

Tinia mai: Interventions and Treatment. Moderator - Moana Waitoki

Mahi Whakatieke: Increasing exercise compliance with Māori students

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Obesity is a complex health issue that is influenced by many different factors. The US Department of Health and Human Services (2001) defines obesity as having a Body Mass Index (BMI) of 30 or more. Body Mass Index is calculated by dividing weight (kilograms) by height (in metres squared). The Body Mass Index can overestimate fat in people who are very muscular, and it can underestimate fat in people who have lost muscle (US Department of Health and Human Services, 2001). Sorenson (2000) described obesity as a global phenomenon that is rapidly increasing in many populations, and which has threatening implications for public health because of the associated increased risk of Type II diabetes and its cardiovascular complications.

In 1999, 61% of adults in the USA were estimated to be either overweight or obese (US Department of Health and Human Services, 2001). In Aotearoa New Zealand, Māori and Pacific adults have a frighteningly similar incidence (Ministry of Health, 1999). Key results from the 1997 National Nutrition Survey found that nearly six out of ten Māori adults were classed as either overweight or obese, and that obesity was about twice as high in Māori than in Pākehā (Ministry of Health). In the 1996/97 National Health Survey it was found that Māori and Pacific people (sic) were twice as likely to have been diagnosed with diabetes than Pākehā people (Ministry of Health). A key factor, to be taken from the report, was that the most prevalent type of diabetes (accounting for 90% of sufferers) could be prevented by controlling obesity. Controlling obesity could reduce the risk of diabetes by 50-75%, and encouraging more physical activity could

bring about a 30-50% reduction in that risk (Ministry of Health).

Sedentary lifestyle has been suggested as one contributing cause of obesity, as are increases in dietary intake, especially fat intake (Sorenson, 2000). Sedentary lifestyle is defined here, using the Hillary Commission's (1999) definition for sedentary people, as the absence of any participation in any sport or active leisure (e.g., resistance exercise, aerobics, gardening, and walking the dog) in the four weeks before a specified time. This definition also includes the absence of moderate activity that is not covered by sport and active leisure, such as walking for transportation.

In Aotearoa, two out of three people over the age of five are active in their leisure time (Hillary Commission, 2000), which means that they are participating in moderate intensity physical activity for 30 minutes a day, five days a week (Hillary Commission). Internationally speaking, people in Aotearoa have a good record for participation in physical activity, but it is still true that a third of the population are not active enough to be leading a healthy lifestyle (Hillary Commission). With these statistics in mind, it is very important to encourage Māori to adopt healthier eating habits, and to increase the amount or intensity of their physical activity.

When encouraging people to increase their physical activity, there is a widespread problem with people not adhering to structured exercise programmes (e.g., a 50% dropout rate for Americans beginning exercise programmes). There has also been an increase in the prevalence of sedentary lifestyle (leading to an increased probability of developing some diseases). With this in mind, health organisations (e.g., the U.S.

Department of Health and Human Services; and in Aotearoa, Sport and Recreation New Zealand, [previously the Hillary Commission]) have started to look at encouraging people to participate in less intensive, less structured physical activity (i.e., lifestyle activity). The goal of this approach is for those involved to find this type of activity easier and more enjoyable to do, leading to an initial increase in compliance, and in the longer term, adherence to an exercise programme.

The topics of compliance and adherence have only relatively recently been recognised as being an important factor in exercise behaviour. This is evidenced by the change in exercise recommendations by the American College of Sports Medicine in the late 1990's: who previously recommended vigorous activity, and now recommend moderate activity, due to the associated health benefits and the lack of compliance under previous approaches (American College of Sports Medicine, 1998).

Some of the research aimed at increasing exercise compliance has investigated the effectiveness of one type of intervention, such as the use of reinforcement to facilitate and maintain burn-injured patients' physical rehabilitation successfully (Hegel, Ayllon, VanderPlate, & Spiro-Hawkins, 1986). Other research has looked at comparing one intervention with another, like lifestyle activity versus structured exercise programmes; many of these comparisons have shown that lifestyle activity programmes are effective in helping people to lose a significant amount of weight and to maintain that weight loss in the long term (Pratt, 1999; Dunn et. al, 1999; Kohl, Dunn, Marcus & Blair, 1998).

Further research has focused on using a range of interventions in a package-type approach, such as different physical activity programmes, a diet intervention, as well as multiple monitoring methods to successfully decrease and maintain significant weight loss (Andersen et al., 1999). Thus, there are methods that have been shown to aid in increasing exercise compliance.

