Table 1: Study characteristics table

Study	Participants	Aims and setting	Measures	Outcomes	Delivery: Length of session(s), duration, and group or individual
Saksvig et al. (2005) Canada	Sample size: 122 (Not Powered) Gender: females - 45%; males 55% Age: Range 7-14 years) Ethnicity: not specified Diabetes status: At risk of T2 Preventative	Pilot study of a culturally tailored intervention for Native Canadian Children Pretest/post-test, single sample	Anthropometric measures 24-h dietary recall CATCH Health Behaviors Questionnaire Kahnawake Schools Diabetes Prevention Program classroom Questionnaire Developed parent/guardian questionnaire	Significant increases (p = .0001) for intention, dietary preference, knowledge, and dietary self-efficacy, curriculum knowledge scale Dietary knowledge (p = 0.05); Knowledge about curriculum concepts (p = 0.05) Dietary fiber intake (p = 0.1)	Delivered over academic year in curriculum Group

Faro et al. (2005) U.S.	Sample size: 27 (Not powered) Gender: females – 44%; males – 56% Age: not specified Ethnicity: African American – 55%; Hispanic – 25%; White – 18%; Other – 2% Diabetes status: At risk of T2D Preventative	Pilot study conducting periodic diabetes care visits in school to reduce diabetes risk. Pretest/post-test, single sample	Self- Efficacy for Diabetes (SED) Tool Developed 15-item Survey for parents Developed physician or PNP survey	Biochemical: Not significant - Glycaemic control not significant Psychosocial: Student self-efficacy changes not significant.	Delivered over academic year in curriculum Group
Bradshaw et al. (2007) U.S.	*N* = 67 (Powered) Gender: females 65%; males 35% Age: not specified Ethnicity: Hispanic - 3% & 0%; African American - 0% & 0%	Testing the efficacy of a resiliency training approach for people with T2D RCT, Intervention and control	Glycosylated haemoglobin (HbA1c) assay Waist measurement Purpose developed questionnaire	Physiological measures (not significant) Waist measurement (not significant)	10 modules, 15 hours 6 months duration Group

	American Indian – 3% & 0% Asian – 7% & 0% Pacific Islander – 3% & 0% Caucasian – 83% & 100% Diabetes status: diagnosed T2D Diabetes Self-management Program			Eating and exercise habits ($p < .05$) Psychosocial measures (self-efficacy, locus of control, social support, and purpose in life, all $p < .05$)	
Laatikainen et al. (2007) Australia	Sample size $N = 237$ (Not powered) Gender: females – 73%; males – 27%; Age: mean 57 years) Ethnicity: not specified	Examining effects of a T2D (with and at risk of) intervention (Greater Green Triangle (GGT) Diabetes Prevention Project)	Clinical measurements Kessler 10 Psychological Distress Scale (K-10)	Biochemical: Weight (not significant) Waist circumference reductions (95%	6 modules, 90 minutes each 8 months duration Group

	Diabetes status: At risk of T2D Preventative	Pretest/post-test, single sample	Hospital Anxiety and Depression Scale (HADS) General health assessed using Short Form 36 (SF-36v2)	confidence interval 3.48 to 4.87). Glucose Reductions (0.07 to 0.20) Psychosocial: Reduced distress (p = .002)	
Davies et al. (2008) U.K.	Sample size N = 824 (Powered) Gender: females – 47%; males – 53%; Age: mean 59.5 years Ethnicity: not specified Diabetes status: diagnosed T2D Diabetes Self-management Program	Effectiveness of the diabetes education and self-management for ongoing and newly diagnosed (DESMOND) programme for people T2D RCT, Intervention and control	Biomedical measures Summary of diabetes self-care activities questionnaire (lifestyle) International physical activity questionnaire World Health Organization's quality of life	Biomedical: Weight loss (p = .027) Health behaviours: Smoking cessation (p = .033) Psychosocial: Illness belief scores (p = .001) directions of change were positive indicating	One session of six hours (or 2 of 3 hours) One single session duration Group

