An evaluation of

Take Control of Your Diabetes

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Karakia

Tutawa mai i runga

Tutawa mai i raro

Tutawa mai i roto

Tutawa mai i waho

Kia tau ai

Te mauri tū

Te mauri ora

Ki te katoa

Haumi e

Hui e

Tāiki e

Come forth from above, below, within, and from the environment

Vitality and wellbeing for all

Strengthened in unity

CONTENTS

EXECUTIVE SUMMARY

Background

Type 2 diabetes is a significant contributor to morbidity and mortality in New Zealand. WellSouth supports people with diabetes in Southern, in line with The Quality Standards for Diabetes Care (2020), to "receive high-quality, structured self-education that is tailored to their individual needs." This is particularly relevant for Māori and Pacific Peoples who are more likely to experience living with diabetes and to experience complications from diabetes than non-Māori, non-Pacific people. Historically, WellSouth delivered DESMOND as the diabetes education programme for the Southern region. However, DESMOND was costly, inflexible, and not tailored to Aotearoa's unique context. This led WellSouth to develop Take Control of Your Diabetes (TCOYD). TCOYD is a 2-hour peer-group workshop, delivered in a community setting, that provides information and advice to people with diabetes.

Evaluation Methodology

A mixed-methods formative impact evaluation was developed to answer key questions related to who is accessing TCOYD, changes in consumers' perceptions of diabetes following TCOYD, and consumer experience, particularly Māori and Pasifika consumers. The evaluation utilises descriptive statistics to describe the populations accessing TCOYD and non-parametric tests to determine statistical differences between baseline, post-TCOYD, and 3-month follow-up Brief-Illness Perception Questionnaires (B-IPQ). Qualitative interviews were undertaken with consumers, prioritising Māori and Pacific Peoples' voices where possible, and analysed using inductive thematic analysis.

Evaluation Findings

Access to TCOYD

A key measure of the success of TCOYD, given the inequitable distribution of diabetes amongst the non-NZ European population, and WellSouth's commitment to equity, is equitable attendance among priority populations and those from areas of socioeconomic deprivation. Referral rates to TCOYD for Māori and Pacific Peoples were greater than for NZ Europeans, however, this did not translate into correspondingly high attendance rates. This likely reflects the higher rates of decline or unable to attend on the day for Māori and Pacific Peoples, which were 3.0 and 3.4 times higher, respectively, than for NZ Europeans. Asian and MELAA populations' attendance rates were lower than NZ Europeans, and these populations also experienced higher rates of decline or were unable to attend on the day. The majority of referrals (85%) came from general practice, indicating that a barrier to attendance may exist for those not engaged in primary care.

Perceptions of diabetes

TCOYD does appear to improve consumers' perception of coherence (understanding) relating to their diabetes, with women benefiting significantly more than men. The personal control domain, associated with perceptions of diabetes self-management, showed no evidence of significant change immediately post-TCOYD. However, 3-month follow-up data suggest TCOYD may influence

perceptions of personal control over a longer period. Analysis by ethnicity was not possible to conduct due to the small sample size of Māori and Pasifika consumers who attended and completed the B-IPQ.

Experience of consumers

All consumers interviewed had a positive experience during TCOYD, and since the session had made small but meaningful changes to their lifestyle. Consumers valued the responsive referral process, session length, convenience to public transport, and the facilitator's clinical background. Consumers highlighted areas for improvement, such as a desire for more New Zealand specific content, with greater focus on how diabetes affects Māori and Pacific Peoples. Facilitators with lived experience of diabetes and different cultural worldviews would strengthen TCOYD. While those interviewed raised no specific cultural concerns, observation and incidental interview findings highlighted the predominantly Pākehā cultural worldview through which TCOYD was delivered.

Key Recommendations

The TCOYD team should consider how TCOYD can be improved to better meet the needs of priority populations and those who experience socioeconomic deprivation.

Some of the opportunities to support this key recommendation are summarised below.

- Engage with the Māori and Pacific Providers in Southern to co-design a TCOYD service for the communities served by these providers.

- Integrate both cultural expertise and lived experience of diabetes into the programme moving forward, given the feedback of consumers.

- Develop more New Zealand-specific content. Feedback focused on content for Māori and Pacific Peoples, however, Asian and MELAA populations would also likely benefit from tailored content.

- Support staff, through training, to deliver a high-quality and culturally appropriate service.

- Reduce the rate of decline or were unable to attend on the day for priority populations.

Conclusion

TCOYD has the foundations to be an effective diabetes education programme. However, only those Māori, Pacific Peoples, and other non-NZ European populations who are engaged with a general practice, can navigate barriers to attendance, and are comfortable engaging in a predominantly Pākehā worldview, are likely to access TCOYD. Priority populations were more likely to experience increased rates of decline or be unable to attend, suggesting these populations are experiencing barriers to attendance at TCOYD. Access to TCOYD for priority populations is likely affected by factors including transport barriers, current engagement with general practice, and the uncertainty of entering an unknown and predominantly Pākehā service. Strengthening cultural responsiveness and accessibility is essential for TCOYD to meet the needs of priority populations.

BACKGROUND

Take Control of Your Diabetes

Take Control of Your Diabetes (TCOYD) is an education and self-management support programme for people with type-2 diabetes and pre-diabetes. Type 2 diabetes, hereafter referred to as diabetes, is a significant contributor to morbidity and mortality in New Zealand[1]. WellSouth, the primary health organisation (PHO) for Otago and Southland (Southern), developed TCOYD. TCOYD is a 2-hour peer-group workshop, delivered in a local community setting, that provides information and advice regarding diabetes. WellSouth developed TCOYD to meet the requirements of The Quality Standards for Diabetes Care (2020)[2], in particular, quality standard 1, which states;

> **"People with diabetes should receive high quality, structured self-education that is tailored to their individual needs. They and their families/whānau should be informed of, and provided with, support services and resources that are appropriate and locally available."**

Kōrero during TCOYD centres on what diabetes is, the signs and symptoms of diabetes, and potential complications from poorly controlled diabetes. Attendees are given advice and support regarding nutrition, physical activity, smoking cessation, medication use, goal setting, and where best to seek further support. Given that Māori and Pacific Peoples are more likely to experience living with diabetes, and to experience complications from diabetes, than non-Māori, non-Pacific people[3], TCOYD should meaningfully engage and support Māori and Pacific Peoples with diabetes in Southern. It is important to note the systemic and underlying causes of variation in diabetes prevalence and outcome, including colonisation, experiences of racism, differential access to the social determinants of health, varying access to healthcare, and variation in the quality of care received[4].

