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RESEARCH ARTICLE

Adults living with type 2 diabetes experiences of a randomised adapted diabetes nutrition education programme: a qualitative process evaluation

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Aim: The purpose of this study was to investigate how a randomised controlled trial (RCT) of an adapted diabetes nutrition education programme (NEP) was received by adults with sub-optimally controlled (HbA1c of ≥ 8%) type 2 diabetes in a tertiary setting. This could aid in understanding the small effect of NEP on HbA1c and other outcomes and the high attrition rate.
Methods: This qualitative study was done alongside the year-long RCT. In the RCT, intervention participants received four NEP components, and both intervention and control group participants received education materials (fridge/wall poster). Five focus-group discussions were held with the intervention group participants at two time periods: after they completed the NEP curriculum (7th month) ($n = 26$; 67% of randomised participants [RP](and at the end of the study (12 months) [$n = 24$; 61.5% RP). Nineteen (50% RP) control group participants were individually interviewed at the end of the study. Data were analysed using a thematic framework.
Results: All participants (control and intervention) reported high satisfaction with the NEP. Participants emphasised the value of the fridge/wall poster for themselves and their families. Participants (control and intervention) reported various benefits of the NEP: improved diabetes knowledge, skills in dietary self-care, family support for self-care, better health and motivation for appropriate self-care. Some participants also reported positive changes to their diet and physical activity behaviours. The perceived benefits were the main reason for completing the study.
Conclusions: Irrespective of the arm of participation, the NEP was well received, and perceived benefits inspired participation. The limited NEP impact and the sub-optimal programme participation do not appear to be related to participants' perceptions of the adapted NEP.

Keywords: participants experience, perceptions, process evaluation, randomised adapted nutrition education programme, South Africa, type 2 diabetes

Introduction

Lifestyle modification with or without medication is the foundation for diabetes management.[1] Alongside lifestyle changes such as dietary modifications, physical activity, moderation of alcohol consumption and smoking cessation, people living with diabetes may have to perform other self-care activities such as self-monitoring of blood glucose to ensure glycaemic control.[2] Self-management education is thus critical for self-management.[3]

Diabetes self-management education (DSME) is known to promote self-care, and to improve behaviour mediators, glycaemic control and quality of life.[3,4] Randomised controlled trials (RCTs) have shown that DSME interventions targeting diet and exercise improve health outcomes, including glycaemic control and cardiovascular risks, in people with type 2 diabetes (T2DM).[5–7] Dietary focused DSME, in particular, has been shown to improve behaviour mediators[8,9] and dietary behaviours.[8] It was against this backdrop, and the fact that dietary self-care is cited among the most difficult self-care areas,[10] that a structured diabetes nutrition education programme (NEP) was adapted for implementation at a tertiary healthcare setting in South Africa.[11] This NEP aimed to meet the need for structured DSME programmes in South Africa, particularly in tertiary healthcare.[12]

We implemented the adapted NEP using an RCT design, and the outcomes have been reported elsewhere.[13] Alongside the RCT, we conducted process evaluations as recommended.[14] Process evaluations help to explain whether an intervention was implemented as intended and for whom, as well as how and why an intervention had a particular impact.[14,15] Process evaluations also allow participants to express their perceptions of an intervention.[14,15] Further, process evaluations aid in improving ongoing interventions and the interpretation of outcomes of an intervention.[14,15]

In this article, we report on the process evaluation of the adapted NEP (further referred to as NEP), focusing on participants' experiences. As previously reported,[13] the NEP failed to show significant differences between the intervention and control groups in improving HbA1c (primary outcome) as well as most other assessed outcomes. Further, participants' retention was sub-optimal (~62% at 12 months). The process evaluation may thus help to explain these findings.

Overview of the adapted NEP

The details of the adapted NEP have been reported elsewhere.[13] Briefly, the NEP, which comprised four components, was implemented over 12 months using an RCT design to test the effect on several outcomes. The NEP components were: (1) seven monthly group training sessions (curriculum); (2) one individual counselling and goal setting session of 15–30 minutes; (3) bi-monthly group follow-up sessions; and (4) a workbook. These components were provided to the

intervention group only. Both the intervention and control groups received education materials (pamphlet and an A3 wall/fridge poster) with content on diabetes basics (pamphlet only) and healthy eating (pamphlet and poster). The NEP primary outcome was glycaemic control (HbA1c). Other clinical parameters, dietary behaviours and behaviour mediators were secondary outcomes. The outcomes were assessed at 6 and 12 months. The NEP was adapted from primary healthcare with input from key stakeholders (patients and health professionals) in the tertiary setting.[11,16] The NEP interactive group sessions were facilitated by an experienced dietitian. The sessions took 2–2.5 hours and key messages were summarised in the workbook.

