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GREAT HEALTH AND WELLBEING

YARRA VALLEY COMMUNITY HEALTH

HEALTHY LIVING AND DIABETES

A COMMUNITY HEALTH EARLY INTERVENTION IN CHRONIC DISEASE PROGRAM

2015

SUMMARY

INTRODUCTION

Early intervention in treatment of newly diagnosed Type 2 Diabetes reduces long term complication risk, reduces burden of disease and is cost effective. Community Health is ideally placed to support general practitioners to provide effective and supportive diabetes early intervention and prevention programs.

The Yarra Valley Community Health, **Healthy Living and Diabetes program** aims to improve diabetes health care delivery. This paper reports the evaluation of the Healthy Living and Diabetes program from 2010 to 2014.

AIM

The aim of this research was to evaluate the impact of the Healthy Living and Diabetes program on clinical outcomes.

METHOD

Clients were recruited from those who had been referred to Yarra Valley Community Health for diabetes education with a diagnosis of newly diagnosed Type 2 Diabetes or Prediabetes. A range of clinical indicators were collected before, after 6 months and after 12 months in the program. Clients who completed the program were asked to complete a post discharge survey where subjective, qualitative lifestyle and chronic disease self management factors were measured.

RESULTS

Statistically significant improvements were observed in many clinical indicators including body weight, waist circumference and BMI. Indicators of diabetes control such as HbA1c and fasting glucose showed statistically significant improvements after 6 months, and these benefits were maintained at 12 months.

Over 85% of participants agreed that all staff were friendly and approachable, all staff provided good explanations for treatments delivered and that the services provided improved their ability to manage their health.

DISCUSSION

The Healthy Living and Diabetes program has been able to improve the health of its participants. Most clients reported that they either achieved or partly achieved their health goals.

Following completion of the program, clients had greater confidence in their ability to manage their health condition and had developed more healthy lifestyle skills.

INTRODUCTION

With Type 2 Diabetes rates on the rise creating spiralling health care costs[1] and disadvantaged communities at higher risk[2], effective diabetes treatment options are becoming an essential element of primary healthcare.

Early intervention in treatment of newly diagnosed Type 2 Diabetes reduces long term complication risk, reduces burden of disease and is cost effective[3]. Treatment needs to be client-centred and focus on self management[4]. It should offer support and motivation, be low cost and local, utilise evidence-based education and resources and provide long term intervention[4].

Effective treatment approaches should be multidisciplinary, contain recall and reminder systems, take into account the potential for poor health literacy and address barriers to accessing healthcare facing people in disadvantaged communities[5].

Type 2 Diabetes is a progressive disease that can result in significant health risks and hospitalisation. Preventing disease progression is key to improved long term outcomes. Optimal clinical measures include reducing body weight and Body Mass Index (BMI) in overweight or obese clients, optimising blood glucose levels as assessed by fasting glucose and HbA1c (less than 7%[6]) and optimising blood lipid levels[3].

People who have prediabetes (impaired fasting glucose and/or impaired glucose tolerance) are at increased risk of developing diabetes and cardiovascular disease. Similarly to diabetes, treatment should aim to normalise lipids, blood glucose and focus on achieving optimal body weight though lifestyle intervention[7].

Community Health is ideally placed to support general practitioners to provide effective and supportive diabetes early intervention and prevention programs. Community Health services provide universal access to services as well as targeted services for vulnerable population groups, including health promotion, general counselling, allied health and community nursing services that aim to maximise people's health and wellbeing[8].

HEALTHY LIVING AND DIABETES PROGRAM

Yarra Valley Community Health (YVCH), Eastern Health was successful in obtaining Early Intervention in Chronic Disease funding from the Victorian Department of Health to establish a new Chronic Disease Management approach to Type 2 Diabetes and Prediabetes care.

Previously YVCH had been providing diabetes services in an ad hoc manner, with clients being referred separate and disjointed individual assessments, no access to group education, and a more traditional patient/professional relationship. Widespread changes were implemented over a three year period from 2010 to 2013 to improve diabetes health care delivery for both clients and staff, in the form of program known as Healthy Living and Diabetes.