The need for evaluation

Prior to TCOYD, WellSouth delivered a diabetes education programme designed in the United Kingdom called DESMOND. DESMOND is a six-hour, peer-group workshop, delivered in one day and facilitated by two DESMOND-certified educators. Feedback regarding DESMOND highlighted the need for a more flexible and less time-intensive approach. WellSouth's leadership also recognised that DESMOND didn't originate within New Zealand, and therefore DESMOND was unlikely to account for the unique context of Aotearoa. This feedback, coupled with the significant costs associated with maintaining DESMOND-certified staff, led WellSouth to no longer offer DESMOND. Developing a new programme provided WellSouth with an opportunity to ensure diabetes education was delivered in line with WellSouth's commitments to Te Tiriti o Waitangi, equity, and meeting the needs of priority populations in Southern. This evaluation was requested to determine the effectiveness of TCOYD as a diabetes education programme and whether the impacts of TCOYD were experienced equitably.

EVALUATION METHODOLOGY

Key evaluation questions

To support the evaluation, three key evaluation questions (KEQs) were identified.

1. Who has accessed the TCOYD programme?
2. Has TCOYD modified consumers' perceptions of diabetes, particularly by increasing knowledge about diabetes and the ability to self-manage diabetes?
3. What was the experience of attending TCOYD, particularly for Māori and Pacific consumers?

A mixed-methods formative impact evaluation has been developed to answer these key evaluation questions.

Data collection and analysis

Data collection

Data collection approaches varied in response to each of the KEQs. Regarding access to TCOYD, data was collected by a WellSouth administrator who was responsible for managing referrals, contacting consumers, and coordinating TCOYD logistics. The administrator maintained a register of referrals using Microsoft Excel and recorded data on consumer demographics and attendance.

The Brief-Illness Perception Questionnaire (B-IPQ) was used to collect data on consumers' perceptions of diabetes. The B-IPQ is a validated scale designed to measure an individual's perception of their illness[5]. People use illness perceptions to identify appropriate behaviours to manage their illness. Perceptions may be modified through increased knowledge and awareness of an illness. The B-IPQ has 8 questions and uses a 0 to 10 response scale. The IPQ has been used previously in the New Zealand setting[6], with Māori[7] and Pacific[8] populations within New Zealand, and with people living with diabetes within New Zealand[9].

Finally, a sample of consumers who attended TCOYD were interviewed. Recognising the need to understand the experiences of Māori and Pacific consumers in particular, priority was given to interviewing Māori and Pacific consumers. Of the five consumers interviewed, one was Māori, two were Pacific Peoples, and two were NZ Europeans. To supplement the findings, an interview with the Māori health provider Uruuruwhenua Hauora was also undertaken, given that Uruuruwhenua staff were present at a TCOYD session. Findings are further supported by the lead evaluator's observation of two TCOYD sessions.

Participants

People are eligible for TCOYD if they have a diagnosis of pre-diabetes or type-2 diabetes, are aged 18 or over, and normally reside in the Southern region. Referral to TCOYD can occur through various channels, including general practice, community provider, or self-referral. All consumers who indicated they would attend TCOYD were sent a B-IPQ survey via post prior to attending. This survey included instructions, a baseline survey (to be completed before attending), and a post-survey (to be completed immediately after the session). Baseline and post-surveys were identical. The surveys were stapled together, meaning results were paired. There was no obligation for consumers to complete any survey. The completed B-IPQ was then collected by the clinician leading the session and returned to the evaluation team. An identical follow-up survey was sent by post, along with a pre-paid envelope, 11 weeks after a consumer completed TCOYD.

Consumers, when completing the B-IPQ survey, could choose to provide contact information for a follow-up interview with the evaluation team regarding their experience of TCOYD. Participants who chose to complete the survey were under no obligation to provide their contact information. Participants who did provide contact information were followed up by the evaluation lead and contacted by telephone. Informed consent was obtained prior to interview. Where possible, interviews were conducted face-to-face and in a location of the participant's choosing. The preference was for interviews to be recorded; however, if interviews were conducted via phone or video conference, detailed notes were taken during the interview.

Data analysis

Descriptive statistics (mean, median, and rates per 1000 enrolled population) were used to analyse TCOYD referral data. B-IPQ surveys were collated and analysed using non-parametric statistical tests to determine if statistically significant differences, i.e. differences that likely did not occur by chance, exist between B-IPQ surveys. A Wilcoxon signed-rank test was used to analyse the paired baseline- and immediately post-TCOYD B-IPQ survey[10]. The 3-month follow-up surveys were analysed alongside the baseline and post-TCOYD results, using a Kruskal-Wallis test. Prior to undertaking the non-parametric statistical tests, assumptions were tested and verified. Analyses were undertaken in R version 4.4.0. Where qualitative interviews were recorded, the recordings were transcribed. Transcribed interviews and detailed notes of interviews were analysed using reflexive inductive thematic analysis[11].

Strengths and limitations

A strength of this evaluation is the 51% (n = 70) response rate for the B-IPQ baseline and post-survey. Alongside the B-IPQ, the depth of data collected by the TCOYD administrator is a further strength. Small numbers of non-NZ European ethnicities attended TCOYD, making comparison of B-IPQ results by ethnicity challenging, given the limitations of using statistical tests with small sample sizes. This also made exploring the experiences of non-NZ European consumers challenging, and data saturation through interviews was not reached. The evaluation team, in an attempt to overcome this, supplemented consumer interviews with the Māori Community Provider Uruuruwhenua Hauora and two observations of TCOYD sessions.

