106781
r	-0.4881865
r2	0.23832608
Effect size pre-3mth	
z	-3.54
n	50
sqrt n	7.07106781
r	-0.5006316
r2	0.250632

Medsmart	
	DES-SF
Pre program	29.9
Post program	33.7
3-month post program	33.5
*pre - post	p=0.005
**pre - 3mth	P=0.003
Effect size pre-post	
z	-2.809
n	14
sqrt n	3.741657
r	-0.75074
r2	0.37537
Effect size pre-3mth	
z	-2.938
n	14
sqrt n	3.741657
r	-0.78521
r2	0.39261