This paper reports the evaluation of the Healthy Living and Diabetes program from 2010 to 2014.

Table 1 shows the package of systemic changes that were implemented.

> "Was very surprised and pleased at number of services that were offered by very friendly staff. I was extremely pleased with all the help and assistance the staff at Yarra Valley Community Health gave me."
>
> *Male client, 52 years*

> "I have found it very supportive and enjoy my interaction with my key worker."
>
> *Female client, 46 years*

INTRODUCTION (CONTINUED)

TABLE 1: Implementing the Healthy Living and Diabetes Program

Client centred healthcare, engagement and support	• Service wide training in motivational interviewing • Chronic disease self management techniques training and implementation • Health coaching training • Concerted effort to revolutionise client communication techniques utilising the new skillset, including peer support and case conferencing • Key worker program with regular phone calls supporting client for up to 12 months
Referrer engagement	• Processes to provide written feedback at regular intervals throughout the 12 month program • Brochures and posters displayed at GP clinics • Annual visit to GP referrers
Services provided	• Standardised client pathway for a 12 month period • Interactive education workshop • Access to multidisciplinary team including diabetes educator, dietitian, podiatrist, physiotherapist and counsellor • Access to lifestyle skill groups such as exercise and cooking, tobacco free clinic and *Life!*[9] program
Assessment and screening	• Comprehensive assessment including quality of life, perceptions of health, lifestyle behaviours and biochemistry • Depression and anxiety screening
Monitoring progress	• Clinical indicators pre and post intervention • Lifestyle behaviours and quality of life surveys before and after • Process evaluation through post program survey • Key worker checklist to monitor progress through client pathway • Reflective practice and regular quality improvements
Improving client access	• Phone calls from key worker • Saturday workshop • Low cost service • Phone call or text appointment reminders • Service offered from two local sites • Promotion through local media, signage and brochures • Systems for re-engagement • Systems for discharge
Evidence based healthcare	• Professional development and training in diabetes care, medications and monitoring blood glucose, mental health, exercise, diet and foot care

AIM

The aim of this research was to evaluate the Healthy Living and Diabetes program as a whole. It was hypothesised that the systemic changes implemented would lead to sustained improvements in client health outcomes as well as improved engagement with the service and increased staff satisfaction.

METHOD

Clients were recruited from those who had been referred to Yarra Valley Community Health for diabetes education with a diagnosis of newly diagnosed Type 2 Diabetes or Prediabetes. Over a three year period from 2010 to 2013, 200 clients were recruited and 115 completed the twelve month program (58% completion rate).

Clinical indicators measured were: body weight, BMI, waist circumference, lipids (total cholesterol, LDL cholesterol, HDL cholesterol, TG), HbA1c, blood pressure and fasting glucose. These were collected before the program commenced, after 6 months and after 12 months on the program. A range of demographic information was also recorded. Depression and anxiety was measured using the Kessler K10[10] scale.

Clients who completed the program were asked to complete a post discharge survey and return by mail. Pre and post intervention subjective, qualitative lifestyle and chronic disease self management factors were measured. This included questions relating to the quality of the service, overall satisfaction with their health and whether they had achieved their health goals.

Six Yarra Valley Community Health staff members were surveyed via face to face or phone interview to measure job satisfaction levels and level of engagement in the program.

> “Appreciated balance in advice provided by staff between ‘highly advisable’ and ‘realistic’. All were able to clearly differentiate between the two.”
>
> *Participant*

> “I could not have managed without the help and information I received. I just popped in in the off chance of help. Thank you a much needed service.”
>
> *Participant*

RESULTS

DEMOGRAPHICS

Demographic data showed that clients were predominantly from low income households or were receiving a government pension or benefit. Eighty four per cent of clients who accessed the program were either receiving the aged pension or disability support pension, or were on a low income.

Three quarters of clients had newly diagnosed Type 2 Diabetes and one quarter had Prediabetes. Most clients were referred from their local GP, whilst some were self referred or referred through other local health services.