The evaluation team is cognisant that the Pākehā perspective from which data was collected may have restricted the extent to which some participants felt able to discuss cultural values and concepts. Recognising the influence the evaluation team may have had on the interpretation of findings, cultural peer reviews were undertaken by WellSouth's Māori and Pacific Clinical Advisors. Selection bias is present in this evaluation, meaning the views of those who did not attend TCOYD are not incorporated into the findings, and those who are included may not be representative of the wider population of people with diabetes.

EVALUATION FINDINGS

The evaluation findings are presented in alignment with the three key evaluation questions.

Access to TCOYD

Between February 2019 and November 2024, WellSouth received 265 referrals for consumers requiring further diabetes education. The extended referral time range is due to a backlog caused by Covid-19 referrals remaining on the waiting list. Of the 265 referrals, 258 were accepted by WellSouth. At the time of analysis, 222 referrals had either attended TCOYD, declined TCOYD when contacted after referral, or indicated they would attend but were unable to attend on the day. There were 36 referrals still awaiting placement in a TCOYD session. The majority of referrals (85%) came from general practice, with the remaining 15% split across referrals from community organisations, WellSouth staff, and self-referral. No referrals came from Māori or Pacific Community Providers.

Results are presented in Table 1, and the discussions below are stratified by key areas of interest: ethnicity, deprivation, and gender.

Ethnicity

When referral rates per 1000 enrolled population were calculated, Māori and Pacific Peoples rates were 1.6 and 1.7 times higher, respectively, than NZ Europeans. Referral rates for Asian and MELAA populations were lower than NZ Europeans, and NZ Europeans accounted for 72% of total referrals. Attendance rates per 1000 for Māori and Pacific Peoples remained higher than for NZ Europeans, however, the rates reduced to 1.3 and 1.1 times greater than the NZ European rate, respectively. A substantial difference between referral and attendance rates for Māori and Pacific Peoples exists. This can likely be attributed to the markedly higher rates of decline or unable to attend on the day for Māori and Pacific Peoples, which are 3.0 and 3.4 times higher, respectively, than NZ Europeans. Attendance rates for Asian and MELAA populations were lower than for NZ Europeans, with correspondingly higher rates of decline or unable to attend on the day.

Deprivation

Referral rates per 1000 are reasonably consistent across all deprivation quintiles. However, a notable difference emerges in the rates of attendance, with quintile 1(Q1) to quintile 4 (Q4) attendance rates (range: 8.3 – 9.8) higher than the quintile 5 (Q5) (most socioeconomically deprived) attendance rate (6.9). Again, this disparity in attendance rates corresponds to higher rates of decline or unable to attend for those from areas of highest deprivation (Q5), who were 2.7 times more likely to decline or be unable to attend on the day than those from the area of lowest deprivation (Q1).

Gender

Referral rates per 1000 for females (20.4) were slightly higher than for males (18.3), a trend that continues for attendance rates, with a female attendance rate of 11.2 and males at 9.1 per 1000.

Although males comprised 54% of all declines or were unable to attend on the day, when calculated as rates per 1000, females had a slightly higher (6.3) rate than males (5.9).

Table 1. Referrals, attendance, and decline/unable to attend rates per 1000, total numbers, and percentages of total, for TCOYD.

	Referred Rate per 1000 (n, %)	**Attended** Rate per 1000 (n, %)	**Declined/Unable** Rate per 1000 (n, %)
Ethnicity			
Māori	29.3 (38, 14%)	13.1 (17, 12%)	13.9 (18, 21%)
Pacific Peoples	31.1 (20, 8%)	10.9 (7, 5%)	15.5 (10, 12%)
Asian Peoples	15.2 (16, 6%)	7.6 (8, 6%)	5.7 (6, 7%)
MELAA	8.8 (1, <1%)	0.0 (0, 0%)	8.8 (1, 1%)
NZ European	17.9 (190, 72%)	10.0 (106, 77%)	4.6 (49, 58%)
NZDep2018*			
Quintile 1	14.7 (35, 16%)	9.7 (23, 19%)	2.1 (5, 8%)
Quintile 2	19.5 (52, 23%)	8.3 (22, 18%)	7.1 (19, 29%)
Quintile 3	16.9 (43, 19%)	9.8 (25, 21%)	5.1 (13, 20%)
Quintile 4	14.8 (51, 23%)	9.6 (33, 27%)	3.8 (13, 20%)
Quintile 5	15.3 (40, 18%)	6.9 (18, 15%)	5.7 (15, 23%)
Gender			
Female	20.4 (126, 48%)	11.2 (69, 50%)	6.3 (39, 46%)
Male	18.3 (139, 52%)	9.1 (69, 50%)	5.9 (45, 54%)

*Some referrals were not enrolled with a primary care provider, meaning determining their quintile of residence was not possible. Therefore, the total for NZDep 2018 is not equal to the total number of referrals.

Brief-Illness Perception Questionnaire

The B-IPQ assess illness perceptions[5]. Illness perceptions refer to the personal ideas, theories, and interpretations an individual has regarding their illness, in this case, diabetes. Evidence exists that through modifying an individual's perception of their illness, behaviours associated with managing their illness may change[12]. There are 8 items within the B-IPQ, translating to 8 different aspects of illness perception. These aspects are consequence, timeline, personal control, treatment control, identity, concern, coherence (understanding), and emotional response. A summary of each aspect is presented in Appendix 1, Table 1. Key domains of interest for the TCOYD team were coherence (understanding) and personal control.

Baseline and post-TCOYD analysis

A total of 70 people completed both the baseline and post-TCOYD B-IPQ. A breakdown of the characteristics of respondents is provided in Appendix 1, Table 2. Results of the baseline and post-B-IPQ can be found in Figure 1. The key finding from this analysis is that attendees at TCOYD had statistically significantly increased coherence (understanding) of their diabetes after TCOYD. The effect size was relatively large (1.5, p = < 0.001), equivalent to a 26.5% increase in coherence (understanding) from baseline to post-TCOYD. Other changes included a decrease in the timeline domain (-0.44, -5%, p = 0.006) and an increase in negative emotions regarding their diabetes following

TCOYD (0.51, 15.6%, p = 0.036). The remaining domains, consequence, personal control, identity, treatment control and concern showed no evidence of significant change following TCOYD.