Although problems associated with maintaining compliance and adherence

have only recently been recognised in an exercise setting, other fields that have established research bases, have proposed methods to increase these factors. These fields are not necessarily exercise-oriented; however, the methods or principles that have been found to be successful with getting subjects to comply might be used successfully with regard to increasing exercise behaviour. It might be that ideas from these areas could be applied to increasing exercise compliance.

One such area, in which behavioural compliance has an established research and literature base, is the cognitive-behavioural orientation of clinical psychology. Most cognitive-behavioural therapies within clinical psychology require clients to continue with therapy outside of the clinical setting and without the psychologist. Clients will generally have homework tasks, which are set by the psychologist, to complete between treatment sessions (e.g., noting the frequency and severity of a problematic behaviour via daily monitoring logs). It follows that if part of a treatment package involves the client doing tasks outside of the clinical setting (i.e., homework tasks), in order for the treatment to be successful, the client must be compliant with the tasks the psychologist sets.

A difficulty with exercise is the lack of compliance, with many people dropping out of exercise programmes. Shelton and Levy (1981) developed a set of propositions designed to increase client compliance in a clinical setting. These eleven propositions have been used successfully to increase compliance across a range of clinical and health settings.

Therefore, the intention of this project was to see if an intervention package based on Shelton and Levy's propositions could increase Māori students' compliance to an exercise programme that used walking. As well as considering Shelton and Levy's (1981) propositions, implementing these with a group of people who are Māori raises its own unique considerations. Within education, both the Ministry of Education and Te Puni Kokiri (no date) have recognised that Western values in an education system are not totally relevant to Māori. This may also be relevant within

research that is almost totally based on Western methods, and research conducted with predominantly Western populations.

This study was to focus on a group of Māori students, and special considerations were made with regard to conducting and presenting the research in accordance with the principles of the Treaty of Waitangi. An appropriate approach was based on the ideas of Herbert and Te Kanawa (1998). Considerations that would satisfy the principles of partnership and participation included a mutual respect for different knowledge bases and having mutually positive outcomes. Considerations that satisfied the principle of protection included a shared whakapapa, and shared concepts and language.

It was hoped that including components that satisfied Shelton and Levy's (1981) set of propositions to increase compliance, and using walking as an exercise that is very flexible and low cost, would serve as an effective intervention to increase a sedentary person's compliance to an exercise programme. In this study, compliance was judged on how regularly, or the frequency at which, exercise was participated in. With these in mind, an intervention package aimed at achieving participant compliance was designed and implemented using a multiple baseline across subjects design.

The four participants in the study were given the pseudonyms Piripi, Mary, Aroha and Kerera. They (except for Aroha) progressed through four phases in the study. The first part was a Baseline phase, which aimed to assess the participants' initial exercise behaviour. It was expected that the participants' participation in any aerobic exercise would be close to zero. This was found to be true for Kerera, Piripi, and Mary. Aroha started walking semi-regularly half way through Baseline when she increased the intensity of the walking she did for transportation. The second phase was labelled Stage 1, participants were given a walking programme that was similar to the type of exercise programme that would be seen in a popular magazine. There was no support provided to keep them doing this programme (apart from the fact they were participating in this study). Thus, based upon exercise compliance

literature, where only half of the participants are still exercising three to six months after starting (Marcus et al., 1998), it was expected that participants would start walking initially, and then as time progressed the frequency of their walks would decrease. Unfortunately due to time constraints the maximum amount of time spent in this stage was approximately 45 days. However, the expected pattern was still found for Kerera and Piripi, they exercised regularly initially, and then less consistently towards the end of the stage, indicating that they were becoming less compliant.

The participants then moved into Stage 2, in which Shelton and Levy's propositions were implemented. It was originally planned that Stage 1 would not include Shelton and Levy's propositions so that a direct comparison could be made between an intervention that used Shelton and Levy's propositions (Stage 2) and an intervention that did not (Stage 1). However, it became apparent that this would be virtually impossible due to Shelton and Levy's propositions being so broad that examples of them being implemented could be found in nearly any intervention ever conducted. It was hypothesised that during Stage 2 participants would walk for exercise regularly (and on most days) throughout this stage compared to their behaviour in Stage 1. This hypothesis was partially met. Piripi and Mary walked regularly throughout Stage 2 although they did not walk as regularly as the researcher had hoped for during the planning of the study, which was for them to walk most days of the week. Kerera walked for exercise intermittently during Stage 2, however there was a 20 day period towards the start of the stage that she was unable to do any exercise due to health complications. Aroha's data cannot be directly compared to those of the other participant's, as she did not participate in Stage 1, however Aroha did walk regularly throughout the 44 days that Stage 2 was in effect.