Methods

The study was approved by the Research Ethics Committee, Faculty of Health Sciences, University of Pretoria (no 4/2016). The study took place in 2017–2018.

Participants and setting

The process evaluation was conducted alongside the RCT (main study) at a diabetes outpatient clinic of a public tertiary teaching hospital in Pretoria, South Africa. The hospital mainly serves uninsured and low-income patients.[17] Participants in the RCT were 77 adults (40–70 years; mean age 57.2 years [SD = 6.6]), living with T2DM for at least one year and with sub-optimal diabetes control (HbA1c $\geq$ 8%), and the majority (~95%) had at least high school education (ability to understand English was an inclusion criterion). These participants were randomised to control (n = 38; 10 men) and intervention (n = 39; 11 men) groups. Participants in the current study were: (i) RCT intervention group participants who completed the outcome assessments at 6 months, and (ii) both intervention and control group RCT participants who completed the 12-month outcome assessments.

Study design and data collection

We used a qualitative approach for the process evaluation. The phenomenological study design, which aims to explore lived experiences,[18] was used to capture participants' year-long experience with the NEP. Data from the intervention group participants were collected at two time periods: after completing the curriculum component, which occurred one month after the 6-month outcome assessment (T1), and at the end of the study (12-month outcome assessment [T2]). Data from the control group were collected only at T2. At both T1 and T2, qualitative data were collected and analysed before the outcome data were analysed.[15,19] At T1, we assessed participants' satisfaction with the curriculum component, perceived benefits or concerns and their suggestions for the remaining part of the programme (bi-monthly group meetings). At T2, we assessed participants' overall satisfaction with the programme, challenges with participation, perceived NEP impact, intervention group perceptions regarding specific NEP components, perceptions regarding education materials, reasons for remaining in the programme and suggestions for improvement. We conducted focus-group discussions (FGDs) to obtain data from the intervention group participants using the same groups used to implement the NEP education sessions. We conducted individual interviews (II) with the control group participants. An experienced group moderator, a PhD nutrition professional, conducted all the FGDs while an MSc Nutrition student took notes. FGDs lasted 50–90 minutes. The first investigator (JM) conducted the II, which lasted 30–45 minutes. We used different semi-structured interview guides for the FGDs and II. We audio-recorded all FGDs and II.

Data analysis

Audio-recorded data were transcribed verbatim by the first investigator. We used framework analysis[20,21] because we explored a priori categories while also allowing for emergent categories.[21] After familiarisation with the raw data (step 1 of framework analysis), we generated an initial thematic framework that was informed by the topics in the interview guide and early transcripts (step 2). Further, we coded all transcripts to this framework (step 3) and extracted and charted data related to each theme (step 4). Finally, we mapped and interpreted the data by identifying key issues and their meanings across themes.[20,21]

Credibility was ensured through the following: debriefing between the moderator, note taker and one of the investigators (JM); data were analysed by an experienced qualitative researcher (JM); regular discussions with the research team during the analysis as well as overall review of the analysis by a peer experienced in qualitative research not involved in the study.[22]

Results

Participants

All intervention group participants who completed the 6 months (n = 26; 5 men) and 12 months (n = 24; 5 men) outcome assessments took part in the FDGs at T1 and T2 respectively. FDGs were done in five groups of four to six participants. Nineteen (3 men) of the 24 control group participants who completed the 12-month outcome assessment took part at T2. Five participants declined to take part because of unavailability.

Intervention participants' perceptions of the NEP after completing the curriculum (T1)

Three themes emerged on the perceptions of the curriculum by the intervention group participants.

Satisfaction with the curriculum component

Participants reported they enjoyed the programme very much, indicating they were satisfied at this point.

> We enjoyed very much. (All groups; n = 5)

Perceived impact

Following completion of the curriculum, participants reported they had gained new knowledge regarding food groups, appropriate foods, food portion sizes and diabetes-related information (e.g. desirable blood sugar levels). They also reported acquiring skills such as how to portion foods and read food labels.