These results suggest that TCOYD did increase respondents' understanding of diabetes. However, there were some unexpected results, such as a reduction in respondents' perceived duration of their diabetes following TCOYD. This is unexpected as diabetes is a chronic condition and requires management throughout an individual's life[17]. Respondents also perceived increased negative emotions about their diabetes following TCOYD. No change in perceptions of personal control is discouraging, given that high scores in this domain reflect a sense of control and management over the condition.

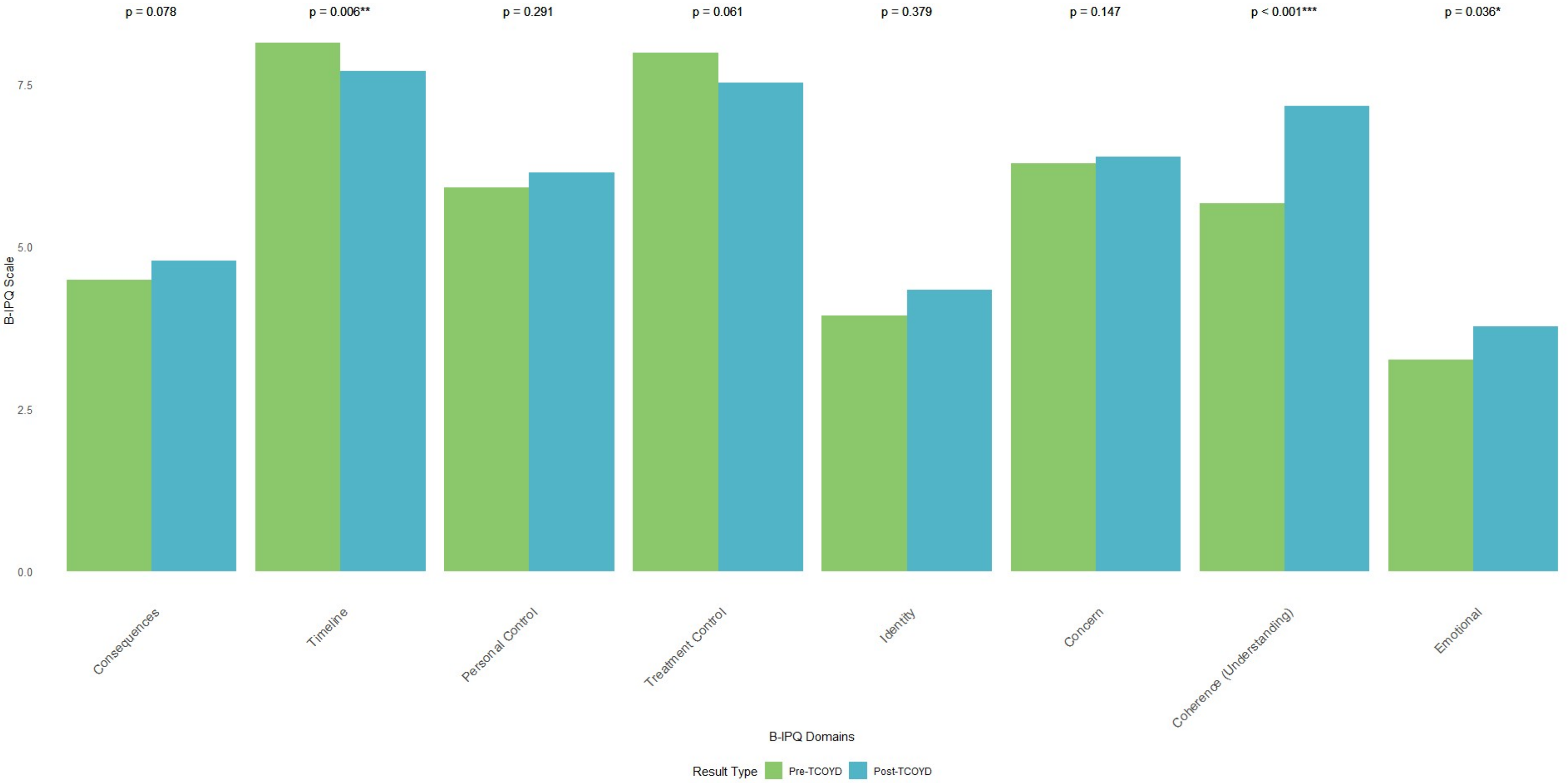
Sub-analyses were undertaken to determine if B-IPQ results differed by certain characteristics such as ethnicity or gender. Statistical analysis by ethnicity was not possible due to the small numbers of non-NZ Europeans (13), compared to NZ Europeans (57), who completed the B-IPQ. However, some trends in the difference between baseline and post-TCOYD B-IPQ results, for NZ European and non-NZ European, are notable. Reductions in perceptions of treatment control were greater in non-NZ Europeans (-15%) than NZ Europeans (-4%). Both NZ Europeans (+23%) and non-NZ Europeans (+46%) experienced increases in coherence (understanding) following TCOYD, however, the percentage increase is notably greater in the non-NZ European cohort. Finally, NZ Europeans (+21%) experienced a greater increase in emotional response following TCOYD, compared to non-NZ Europeans (+2%). Interpreting these results should be done with caution, given the small sample.

Statistical analysis by gender was possible, and results are presented in Appendix 1, Figure 1. Both men (0.6, 9.6%, p = 0.268) and women (2.3, 46.1%, p = < 0.001) experienced increased coherence (understanding) following TCOYD, however, the result for men was non-significant and substantially less (9.6%) compared to women (46.1%). No results for men were statistically significant, and the only notable change was an increase in emotional response (0.58, 23.6%, p = 0.099). Alongside the increase in coherence (understanding), women experienced statistically significant changes in timeline and treatment control. Sub-analyses suggest that TCOYD is likely not increasing men's understanding of diabetes and may be contributing to increased negative emotions regarding their diabetes. For women, TCOYD is increasing their understanding significantly. TCOYD may also lead women to perceive that their diabetes will not persist for as long, which is incorrect[17], and to perceive that diabetes treatments are less effective, following TCOYD.