The diabetes educator and dietitian services were accessed by almost all clients, and the podiatrist by the vast majority. Other services accessed included the physiotherapist, exercise classes, counsellor, cooking classes and occupational therapist.

CLINICAL DATA

Statistically significant improvements were observed in many clinical indicators including body weight, waist circumference and BMI. Total and LDL cholesterol showed statistically significant improvements. Most of the data showed significant improvements in the first six months of the program.

There were no further improvements that reached statistical significance between six and twelve months, but results at 12 months indicated that most of the gains made during the first 6 months were maintained at 12 month follow up, with significant differences between baseline and 12 months still apparent. *Table 2.*

TABLE 2: Clinical Indicators Results (*statistically significant at p<0.05)

CLINICAL INDICATOR	BASELINE MEAN (SD)	MEAN CHANGE (95% CONFIDENCE INTERVAL)	
		0 - 6 months	6 - 12 months
Weight	94.6 kg (17.6)	-2.9	0.3
		(-0.36 to -0.22)*	(-0.5 to 1.1)
Waist	109.1 cm (13.6)	-3.7	0.1
		(-5.0 to -2.4)*	(-1.1 to 1.2)
Body Mass Index	33.0 kg/m^2 (6.2)	-1.0	0.1
		(-1.3 to -0.8)*	(-0.1 to 0.4)
HbA1c	7.3 % (1.5)	-0.8	0
		(-0.5 to -1.1)*	(-0.1 to 0)
Fasting Glucose	8.2 mmol/L (3.0)	-1.5	-0.2
		(-2.3 to -0.8)*	(-0.6 to 0.2)
Total Cholesterol	5.4 mmol/L (1.0)	-0.7	-0.2
		(-0.9 to -0.5)*	(0.5 to -0.2)
LDL cholesterol	3.3 mmol/L (0.9)	-0.5	-0.3
		(-0.7 to -0.3)*	(-0.6 to 0)
HDL Cholesterol	1.3 mmol/L (0.4)	0.1	-0.2
		(-0.1 to 0.3)	(-0.7 to 0.3)
Triglycerides	2.4 mmol/L (1.7)	-0.5	-0.1
		(-0.8 to -0.2)*	(-0.3 to 0.2)
Systolic Blood Pressure	141 mm Hg (24)	-3.5	1.7
		(-8.1 to 1.0)	(-2.2 to 5.7)
Diastolic Blood Pressure	86 mm Hg (11)	-2.1	-0.8
		(-4.7 to 0.4)	(-3.6 to 2.1)
Kessler K10	15.9 (5.1)	1.0	-0.5
		(-1.0 to 3.1)	(-3.2 to 2.3)

HbA1c and fasting glucose are often considered as "gold standard" markers of diabetes control. HbA1c showed statistically significant improvements from 0-6 months.

The average HbA1c at the 12 month assessment was 6.5% where optimal control is under 7%. Eighty eight per cent of participants achieved optimal diabetes control on this measure by the conclusion of the program, compared to 57% at baseline. Furthermore, the proportion of participants considered to be at highest risk, with HbA1c scores above 8.0% at baseline reduced from a total of 19 per cent to 1 per cent at 6 months.

See Table 3 for more information.

DEPRESSION AND ANXIETY SCALE RESULTS

Kessler K10 scores did not reveal a statistically significant change over the time of participation but there was a trend towards lower K10 scores in clients who participated in the program. The p-value was 0.087 indicating that there is a less than 1 in 10 chance of K10 scores lowering as a result of chance alone.

POST DISCHARGE SURVEY RESULTS

The post discharged survey showed that very few clients did not make some lasting beneficial changes to their health behaviours. Overall 56% of clients achieved all their health goals with 31 % partially achieving their goals. *Table 4.*

When participants were asked how they would rate their health in general compared to one year ago – with optional answers being: much better now, somewhat better, about the same, somewhat worse, or much worse now – paired sample t-test showed a significant improvement in self reported health status at 12 months compared to baseline.