			instrument WHOQOL-BREF Illness perceptions questionnaire-revised Diabetes illness representations questionnaire Problem areas in diabetes scale Hospital anxiety and depression scale	greater understanding of diabetes Lower depression (p = .032) Positive association was found between change in perceived personal responsibility and weight loss at 12 months (β = .12; p = .008).	
Dutton et al. (2008) U.S.	Sample size N=85 (Not powered) Gender: females - 68.2%; males – 31.8% Age: mean 57.1 years	Examining effects of a tailored, print-based intervention for promoting PA among patients with T2D	Self-report surveys and structured interviews with research staff	Non-significant PA levels, although Intervention group more likely to be in PA stage at 1 month (OR = 3.2, 95% CI 1.0 – 10.3) and in the	No sessions delivered Individual

	Ethnicity: not specified Diabetes status: diagnosed T2D Diabetes Self-management Program	RCT, Intervention and control	Biomedical measures 7-day Physical Activity Recall (PAR) Stages of change	Action or Maintenance stages (OR = 5.6, 95% CI 1.7 – 18.3)	
Thoolen et al. (2008) Netherlands	Sample size *N*=180 (Powered) Gender: females – 35%; males – 64% Age: mean 62 years Ethnicity: not specified Diabetes status: diagnosed T2D Diabetes Self-management Program	Evaluating an intervention for T2D self-management: addressing specific self-care issues with proactive five-step plan to improve confidence and self-management RCT, Intervention and control .	Evaluation form Proactive Diabetes Management Inventory Questionnaire adapted from Lorig et al.	Psychosocial: Self-efficacy and goal attainment (p = .001)	Eight 2 hour group sessions and two 1 hour individual sessions. 12 weeks duration Group and individual

Yates et al. (2009) U.K.	Sample size *N*=87 (Not powered) Gender: females – 38%; males – 62% Age: mean 64 years Ethnicity: White Europeans – 92%; South Asians – 8% Diabetes status: At risk of T2D Preventative	Evaluating a structured education program promoting physical activity through increased ambulatory activity and improving glucose tolerance in those with impaired glucose tolerance (IGT). RCT, Intervention and control	Ambulatory activity through pedometer readings IPAQ Anthropometric measures Illness perceptions questionnaire Self-efficacy Likert Scale	Increased walking at 3, 6, and 12 months (95% CI: (576 – 3,150), p = .005; (989 – 3,426), p = 0.001; (945 – 2859) p = <0.001, respectively) Post-challenge glucose and fasting glucose (95% CI -2.20 to -.43 and -.32 m-0.59 to -.03) Psychosocial: Walking self-efficacy (*p* = .01) .	One 3 hr Session 12 month duration Group
Sacco et al. (2009) U.S.	Sample size *N*=62 (Not powered) Gender: female – 58%; male 42%	Evaluating a telephone intervention by paraprofessionals for T2D targeting	Summary of Diabetes Self-Care Activities Questionnaire	Adherence to diabetes care regime (*p* = .001)	Mean 16 sessions, 15-20 minutes long

	Age: mean 52 years Ethnicity: Caucasian - 77.4%; African–American – 45%; Hispanic – 8.1% Diabetes status: diagnosed T2D Diabetes Self-management Program	diabetes adherence, glycaemic control, diabetes-related medical symptoms, and depressive symptoms RCT, Intervention and control	Biochemical and biomedical measures Summary of Diabetes Self-Care Activities Questionnaire Nine Symptom Depression Checklist of the Patient Health Questionnaire (PHQ-9) Diabetes Knowledge Test Multidimensional Diabetes Questionnaire Self-Efficacy subscale	Glycaemic control and BMI (non-significant) Diabetes Self-efficacy mediates effect of treatment on depressive symptoms (p = .05) Control and awareness of illness (p = .01)	Average of 24 weeks duration Individual