3-month follow-up

A total of 24 consumers responded to the 3-month follow-up B-IPQ survey. It is disappointing that 23 of those respondents were NZ European, while the remaining consumer was Māori. Results, as found in Appendix 1, Figure 2, show a significant change in coherence (understanding) when the baseline (5.66), post-TCOYD (7.16) and 3-month follow-up (6.93) B-IPQ surveys were analysed. It appears that respondents' understanding of diabetes has increased and has been maintained 3 months after the session. Other, non-significant, trends include an increase in the timeline domain after 3 months, meaning the follow-up result (8.40) was higher than the post-TCOYD (7.70) and the baseline (8.13) results. This result is more in line with existing evidence regarding the duration of diabetes[17]. A positive trend was also observed in the personal control domain, with small increases between baseline and post-TCOYD (+ 3.7%), and again between post-TCOYD and 3-month follow-up (+10.6%). While these changes are non-significant, they show an important trend of increasing personal control extending beyond the TCOYD session directly. Changes in emotional response appear to be stable, meaning after 3 months, respondents are still more emotionally affected by their diabetes after TCOYD than they were before TCOYD. Interpretation of these results should be done cautiously, given the small sample size of the follow-up cohort.

Figure 1. Results from the baseline and post-TCOYD B-IPQ.



Experiences of consumers

Five consumers who had attended TCOYD were interviewed. Of the consumers interviewed, one was Māori, two were Pacific Peoples, and two were NZ Europeans, with a mix of consumers from rural and urban areas. All interviewees were referred by their general practice to TCOYD. Māori health provider Uruuruwhenua Hauora was also interviewed, and two TCOYD sessions were observed by the lead evaluator. Six key themes were identified through qualitative interviewing and observation, that are presented below.

A desire to know more

In general, prior to attending TCOYD, people felt “disappointed” by the limited diabetes education they had received and felt they “were slipping through the cracks”. Information at the point of diagnosis was described “as pretty much nothing”. Feeling “confused” about diabetes, particularly medications, was often discussed, with one person describing the experience of being prescribed medications as if the “doctor threw tablets at me”. There was a strong desire amongst participants to “know more about diabetes” and people expressed how “interested”, “motivated”, and “keen” they were to build their knowledge of diabetes. In fact, most participants had directly asked their primary care provider for more information about diabetes, leading to a TCOYD referral. Participants described TCOYD as “an introductory session” to ensure all participants understood the basics, and they expressed a desire for this basic knowledge to be built upon in the future.

> “*I think it's about myself... to be healthy, and, you know, I have to find a way to listen to these things and educate myself*”

Access(ibility)

When the initial referral to TCOYD was sent, “expectations were low”, given previous experiences of referrals within the health system. However, all participants spoke positively about the initial contact experience and how quickly and efficiently they were contacted by WellSouth. Some participants had been referred to diabetes education programmes in the past but found them inaccessible as “it was a whole day”. The shorter TCOYD session was seen as more accessible and realistic, particularly for those with physical limitations. Transport and location were key enablers for access to TCOYD, with one participant stating, “If there’s no transport, how can I get there?” Many participants “didn’t drive” and had to “get buses” but appreciated the sessions were “in good locations” and generally close to public transport. In more rural areas, whānau support helped to facilitate access, and whānau often “came along” to drive and support the attendee.

> “*a big group always makes me nervous*”

Some participants felt nervous before the session, particularly when entering an unfamiliar group setting. These participants were unsure “what to expect” and were worried about feeling “a little bit lost”. Considering the accessibility of resources, there was recognition that, for some people, resources were in a second language. However, people generally felt they could “follow it” and highlighted the importance of pictures and diagrams to aid understanding. Counter to this, Uruuruwhenua felt there was “a lot of information” and for some people, the resources were potentially overwhelming.

Cultural appropriateness of TCOYD

Participants commented that the content could have explored different cultures within Aotearoa more, with one participant noting “there’s not really a lot of information as to how it [diabetes] works for Māori and Pacific people” and a further participant suggesting that exploring how diabetes affects Māori and Pacific people “would have been interesting”. There was recognition that the content felt “quite geared up for more overseas”, and more New Zealand-specific content would be appreciated. Uruuruwhenua also noted a lack of New Zealand-specific content and felt it may “put people off”. During observation of a TCOYD session, it was noted that one individual objected to the use of Karakia. In a follow-up interview with this individual, they felt that the use of an opening and closing Karakia was “excessive” and that te ao Māori was “being shoved down people’s throats”. While the facilitator managed the individual’s objections well, articulating a clear position that is endorsed by WellSouth as to why Karakia is important may help others, who find value in Karakia, to feel supported within the group.

> “*There’s not really a lot of information as to how it works for Māori and Pacific People*”

Opportunities to improve TCOYD

During observation of a TCOYD session, a consumer raised a question regarding the “affordability of healthy foods”. The group consensus was that healthy foods were unaffordable and, therefore, unrealistic expectations were being placed on them. This exchange highlighted an opportunity to improve how nutrition is discussed in TCOYD, particularly given the socioeconomic barriers associated with good nutrition present in communities. Pacific Peoples predominantly attended this session, and this exchange highlighted a lack of cultural knowledge regarding the foods Pacific Peoples eat, as well as the realities of being Pasifika.

> “*Most of the time I’ve found that whenever they go on about healthy eating, it’s really expensive shit, most people can’t afford that*”

Uruuruwhenua reinforced the need for a strengths-based approach to discussions regarding food, and recognised that being “told to eat healthy” is not going to generate change. Instead, there is a need to “meet people where they are”, an approach supported by one participant who had previously experienced a deficit-based approach. There was recognition that what “Māori eat is different to Pākehā”, and therefore, conversations regarding changing food habits need to be made from a culturally informed point of view. Indeed, food is important culturally, and while participants recognised that it was a short session, “some biscuits” or “refreshments” would be appreciated to support whakawhanaungatanga amongst the group.