When asked how many times in the last month participants had been discouraged, fearful, worried or frustrated regarding their health issues, results showed that participants were feeling more positive and less frustrated about their health, but that they were still worried and fearful about the future.

Eighty three per cent of clients agreed or strongly agreed that they were encouraged to take responsibility for their own health care, the services provided were personalised to meet their needs and that they received timely and adequate feedback on their health.

Over 85% of participants agreed that all staff were friendly and approachable, all staff provided good explanations for treatments delivered, and that the services provided improved their ability to manage their health.

STAFF SURVEY RESULTS

The staff survey showed that staff felt they had improved capacity to treat people with diabetes and prediabetes.They appreciated the emphasis on early intervention and found motivational interviewing to be a satisfactory and effective clinical tool.

Staff reported that screening for depression and anxiety allowed them to be able to discuss these conditions with clients in an open manner and address issues when they arose, rather than allowing hidden mental health concerns to impair treatment.

SUMMARY

Healthy Living and Diabetes is an early intervention in diabetes treatment program that is accessible, effective and engaging. Overall this program has resulted in clients developing more lifestyle skills and having better health outcomes after a twelve months period.

Clients were satisfied with the service and health goals were achieved. Improved capacity of workers and improved worker satisfaction is also shown.

> "Keep it going, no cut backs. It's needed because of the rise of Type 2 Diabetes."
>
> *Participant*

> "Led me to understand how to control onset of diabetes 2. Confident I can live a long and meaningful life.
>
> I have enormous energy for my years and can out pace work colleagues and achieve more than I have to. "Love my new self."
>
> *Participant*

RESULTS (CONTINUED)

TABLE 3: HbA1c Results (% of participants)

HbA1c	INITIAL	6 MONTHS	12 MONTHS
5.0 - 5.9%	7	24	26
6.0 - 6.9%	50	60	62
7.0 - 7.9%	26	15	10
8.0 - 8.9%	9	1	2
9.0 % or greater	8	0	0

TABLE 4: Participants Reporting of Health Goals

HEALTH GOAL	WEIGHT LOSS N = 22	CHANGES TO DIET N = 10	CHANGES TO EXERCISE N = 11	QUITTING SMOKING N = 3	OTHER GOALS N = 16	TOTAL N = 62
Achieved %	50	70	45	67	62	56
Partly Achieved %	41	10	45	33	19	31
Did not Achieve %	0	10	0	0	0	2
Not stated or adequately defined %	9	10	10	0	19	11

QUOTES FROM STAFF SATISFACTION SURVEY

- *"It's more of a team approach and holistic nature"*
- *"It was the satisfaction of working positively with patients"*
- *"We have better follow up and engagement"*
- *I enjoyed the emphasis on early intervention"*
- *"I work alongside allied health professionals more intensively and expand my skills though their expert knowledge"*
- *"It makes me feel good because the goal is to catch people early in their diabetes experience"*
- *"I enjoy the key worker role, being able to follow up and encourage clients"*

DISCUSSION

The Healthy Living and Diabetes program aimed to improve access for low income and marginalised community members in the Yarra Valley. Demographic data showed that this group has been reached with most of our clients being on low incomes, or receiving the aged pension or disability pension. Clients are also from the local area and have mostly been referred from local General Practitioner clinics.

Three quarters of clients had newly diagnosed Type 2 Diabetes and one quarter had Prediabetes. Most clients accessed two or three services, the most common being the diabetes educator, dietitian and podiatrist.

The program has been able to improve the health of its participants. The clinical data shows improvement from the initial to the six month measurement in most indicators. BMI and HbA1c are prominent indicators of overall health and diabetes status. The average BMI shows that the client group were predominantly obese, and weight loss was the most common health goal recorded.

Many clients achieved some level of weight loss with the average BMI being significantly lower after 6 and 12 months. Most participants achieved optimal diabetes control by the conclusion of the program as shown by HbA1c. Most clients reported that they either achieved or partly achieved their health goals. Satisfaction levels have shown that the program was very well received by the participants, who were able to recognise improvement in their lifestyle choices.