> I learnt what levels our sugars should be: 4–7 before eating in the morning and 5–10 during the day. (Male, 68 years [M68, FGD3])

> I was told I should not eat too much starch, but I was not told the portion. Now I know it should be a fist and I am following. (Female, 64 years [F64, FDG1])

> I did not know how to read labels. I now can read labels when I go to buy grocery, I can check if too much sugar, salt or fat. (F47, FGD5)

Participants mentioned that they were motivated to take better care of their diabetes regarding self-monitoring of glucose, diet and physical activity, with some participants reporting having made actual changes.

> I never used to be concerned about checking sugar, since joining I am now doing it regularly. (F44, FGD2)

> Before I used to eat without caring. Now I plan what to eat and make sure I get the right stuff. (M54, FGD4)

> Every morning I now do exercise, before I was not taking exercise seriously. (F54, FGD3)

Some participants indicated their quality of life had improved since joining the programme which they attributed to eating more healthily and exercising.

> I sleep better since I started the programme, I think it is because I am eating right. (M68, FGD3)

Some participants mentioned that being in a group provided social support and helped to reduce stress.

> Coming to group helps with my stress, I can laugh and talk. (F61, FGD5)

Suggestions for the remainder of the programme

Participants had no additional suggestions regarding the programme or content on the diet. However, some participants indicated a need to revise the content covered to reinforce information, while two participants had concerns about medication which they wanted addressed.

> Repeat the lessons, it is better to hear again, then we don't forget. (F61, FGD5)

> Medical part of my diabetes, what is new about diabetes, do we have to continue with insulin? (M55, FGD4).

Participants' perceptions of the programme at end of the programme (T2)

Participants in the intervention and control groups had similar perceptions of the NEP (Themes 1, 2, 3.1, 5 and 6) except for aspects that concerned only the intervention group (Theme 4).

Theme 1: programme satisfaction

Both the intervention and control group participants indicated that they enjoyed being part of the NEP and they had no issues with coming to the programme, indicating a feeling of satisfaction.

> We liked the programme very much, we are so happy, thanks to our teachers. (F59, FDG5)

> I liked every part of it. I had no problem with coming to the programme, you know it takes me long to see my doctor, 3 to 6 months so is good because I came the times I came to see my doctor and it did not take too much time. (M48, II)

Theme 2: perceived impact

The intervention and control group participants felt that they had benefited from the NEP in various ways. Similar to what intervention participants reported after completing the curriculum component (T1), participants in both groups reported they had gained new knowledge and skills regarding diet as well as a better understanding of diabetes and its treatment.

> It helped me understand diabetes better. I learnt a lot, the portions I must eat, and the right type of foods to choose from the materials given to me. (F46, II)

They also indicated increased awareness of their self-care behaviours and motivation for positive behaviour changes with some reporting they had already made positive lifestyle changes: 'I am motivated to take my insulin properly and to stick to the eating plan, I changed from white to whole wheat bread' (M48, II).

In addition, participants felt their health and quality of life had improved: 'My sugar is now right it never goes beyond 7 in the morning' (M63, FGD3) and another participant stated, 'I feel too much better and happy, because of eating healthy and exercising' (F44, II).

Other perceived benefits included: family support for better self-care, 'Family has changed, they are not putting too much salt and fat, so we are all eating more healthily' (M65, II), family and other social networks benefiting, 'My twin daughters are using it [poster] because they have high blood and my husband too' (F55, FGD3); 'My auntie and other people from church read it [poster] and they eat less of fat' (F44, II) and being empowered to educate others, 'I now can tell others about how to eat when you are a diabetic' (F68, FGD1).

Theme 3: perceptions of educational materials

Poster and pamphlet. Participants in both groups felt that the poster and pamphlet were easy to use, attractive and contained adequate content, although participants' accounts focused more on the poster.

> Poster was very useful and visible – you can see different foods, you can read. I like that it was divided into parts. (M63, FGD5)

Participants in both groups emphasised that the poster was useful to them as well as their families: 'The family can also see what food they must take. My children use it even when I am not there' (F63, FGD1). For some participants, the education materials were useful for their multiple health conditions: 'They gave me most of the information I need, and it is helpful for my diabetes, heart and kidney problem' (F57, II).