			Social support and self-care Likert Scales		
Contento et al. (2010) U.S.	Sample size = 1134 (Not powered) Gender: female – 49%; male – 51% Age: mean 12 years Ethnicity: Latino - 70%; African-American - 25%; Others - 5% Diabetes status: At risk of T2D Preventative	Examining effects of T2D prevention program (Choice, Control, and Change (C3)) on diet and lifestyle in adolescents RCT, Intervention and control	Dietary and PA behavioural frequency measures, Personal agency (autonomy and competence)	Dietary behaviours: Decreases in poor diet (p = .001) Physical activity: Increases in intention to exercise (p = .001) Psychosocial: Increased self-efficacy for all targeted behaviours except eating more fruits and vegetables (p = .001)	Twenty four sessions of 45 minutes 8-10 weeks Group
Wu et al. (2011) China	Sample size N=145 (Powered) Gender: female - 64.1%; male – 35.9%	Exploring effectiveness of a Self-efficacy enhancing T2D intervention program.	Chinese version of the Diabetes Management Self-Efficacy Scale (C-DMSES)	Efficacy expectations (p = 0.01)	Four 1 hr sessions, follow-up calls at 8 and 16 weeks

	Age: mean 64 years Ethnicity: not specified Diabetes status: diagnosed T2D Diabetes Self-management Program	The evaluation focused on improvements in self-efficacy, outcome expectations, and self-care behaviours RCT, Intervention and control	Chinese version of the Perceived Therapeutic Efficacy Scale (C-PTES) Chinese version of the Summary of Diabetes Self-Care Activities (SDSCA) scale	Outcome expectations (p = 0.01) Self-care activities (p = 0.01)	16 weeks duration Individual
Hartmann et al. (2012) Germany	Sample size N=110 (Not powered) Gender: females – 22%; males - 78% Age: mean 59.5 years Ethnicity: not specified Diabetes status: diagnosed T2D	Exploring effects of a T2D intervention (HEIDIS) for reducing progression of nephropathy, depression and psychosocial stress, improving self-perceived health status	Biochemical measures Patient Health Questionnaire (PHQ) 12-item short-form health survey (SF-12)	Delayed progression of albuminuria (not significant) Lower depression in intervention (p = .71) and in health status (p = .54)	8 weekly sessions (session duration not provided) 8 weeks with booster session after 6 months duration Group

	Diabetes Self-management Program	RCT, Intervention and control			
Glasgow et al. (2012) U.S.	Sample size *N*=463 (Powered) Gender: females – 50.4%, males – 49.6% Age: mean 58 years Diabetes status: diagnosed T2D Diabetes Self-management Program	Internet based T2D self-management program targeting changes in health behaviours (healthy eating, physical activity, and medication taking) plus biomedical and psychosocial issues (self-efficacy and diabetes distress) RCT, Intervention and control	Subjective health numeracy scale "Starting The Conversation" scale Lorig's eight-item Diabetes Self-Efficacy scale Biochemical measures Positive Transfer of Past Experience from the Diabetes Problem Solving Scale of Hill-Briggs	Heaty eating, medication taking and physical activity (d for effect size = .09 – .16) Haemoglobin A1c, body mass index, lipids, blood pressure (not significant) Reduced diabetes distress (p = .05).	Internet program self-administered. Additional support group received 2 follow-up calls and three 2 hour group sessions 12 months duration Individual and group

			Chronic Illness Resources Survey (CIRS) EuroQol health status instrument Diabetes Distress Scale (DDS)		
Mohamed et al. (2013) Qatar	Sample size *N*=430 (Not powered) Gender: not specified Age: mean 53.5 years Ethnicity: Arabic Diabetes status: diagnosed T2D Diabetes Self-management Program	Culturally sensitive intervention for T2D targeting biomedical, knowledge, attitude and practice measure through T2D self-management education RCT, Intervention and control	Biochemical measures Biomedical Adapted Diabetes questionnaire (previously used but not validated)	Improved HbA1C levels (p = .001) Diabetes knowledge (p = .0001)	Four sessions of 3-4 hours 12 weeks duration Group