> “*I hate going...straight into my mind is that it will be "cut down on this, you can't eat this", you know that. And I thought na, na, na, na*”

Participants discussed who was best placed to provide diabetes education, with some participants suggesting that a facilitator or co-facilitator with the same cultural background as them, as well as lived experience of diabetes, would be beneficial. This was supported strongly by Uruuruwhenua, who felt WellSouth needed to “build stronger relationships with Uruuruwhenua and support the development of the kaiāwhina workforce at Uruuruwhenua” as this workforce holds the relationships within their community. Finally, participants identified a desire for more interactive facilitation, with facilitators doing more to support shared discussion and to “keep the conversation going” as that is “gold”. Participants felt facilitators could use questions more effectively to encourage discussion and assess understanding within the group, as “if we're [consumers] not asking questions, that means we're just sitting there doing nothing, you know".

> “*Kaiāwhina empowered with knowledge and access to education*”

Valued aspects of TCOYD

Participants consistently described TCOYD positively, describing it as “really, really good” and noting that their “understanding [of] diabetes has improved massively”. Many reflected on learning “things that I hadn’t known, which is a big bonus”. Participants stated that an important tool in their learning was the “key diagram”, showing the relationship between insulin and glucose. All participants valued the role of the facilitator and discussed how the facilitator made them feel welcome and created a “good vibe in the room”. Facilitators were “easy to talk to”, and “very professional”. Participants felt the facilitator “knew what they were doing”, and the sessions were “well facilitated”. Several consumers noted the importance of the sessions being “science-based” and delivered by an “expert” so “you know it is kosher”. Participants “loved the handouts” and found them to be useful resources. People “appreciated a physical copy”, as they could take them home, share them with whānau, and read in their own time. The content of TCOYD was described as “very easy to understand”, “explained in layman's terms”, and “very simple but very effective”. People appreciated the “face-to-face explanation” and the “chance to ask questions”. For many participants, the “most value was asking questions”, and there was a desire for more interaction, as described previously. Small-sized groups helped to ensure “everyone felt comfortable sharing” and sharing stories, experiences, or anecdotes was seen as reassuring, with people stating it was “nice to hear from others and realise you aren’t crazy”.

> “*I walked away with lots of information and excited about the next workshop*”

> “*Everyone was able to laugh at one another and share experiences*”

Starting to take action

All participants interviewed felt motivated to make changes after the session, and many had implemented small but meaningful changes of lifestyle. These changes included cutting “back on sugar intake, more focus on wholemeal foods, and more greens and veggies”. Participants also expressed increased motivation to exercise and were exploring options such as “the PTO [Pacific

Trust Otago] oldies exercise" group. Goal setting was inconsistent amongst participants, but where goals had been set, they were generally focused on weight loss, with one person losing "2.5kg so far" [3 weeks after session], with a goal of losing 10kg in total.

> *I was looking into it and my goal...so my goal is to get down to 90kg, and I've got to walk in the morning and at night*

Beyond changes to diet and exercise habits, participants felt the session gave them "the confidence and tools" to engage more effectively with their primary care provider. Where they had previously "felt out on a limb" or "guessing all the time", they now felt able to have informed conversations about their diabetes. Several participants had scheduled GP appointments to discuss next steps, including "getting blood taken again" and fitting a continuous glucose monitor. The session may have influenced medication adherence, where previously one individual felt "resentful" about taking medications due to a lack of understanding, they now feel "motivated" to take them.

KEY LEARNINGS

Addressing the evaluation questions

Who has accessed the TCOYD programme?

Previous analyses by WellSouth show that Māori (1.9x), Pacific Peoples (3.9x), Asian (2.2x), and MELAA (1.5x) populations in Southern experience a higher age-standardised prevalence of diabetes compared to NZ Europeans in Southern. Also, a social gradient persists in Southern, with people living in areas of high socioeconomic deprivation (Q5) 2.7 times more likely to experience diabetes than those living in areas of low socioeconomic deprivation (Q1). Given WellSouth's commitment to equity, a key tenet of the success of TCOYD is equitable attendance rates for priority populations and those from areas of socioeconomic deprivation.

In general, most TCOYD attendees were referred by their general practice. No referrals were received from Māori Community Providers or Pacific Community Providers. It should be noted that TCOYD was delivered to Māori and Pacific Community Providers as part of the design and testing process, and it is unclear if a referral system for community providers to refer to TCOYD had been developed and promoted. Qualitative data suggests that those who attended TCOYD were already motivated to make changes and were actively seeking further diabetes education, generally from their primary care provider, resulting in a referral to TCOYD.

Although referral rates for Māori and Pacific Peoples were higher than NZ Europeans, this did not convert into correspondingly high attendance rates. While attendance rates for Māori and Pacific Peoples were comparable to NZ Europeans, they were not equitable given the substantial difference in diabetes prevalence between the two populations. The high decline and unable-to-attend rates for Māori and Pacific Peoples suggest barriers exist for Māori and Pacific Peoples to attend TCOYD. Asian and MELAA ethnicities, despite the increased prevalence of diabetes in these populations, are referred and attend TCOYD at lower rates than NZ Europeans. Similarly, populations living in areas of high socioeconomic deprivation are less likely to attend TCOYD and are more likely to decline or be unable to attend TOCYD than those living in areas of lower socioeconomic deprivation. These findings, along with the lack of referrals from Māori Community Providers or Pacific Community Providers, suggest that TCOYD, as it is currently designed, is not adequately serving the needs of priority populations in Southern.

Has TCOYD modified consumers' perceptions of diabetes, particularly by increasing knowledge about diabetes and the ability to self-manage diabetes?

The B-IPQ results suggest that TCOYD is modifying some perceptions participants hold regarding their diabetes, both in positive and negative ways, and these changes are not being experienced equally. Women showed greater improvements in coherence (understanding) of diabetes than men. This aligns with research investigating the relationship between gender and outcome following diabetes education, which shows women are more likely to achieve lifestyle modification goals than men and demonstrate increased knowledge and self-management behaviours than men[14]. Men may be more likely to increase physical activity following diabetes education[15]. Therefore, novel approaches may be required to support men.