As intended, participants placed their posters in a place that was accessible to the family: 'I put mine on the fridge where my family can see' (F63, FDG1) and another participant said: 'I put it in my room. I read it every morning when I wake, my family also look at it' (F53, II). Notably, one participant put their poster in the bedroom solely to prevent stigma from non-family members.

> Mine is in the bedroom, you know there is still stigma. If people come to the house, they ask who is diabetic in this house, and then you have to explain every time. But my family do use the poster. (M61, FDG1)

Workbook (for intervention participants only). The intervention group participants were appreciative of the workbook. They indicated that it reminded them of content taught and aided them to evaluate their self-care practices, thereby acting as a prompt for correcting behaviour.

> You also read the book to remind yourself what you are supposed to do, it will help you know what you need to do to correct yourself. (M50, FDG2)

> Writing helped me to track my sugar, when the sugar is upside down you can see it and correct, something you write down is not easy to forget. (F44, FDG4).

Theme 4: intervention participants' perceptions of programme delivery

Participants in the intervention group reported their views on several aspects of programme delivery. Participants were satisfied with meeting frequency and education sessions' length.

> Coming once a month was enough to keep you motivated, then other things like depression were kept away. (F48, FGD1).

> I agree, it also made space for other personal activities. (M50, FDG1)

> Two hours we made one lesson and finished and revised what we learnt the previous lesson. (F55, FGD2).

Participants indicated that the content of the NEP was relevant and adequate: 'Everything was right. It was enough, if you did not understand you could ask' (F56, FDG2). However, one participant expressed a need for clarification on issues regarding medicine: 'When it comes to medication, sometimes it is confusing, there is this one they said take once a day then another three times per day, getting this information can help us' (M50, FDG1).

Participants were satisfied with the teaching aids/material used during the group sessions, stating that these helped them in understanding and remembering learned content. As one participant said, 'It was useful, it shows us clearly [flip chart], for example the place [organs] where you get problems if sugar is not controlled' (M54, FGD3); and another said, 'Seeing was very important … to see exactly what amount of food, little starch and more vegetable. It helps to understand and remember' (F56, FGD2).

Participants greatly appreciated being educated in a group. They cited several benefits including enhanced learning through sharing of experiences and questions, improved quality of life via sharing problems and mutual support for positive behaviours through modelling. 'If one in the group tells of how the sugar is going down, we copy from each other and correct each other every time' (F58, FGD2).

Theme 5: reasons for staying in the NEP

Participants mentioned several reasons for staying in the programme, with an emphasis on the benefits of the NEP. These benefits included the knowledge they had gained and the positive effects on self-care, which were perceived to improve disease control and health: 'The benefits I saw. Before I joined the programme my sugar was uncontrolled, but now it is well controlled' (M65, FDG2) (HbA1c = 6.8% at 12 months vs. 8.0% at baseline). One control group participant mentioned the feeling of 'being cared for' as a motivation for staying in the programme: 'It is nice to be part of the programme, honestly I felt cared for, and you learn so much' (F52, II).

Participants also indicated that positive attributes of the facilitators and researchers involved in the programme motivated them to stay on: 'The facilitators were caring, motivating and they have the passion. They will explain if you do not understand and they know their stuff' (F63, FGD2). Participants felt that they were treated with respect: 'How you people talked to me I liked it' (F65, II); and another stated: 'I am happy about you [researcher], you are so sweet … . you are such a lady' (F47, II). Additional reasons mentioned by intervention group participants included family encouragement, 'My family has encouraged me to finish, my wife will tell me, you have to go' (M65, FGD3), a conducive learning and sharing environment, social support from each other and interesting lessons that helped to benchmark practices at home, 'The lessons were interesting. Coming helped us know whether we were doing the right things at home' (M65, FGD3).

Theme 6: suggestions for NEP improvement

All participants recommended that the NEP should be continued and extended to other people with diabetes: 'This programme should continue, it should also go to other clinics, because they are not getting education out there' (F47, FGD2). The intervention group participants had additional suggestions. For example, family members to join some sessions: 'Once or twice per year we can have the family come in, especially those who cook' (F63, FGD5), serving as peer trainers in future programmes: 'If you have future programmes we can help on a voluntary basis because you have trained and motivated us' (F48, FGD4), a forum for applying learnt knowledge and skills, 'Sometimes all the groups have lunch together, to practically eat the foods we have talked about' (M61, FGD1). Some participants also suggested incorporating more medical content: 'More medical stuff, if our diabetes is getting better to have peace of mind; what the doctors check' (F48, FGD3); 'Yeah, am now worried about injection for 10 years, I wonder what can happen, can one go back to tablets?' (M68, FGD3).