Miller et al. (2014) U.S.	Sample size *N*=32 (Not powered) Gender: females 64%; males 36% Age: range 35-65 years) Ethnicity: Caucassian – 81.5%; Other - 18.5% Diabetes status: diagnosed T2D Diabetes Self-management Program	Comparing a mindful-eating intervention to a DSME program for improving dietary patterns RCT, Intervention and control	Food Frequency Questionnaire Outcome expectancies and self-efficacy questionnaire 25-item Eating Self-Efficacy Scale The Three-Factor Eating Questionnaire (TFEQ) The Five-Facet Mindfulness Questionnaire	Dietary knowledge (p = .05) Adherence to diet (F (1, 59) = 5.71, p = <.05 Depressive symptoms, outcome expectations, nutrition and eating-related self-efficacy and mindfulness (p = .0125) Weight change (non-significant)	8 weekly and 2 biweekly 2½ hour sessions, plus 1 and 3 month follow up sessions 2 years duration Group
Jennings et al. (2014) U.S.	Sample size *N*=397 (Powered) Gender: females - 47.6%; males 52.4% Age: mean 58 years	Evaluating a web-based physical activity intervention for adults with T2D targeting increased PA	International Physical Activity Questionnaire (IPAQ)	Group-by-time interaction (X2 (df = 1) = 6.37, p = .05) for total physical activity	Internet program self-administered. 12 weeks duration

	Ethnicity: not specified Diabetes status: diagnosed T2D Diabetes Self-management Program	RCT, Intervention and control	Biomedical measures		Individual
Heideman et al. (2015) Netherlands	Sample size *N*=96 (Not powered) Gender: females - 67.7%; males - 32.3% Age: mean 55 years Ethnicity: Dutch – 80%; Suriname - 4.2%; Antilles - 2.1%; Netherlands East Indies - 4.2% Diabetes status: At risk of T2D	Examining effects of a low-intensive lifestyle educational T2D prevention program (DiAlert) targeting weight loss RCT, Intervention and control	Biomedical measures International Physical Activity Questionnaire: IPAQ Health- related quality of life: EQ5D Kessler-10 scale (K10) for diabetes distress	Weight loss (p = .03) Waist circumference (p = .01) Self-efficacy and risk perception (non-significant)	Two sessions of 150 minutes plus newsletters 12 months duration Group

	Preventative		Self-efficacy (sum 20 scale)		
Biddle et al., (2015) U.K.	Sample size *N*=187 (Powered) Gender: females - 68.5%; males; 31.5% Age: mean 32.8 years Ethnicity: Unspecified majority – 80.2% Black and ethnic minority – 19.8% Diabetes status: At risk Preventative	Examining T2D prevention program focussing on sedentary time reduction RCT, Intervention and control	Accelerometer-assessed sedentary behaviour Biochemical and anthropometric measures International Physical Activity Questionnaire (IPAQ) Total and Domain-Specific Sitting Questionnaire	Reduced sedentary behaviour (non-significant) Biochemical, anthropometric and psychosocial variables (all non-significant)	One 3 hour session 9 months duration Group
Ramadas et al., (2015) Malaysia	Sample size *N*=82 (Powered)	Evaluating internet based diabetes intervention	Process evaluation for feasibility and acceptability	Process evaluation Response rate 89%	12 Lessons Intended length not specified but