TCOYD consistently increased participants' emotional response to their diabetes. Diabetes distress is common in adults with type-2 diabetes and has been associated with reduced self-care behaviours and elevated HbA1c[13]. Increasing skills to manage diabetes distress, such as emotional regulation, has been shown to improve self-care behaviours and reduce diabetes distress. There may be opportunities to improve TCOYD by incorporating further support regarding emotional regulation. Other observed trends in the results included reductions in consumers' perception of the duration of their diabetes (timeline) and reduced confidence in treatment effectiveness (treatment control) in women. While these results were not key domains of interest, there may be opportunities to improve how diabetes is presented as a chronic condition and how medications are discussed.

A key domain of interest was personal control, reflecting how the individual perceives they can control or manage their illness. Changes between baseline and post-TCOYD were minimal. However, a non-significant increase was observed in the 3-month follow-up data, suggesting perceptions of personal control may take longer to modify. This KEQ specifically focuses on consumers' knowledge and their ability to self-manage diabetes. TCOYD appears to improve knowledge of diabetes, particularly for women. TCOYD may impact aspects of diabetes self-management, such as perceptions of personal control. However, changes in this area may take longer to develop. There are opportunities to enhance TCOYD's impact on emotional regulation, treatment confidence, perceptions of diabetes duration and male engagement.

What was the experience of attending TCOYD, particularly for Māori and Pacific consumers?

All interview participants, including Māori and Pacific consumers, had a positive experience attending TCOYD. Key strengths included a responsive referral process, accessible session length, and sessions at convenient locations near public transport. Participants, despite being somewhat nervous prior to the session, enjoyed the opportunity to share with the group. Consumers valued the facilitator's clinical background and the associated expertise and trust. The content of the session, and in particular the resources, were easy to understand and valued. All interview participants had made at least some small changes following TCOYD, mostly related to diet and exercise. Some participants had also engaged with primary care and stated they felt more empowered and knowledgeable to engage because of TCOYD.

Participants also highlighted areas for improvement. There was a clear desire for more New Zealand-specific content and greater emphasis on how diabetes affects Māori and Pacific Peoples in particular. Participants suggested that alongside clinical expertise, facilitators with lived experience of diabetes and different cultural worldviews would enhance TCOYD. Through observation, this was particularly apparent for discussions regarding food and affordability. While those interviewed raised no specific cultural concerns, observation and incidental interview findings highlighted the predominantly Pākehā cultural worldview through which TCOYD was delivered.

Indeed, those who were interviewed may be adept at cultural code-switching and/or feel comfortable in a Pākehā environment. However, there is a cohort of consumers who are Māori, Pacific Peoples, or from other non-NZ European populations who may not feel comfortable in a Pākehā environment, may not be engaged with general practice (as the dominant referral pathway), and may experience barriers to accessing diabetes education elsewhere. These barriers likely exist alongside other common barriers, such as transport. This cohort of consumers may be at elevated risk of experiencing inequity and may be a contributing factor for the high decline and unable to attend rates found in non-NZ European rates.

Other diabetes support programmes, such as Mana Tū, designed by the National Hauora Coalition, are available within Aotearoa New Zealand[16]. Evaluation of the Mana Tū programme highlighted understanding of sociocultural lived experience and a collectivist whānau approach, centred on cultural values, as key factors to the success of Mana Tū. This suggests that to meaningfully engage with Māori and Pacific communities, particularly those who are at risk of experiencing inequity, approaches led, delivered, and/or supported by leaders within Māori and Pacific communities must be developed. TCOYD has the foundations to be an effective diabetes education programme. However, only those Māori, Pacific Peoples, and other non-NZ European populations who are engaged with a general practice, can navigate barriers to attendance, and are comfortable engaging in a predominantly Pākehā worldview, are likely to access TCOYD.

Summary of key learnings

- TCOYD attendance rates are not equitable for priority populations in Southern, including those from areas of high socioeconomic deprivation. Priority populations are also more likely to experience increased rates of decline or be unable to attend, suggesting these populations are experiencing barriers to attendance at TCOYD.

- TCOYD does appear to improve consumers' perceptions of understanding related to diabetes, however, these improvements are not distributed equally, with women experiencing much greater increases than men.

- TCOYD may be leading to a small, yet positive, impact on perceptions of personal control. It appears this domain may require a longer timeframe for modification.

- While not a key domain of interest, it is noteworthy that consumers appear to perceive an increased negative emotional response to their diabetes following TCOYD.

- Lived experience of diabetes, incorporating different cultural viewpoints, more New Zealand-specific content, a strengths-based and culturally informed approach to discussions regarding food, and more interactive facilitation were potential TCOYD improvements suggested by consumers.

- Access to TCOYD for priority populations is likely affected by factors including transport barriers, current engagement with general practice, and the uncertainty of entering an unknown and predominantly Pākehā service.

Recommendations

Based on the findings of this evaluation, the key recommendation is:

The TCOYD team should consider how TCOYD can be improved to better meet the needs of priority populations and those who experience socioeconomic deprivation.

No single approach will achieve this recommendation. Given the diverse populations requiring support, a flexible approach is paramount. This report includes a range of opportunities, identified through feedback from both consumers and providers, that can guide the development of a diabetes education service that meets the needs of priority populations. These opportunities are summarised as recommendations below.

- Engage with the Māori and Pacific Providers in Southern to co-design a TCOYD service for the communities served by these providers. The TCOYD team has already started this engagement process.

- Integrate both cultural expertise and lived experience of diabetes into the programme moving forward, given the feedback of consumers.

- Develop more New Zealand-specific content. Feedback focused on content for Māori and Pacific Peoples, however, Asian and MELAA populations would also likely benefit from tailored content.

- Support staff, through training, to deliver a high-quality and culturally appropriate service. Areas of focus include strengths-based and culturally appropriate approaches to conversations regarding food and ensuring facilitators are trained to deliver an interactive session, with a focus on sharing amongst the peer group.

- Reduce the rate of decline or were unable to attend. Efforts to reduce decline or unable to attend rates must be strengths-based and recognise that it is the service's responsibility to reduce barriers to attendance.