Most clinical indicators showed a levelling between six and twelve months, with some showing a slight, but not statistically significant, decline. This may indicate that clients are often ready to make changes at initial diagnosis or the initial referral to the health service.

Motivation levels can be higher at first but can wane with time, providing an argument for developing a long term engagement with clients to prevent any decline in their lifestyle behaviours after the initial motivation. However, key workers reported that there are some clients who were initially overwhelmed by a new diagnosis and suffering some level of diabetes stress or depression.

These clients benefited from more support toward the end of the program when they were able to come to terms with their diagnosis and start to address their health goals. It is interesting to note that although the average BMI and weight slightly increased from six to twelve months, the HbA1c continued to decline in that time. This may indicate that clients were maintaining other healthy lifestyle behaviours such as diet, exercise and taking regular medication which continued to improve their HbA1c even with a plateauing or increasing weight.

Screening all clients for the mental health conditions depression and anxiety using the Kessler K10 screen provided an opportunity to enhance access to treatment options when indicated. Better understanding and screening for mental health conditions acts to normalise these concerns within the context of a newly diagnosed health condition, allowing clinician and client to address concerns, building rapport and improving accessibility to services.

Clinicians reported that discussing mental health concerns up front with clients allowed them to refer clients back to the GP as required or promote access to treatment options. Making and maintaining lifestyle changes which improve diabetes control can be more difficult in the presence of mental health conditions, addressing this first may prevent potentially ineffective diabetes treatment.

Comparison of the Kessler K10 scores from initial to 12 months did not quite reveal a statistically significant improvement but there was a trend towards this. General Quality of Life measurements also showed some improvements from initial to 12 months.

It could be surmised that the Healthy Living and Diabetes program assisted clients to come to terms with their diagnosis of diabetes or prediabetes and so lead to an improved mental state after a 12 month period.

Following completion of the program, clients had greater confidence in their ability to manage their health condition and had developed more healthy lifestyle skills. Clients who are confident in self managing their chronic condition are less at risk of complications and hospital admissions.

Clients agreed with the statements pertaining to an increased ability to self manage their health condition. Clients agreed that their treatment was client centred, utilised effective communication and decision making techniques, and appreciated that they were supported throughout their journey by their key worker and clinicians. Clients were also generally satisfied with the service, potentially improving their confidence to seek health care when needed again in the future.

Improved capacity of workers and improved worker satisfaction was a key to success. Ownership and engagement by the health care team, reflective practice and successful implementation of new skills led to a more cohesive and effective program.

CONCLUSIONS

The results of the evaluation have shown significant positive changes for clients, staff, service provision and processes. These have resulted in a more effective and engaging service, better health outcomes, and a more satisfied team.

With a Type 2 Diabetes epidemic and increasing need to reorient services to cope with demand, Yarra Valley Community Health believe we have developed an effective and creative model of care for early intervention of Type 2 Diabetes and Prediabetes in a Community Health setting.

IMPLICATIONS FOR PRACTICE

- ☑ Early intervention in chronic disease
- ☑ Better skills to self manage
- ☑ Clients supported with their health goals
- ☑ Sustained improvements in health
- ☑ Happy clients, happy staff

> "The program covers everything and it was my personal problems which made me unable to reach my goals."
>
> *Participant*

> "Lovely and very helpful staff, an excellent service provided by all."
>
> *Participant*

LIMITATION

There was no control group in this study, all suitable clients were offered the program. The range of interventions offered means that no one intervention can be assessed, or the relative success of different interventions not able to be separated.

There was a drop out rate of 42% over the year and the research did not determine the reason for drop out.

It is likely that this high drop out rate led to some degree of response bias, where those who were satisfied with the program were more likely to be those who continued.

Finally, diabetes is a long term condition; the 12 month follow up period provides a good indication of the short to medium term impact of the program, but leaves some questions unanswered regarding long term clinical diabetes status.

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