	Further demographics provided for intervention group only (*N*=59) Gender: Females 49.2%; males 50.8% Age: mean 49 years Ethnicity: "Malay community" 88% Diabetes status: Diagnosed with T2D Diabetes Self-management Program	RCT, Intervention and control	Dietary Knowledge, Attitude, and Behaviour Questionnaire (DKAB-Q) Biochemical	Dietary Knowledge, Attitude, and Behaviour score strongly correlated with content satisfaction (r=0.826, p<0.001) Acceptability (r=0.793, p<0.001) and usability of website (r=0.724, p<0.001), and moderately correlated with frequency of log-in (r=0.501, p<0.05) and duration spent in the website (r=0.399, p<0.05).	participants logged in for a mean 12 minutes 6 months duration Individual
Yates et al., (2016) U.K.	Sample size *N*=808 (Powered)	Evaluating the efficacy of the	Ambulatory activity through pedometer readings	Increased Physical activity [95% confidence interval	One three-hour educational session

	Gender: Females 36%; males 64% Age: Mean 63.6 years Diabetes status: Pre-diabetic Preventative	"Walking Away from Diabetes" program RCT, Intervention and control	Biochemical Dietary Instrument for Nutrition Education food frequency questionnaire	(CI): 117, 704] and self-reported vigorous-intensity physical activity of 218 metabolic equivalent min/week (95% CI: 6, 425) at 12 months, however not beyond Biochemical (not significant)	followed by repeated measures 12 months duration Group
Macedo et al., (2017) Brazil	Sample size *N*=183 (Not powered) Gender: Females 62.5% Males 37.5% Age: Mean 59 years Diabetes status: Diagnosed with T2D	Evaluating adherence to a group based DSM educational program RCT, Intervention and control	Adherence to self-care practices for diabetes mellitus (ESM) Diabetes Empowerment Scale-Short Form – DES-SF Biochemical	Significant decrease in glycated haemoglobin (P< 0.001) Significant increase in adherence to self-care and empowerment Scales (P< 0.001)	Seven group meetings, lasting around two hours 14 hours Group

	Diabetes Self-management Program				
McCurley et al., (2017) U.S.	Sample size: N=61 (Not powered) Gender: Females 100% Age: Mean 47.8 years Diabetes status: At risk of T2D Preventative	Evaluating effectiveness, feasibility, and acceptability of a peer-led, culturally appropriate, Diabetes Prevention Program (DPP) for Latina women at high-risk of T2 RCT, Intervention and control	Anthropometric 9-item Rapid Assessment of Physical Activity University of California Cooperative Extension Food Behavior Checklist 8-item Patient Health Questionnaire (for depression)	Mean reduction of 4.1% body weight at 6 months Significant improvements observed for dietary behaviors, stress, and depression symptoms ($P<0.005$) Focus groups indicated that intervention content increased knowledge, was applicable, valued, culturally relevant, and would	Weekly 2-hour class for 12 weeks 6 Months Group

			9-item exercise barriers measure from the Healthy and Retirement Study 10-item Perceived Stress Scale (PSS) Intervention fidelity evaluation	be recommended to others	
Taggart et al., (2017) U.K.	Sample size: *N*=39 (Not powered) Gender: Females 56.4% Males 43.6% Age: Mean 54.7 years Diabetes status: Diagnosed with T2D	Pilot feasibility study of DESMOND-ID, and adaptation of the DESMOND (Davies et al., 2008) program for people with ID. RCT, Intervention and control	Illness Perception Questionnaire-Revised (IPQ) The Diabetes Illness Representation Questionnaire (DIRQ) WHO quality of life questionnaire (WHOQOL-BREF)	Interaction between occasion (time) and condition, showed statistically significant results (P=0.04) for HbA1c Interaction between condition not significant in BMI IPQ shift (P = 0.00)	7 weekly sessions 12 week duration Group

	Diabetes Self-management Program	Focus group process evaluation	DIRQ (not significant)
		Anthropometric	WHOQOL-BREF (Not significant)
		Biochemical	Five major themes: 1) the user-friendly content and delivery of the programme; 2) the knowledge and skills of the educators; 3) the support of the carers; 4) social aspects; and 5) difficulties in understanding the nature of fats and carbohydrates.