- Trial and evaluate a novel approach for men, given that TCOYD appears to be less effective for men.

- Ensure attendees are provided with choices of emotional or mental health supports, such as Access and Choice (Tōku Oranga). This may help to improve emotional regulation and reduce diabetes distress.

- Consider appropriate spaces to promote the service beyond the general practice setting, given that the majority of referrals come from general practice.

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APPENDICES

Appendix 1

Table 1. Summary of the B-IPQ domains. Adapted from (Broadbent, 2006)[5].

B-IPQ Domain	**Summary**
Consequence	Assesses the perceived impact of the illness on a person's life (e.g., physical, emotional, and social consequences). High scores indicate a belief that the illness has severe consequences.
Timeline	Measures how long the individual perceives the illness will last (acute, chronic, or cyclical). High scores suggest the belief that the illness is long-term.
Personal control	Evaluates the extent to which the individual feels they can control or manage their illness. High scores reflect a strong sense of personal control over the condition.
Treatment control	Examines the belief in the effectiveness of medical treatments or interventions in managing the illness. High scores indicate confidence in treatment efficacy.
Identity	Captures the number and severity of symptoms the individual associates with the illness. High scores suggest a strong symptom attribution to the illness.
Concern	Reflects the level of worry or concern the individual has about the illness. High scores indicate significant concern about the condition.
Coherence (understanding)	Measures how well the individual feels they understand their illness. High scores suggest a strong understanding of the condition.
Emotional response	Evaluates the emotional impact of the illness, such as feelings of fear, anxiety, or distress. High scores indicate a strong emotional response to the illness.

Table 2. Summary of demographics of respondents to pre- and immediately post-B-IPQ surveys.

TLA	**n (%)**	**Ethnicity**	**n (%)**	**Age Range**	**n (%)**	**Gender**	**n (%)**
Cromwell	11 (16%)	Māori	5 (7%)	25 – 44	7 (10%)	Female	37 (53%)
Dunedin	25 (35%)	Pacific Peoples	5 (7%)	45 – 64	26 (37%)	Male	28 (40%)
Invercargill	4 (6%)	Asian	3 (4%)	65+	33 (47%)	Unknown	5 (7%)
Lumsden	10 (14%)	NZ European	57 (82%)	Unknown	4 (6%)		
Oamaru	14 (20%)						
Otautau	6 (9%)						

Figure 1. Results from the baseline and post-TCOYD B-IPQ, broken down by gender.

that high scores in this domain reflect a sense of control and management over the condition.

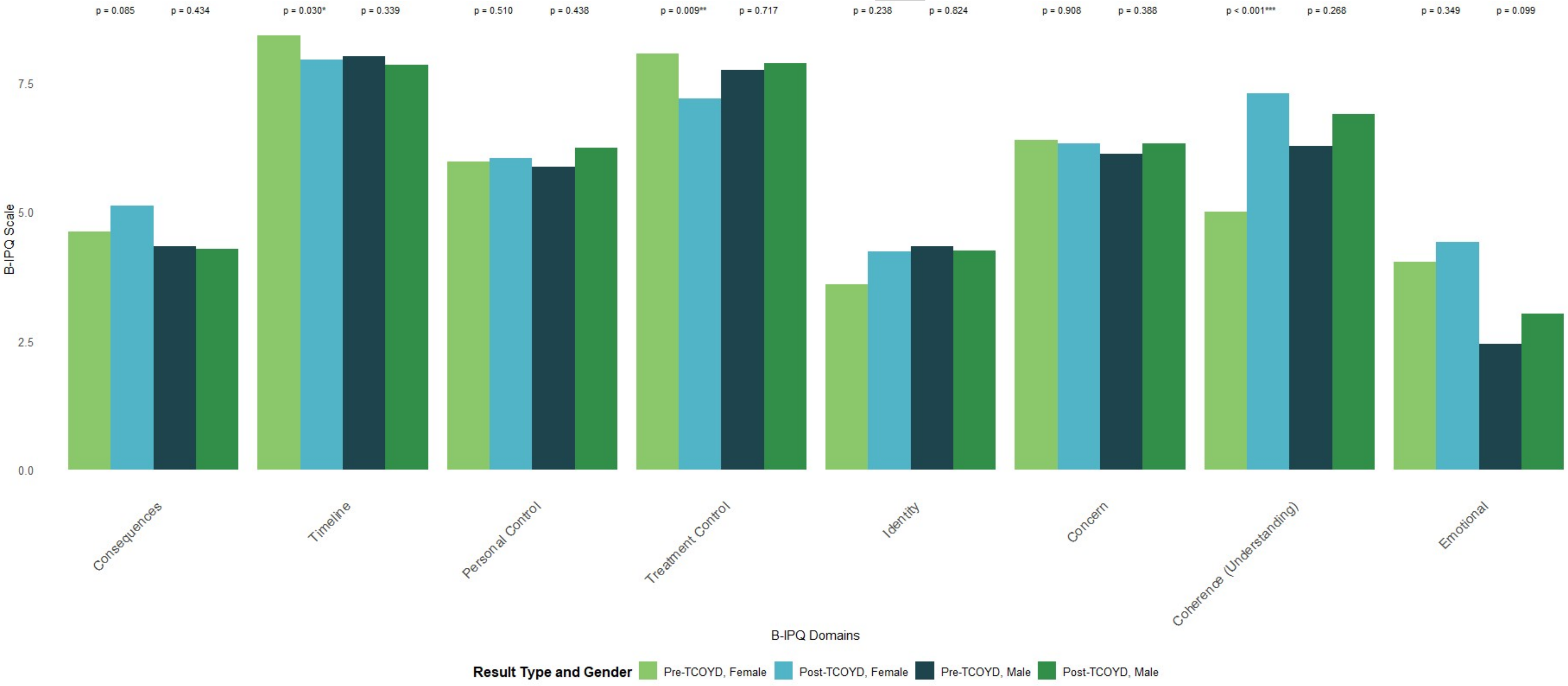

Figure 2. Results from the baseline, post-TCOYD, and 3-month follow-up B-IPQ.