Discussion

This process evaluation examined the perceptions and experiences of participants in an adapted NEP (RCT) with an aim of understanding the factors that may have influenced the NEP outcomes and participation. We drew on views of both the intervention and control group participants. Overall, participants had positive experiences of the adapted NEP, with both groups perceiving several benefits from participating in the NEP.

Process evaluations conducted while an intervention is being implemented may illuminate the quality of programme elements and what is happening as the programme proceeds,[23] as well as identifying areas for improvement.[14,23] Our process evaluation after intervention group participants completed the curriculum component (T1) indicates they were emphatically positive regarding the NEP, with participants reporting high programme satisfaction and perceived benefits. Similarly, people with T2DM who participated in the original NEP implemented at primary care[24] and intervention participants in other group DSME studies[25] also reported high satisfaction with curriculum component. Allowing the participants in the current study to voice their views regarding curricular

component is in line with a person-centred approach, which is considered essential for effective DSME.[26]

Process evaluation at the end of the programme (T2) also indicated that all participants (intervention and control) were satisfied with the NEP, and they perceived multiple benefits. Reported benefits included improved knowledge concerning diabetes, skills in dietary self-care such as food portioning, better health and quality of life, improved support from family for appropriate self-care, and motivation for making positive behaviour changes with many participants reporting making actual changes. Most participants reported that their family members also benefited. Intervention participants in the original NEP felt similarly.[24] Perceived benefits appeared to be the most important reason for participants in this study to complete the programme. Often patients fail to attend DSME programmes because there are no perceived benefits.[27,28] It is thus important that DSME interventions are relevant to the needs of patients.[26]

Further, participants who received the intervention (intervention group) were satisfied with how the programme was delivered, similar to other lifestyle DSME interventions.[24,29–31] For example, the duration and length of the group sessions was reported as being suitable and the teaching aids and education materials useful in enhancing learning. Participants also enjoyed learning in a group setting, with several benefits cited. Positive facilitator characteristics were also highlighted to aid in learning and motivation to participate in the NEP. These aspects reflect most of the desirable characteristics indicated by stakeholders during the planning phase of the NEP,[16] indicating that the adapted NEP likely met the participants' needs. Intervention participants in the original NEP felt similarly about the delivery of the programme.[24] Positive facilitator characteristics such as being knowledgeable, patient, motivated and caring are known to be important for participants' satisfaction with DSME programmes.[25,29,30] The group delivery format has also been appreciated by participants in other education programmes.[24,25,29]

There are other notable findings of this process evaluation. First, and encouragingly, the provision of the fridge/wall poster appear to have fostered family engagement. Thus, the need for education materials primarily to engage and involve family, as previously suggested by stakeholders at the setting,[16] seems to have been met. Participants' accounts revealed family members also benefited by adopting healthier dietary habits because of the information on the posters. This is important, as family support enhances appropriate dietary and other self-care behaviours among people living with T2DM.[32] While the poster appears to have had a great impact, caution should be taken in future studies to prevent negative impacts, given that a participant mentioned that its placement in a public place in the home could be a source of stigma. Stigma and its negative impact among people with T2DM has been reported.[33]

Second, participants' suggestion that family attendance at the education sessions be a key feature of future programmes indicates this need, which had previously been raised by stakeholders at this tertiary setting,[16] was not met. We faced a twofold challenge: most participants were unable to bring family members along due to unavailability and there was inadequate venue space, which limited the attendance of family members. Primary healthcare setting participants in the original NEP also reported unavailability of family members, although they would have preferred having family attend the education sessions.[24] Therefore, in our setting there seems to be a conflict regarding meeting times deemed suitable for education sessions. While weekdays are preferred by people living with T2DM[16,34] this appears not to be suitable for their families. Further investigations are needed, given that involving family in DSME programmes is known to improve patient outcomes.[32]

Lastly, participants in this study seemed to have unmet information needs regarding medication, which could be a barrier to appropriate medication self-care. Although some content on medicine was covered, it appears the group forum was conducive for asking questions that participants would not ordinarily ask during clinic visits due to time limits and other challenges experienced at tertiary settings.[35] Therefore, the NEP should in future consider a slot dedicated to medicine and facilitated by a doctor, given that patients at the setting referred to doctors as 'knowledgeable' and suitable persons to facilitate DSME.[16] This would provide participants with an opportunity to ask questions related to medication.

Overall, the results of this study indicate that participants were highly satisfied with the NEP, suggesting the programme per se may not have been the reason for the high dropout rates previously reported (intervention: 38%, control: 37%).[13] We also tried to address any foreseeable barriers to participation by reimbursing transport, offering healthy snacks and aligning outcome assessments with clinic days or medicine collection days as far as possible. Possibly, participants who dropped out may not have perceived additional benefit as seen in other studies,[27,28,36] especially because many (~80% per arm) had already consulted a dietitian.[13] Perception of adequate knowledge related to previous DSME attendance or other sources is a barrier to participation in education programmes among people with diabetes.[36] The high perceived burden of diabetes by patients in the current setting linked to co-morbidities[16] as reported in other studies[28,36] is another plausible reason.

Additionally, the results seem to indicate that participants in the control group equally perceived benefits of participating in the NEP like their intervention group counterparts, despite receiving only education materials. This possibly equally motivated them to improve their self-care behaviours, thereby lowering the NEP impact, which had been hypothesised would be greater in the intervention group. We previously suggested that sub-optimal intervention group participant attendance at group education and individual sessions could also have led to the limited impact of the NEP due to inadequate treatment dose (education).[13] Although intervention group participants in the current study did not indicate problems with attending the individual or group sessions, we think the perceived burden of diabetes played a role, especially as regards the latter. While we planned to hold group and individual sessions during monthly medicine collection as suggested by patients in the setting,[11] it was challenging to schedule enough patients to collect medicine on the same day to form a group or to arrange individual sessions. Thus, the group education sessions were changed to a non-diabetes clinic day after consultations with the first eight participants randomised to the intervention arm (main study). This could have discouraged regular attendance at the group sessions. It is known implementation problems can also cause an intervention to be ineffective.[14] However, our implementation fidelity data showed that the NEP was largely implemented as planned (unpublished data). For

example, all the curriculum sessions were held, and all the activities were implemented. Only two groups did not have one of their two bi-monthly follow-up meetings due to lack of a quorum.

There is a need for further studies exploring the effective implementation of structured DSME programmes in tertiary settings. While the current study indicates programme completers were highly satisfied with the NEP, and a previous study showing patients were enthusiastic about participating in the NEP,[16] the actual participation was poor[13] despite most of the aspects suggested by stakeholders at the setting being incorporated into the adapted NEP. We believe that system adjustments which allow DSME to be aligned with routine activities such as medicine collection could possibly enhance participation due to reduced perceived burden.

Strengths and limitations

This study had several strengths. The use of existing intervention groups for FGDs allowed greater group dynamics and spontaneity in the discussions because participants were familiar with one another. The FDGs included participants from all intervention groups, thereby enabling capturing of different experiences across the groups. Conducting the FDGs at two time periods increased the validity of the study. By conducting FDGs after the curriculum was completed, we minimised inaccuracies related to memory. Participants may not have remembered their experiences if we had conducted the FDGs only at the end of the programme. Further, conducting FDGs at two time points demonstrated the stability of results over time (reliability) as the curriculum was the core of the intervention. Additionally, we conducted the process evaluation with participants from both the intervention and control groups, which gave insight into the overall trial. The process evaluation also exposed other issues that could be addressed to enhance diabetes care and management and subsequent patient outcomes.

Our study may be limited because we only evaluated perceptions of participants who completed the intervention. These participants would probably be more motivated and hence have more positive perceptions. It would have been useful to explore the perceptions of patients who dropped out, or follow up on their prognosis as this could potentially explain why the attrition was similarly high in both groups despite the low time commitment required for the control group. Despite efforts to reach out to the participants, with up to four telephone calls, some could not be reached while others declined. The use of a sample from one tertiary setting also requires some caution in generalising the results to other populations or settings.

Conclusion

This study indicates that participants in both the intervention and control groups were highly satisfied with the NEP. Participants perceived multiple benefits of participating in the NEP and they recommended it for others. Therefore, the high attrition rates in both groups and the lack of significant effect on the primary outcome does not appear to be associated with participants' perceptions of the NEP.

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