Participants then moved into a Follow Up period, where they received no further intervention except for the continued monitoring of their exercise. It was expected that during this stage participants

would continue to walk regularly for exercise on most days of the week, as was hypothesised for Stage 2. However, these gains were maintained for only Piripi and Aroha who continued to walk regularly throughout the Follow Up. So, in terms of increasing compliance using an intervention package based on Shelton and Levy's propositions, Piripi, Mary and Aroha all walked regularly during that intervention period. These findings are consistent with, although probably not to the same extent as, Andersen et al's., (1999) results, where they were able to increase exercise compliance with obese women using both structured and lifestyle physical activity among other things.

There was a Post Follow Up stage where participants reported the types of physical activity they had been participating in since Follow Up. All participants were doing regular physical activity, the types of activities included, heavy housework, martial arts, walking, and running.

One of the key findings from this project regarded the types of emotion participants experienced throughout the study. They reported feeling more guilt for not exercising as they progressed through the study. Participants in the weekly meetings with the researcher constantly voiced these feelings of guilt, which were generally in reference to an inability to complete all exercise sessions that had been planned for the week. The researcher tried to minimise these negative feelings by saying to those participants who were feeling guilty "any walking is better than nothing". Although feelings of guilt are a negative feeling, they can be positive in that they can promote behavioural action, such as making amends or reparation (Caplovitz-Barrett, 1995) (e.g., making up for a missed exercise session). Given the possible role that guilt can play in initiating exercise behaviour it may have been wiser for the researcher not to have lowered his expectations of his participants with regard to walking. Maintaining their expectation that they should walk most days of the week for 30 minutes may have been one factor that could have helped the participants to achieve more regular walking.

A unique aspect of this research was it being designed to be appropriate for working with a Māori population by implementing the principles of the Treaty of Waitangi. This appears to have been effective in terms of the rapport that was built between the researcher and the participants. The principles of partnership and participation were met by ensuring there were beneficial outcomes for the participants and the researcher. The participants received health benefits and the researcher received data for his project. This provided a situation where each party contributed towards the project as well as gained something from being involved. Evidence that the participants gained skills they could continue to use can be seen in the anecdotal data the participants provided after the Follow Up period. They were all conscious of the amount of physical activity they were participating in, and all had incorporated physical activity into their daily lives. The researcher, being able to link his whakapapa with three of the four participants, satisfied the principle of protection according to Herbert and Te Kanawa (1998). Another example of implementing the principle was the researcher making himself accountable to the participants by giving them a full copy of the written report and the opportunity to have any issues raised.

The aim of the study was to implement an intervention package based on Shelton and Levy's propositions with Māori students to increase their compliance to an exercise programme that used walking. Three out of four participants walked more regularly when the intervention package was implemented, compared to previous stages of the research. Only two participants continued to walk for exercise regularly in Follow Up. This was consistent with previous exercise literature (Marcus et al., 1998) that has found that only 50% of people will still be exercising 3-6 months after starting. However, all participants reported that they had incorporated more regular physical activity into their lifestyles Post Follow Up, and judging by their anecdotal data, they were likely to be meeting or exceeding general health recommendations to accumulate 30 min of moderate intensity physical activity

on most days of the week (U.S. Department of Health and Human Services, 1996). These findings indicate that this multifaceted approach to increasing

exercise compliance holds promise in terms of making changes to achieve a more active lifestyle that will last in the long term.

References

- Dunn, A., Marcus, B., Kampert, J., Garcia, M., Kohl, H., & Blair, S. (1999). Comparison of lifestyle and structured interventions to increase physical activity and cardiorespiratory fitness. *Journal of the American Medical Association*, 4, 327-334.
- Herbert, A. M. L., & Te Kanawa, D. (1998). *The Mana Kainga programme: Practice and research perspectives*. Paper presented at the Paper presented to the International Society for Prevention of Child and Neglect 12th International Congress, Auckland, New Zealand.
- Hillary Commission for Sport, Fitness and Leisure. (1998). *Physical activity taskforce report*. Wellington: Hillary Commission for Sport, Fitness and Leisure.
- Kohl, H., Dunn, A., Marcus, B., & Blair, S. (1998). A randomized trial of physical activity interventions: Design and baseline data from Project Active. *Medicine and Science in Sports and Exercise*, 4, 275-283.
- Pratt, M. (1999). Benefits of lifestyle activity versus structured exercise. *Journal of the American Medical Society*, 4, 375-376.
- Shelton, J. L., & Levy, R. L. (1981). *Behavioral Assignments and Treatment Compliance*. Champaign, Illinois: Research Press.
- Te Puni Kokiri & Ministry of Education. (no date). *Māori education strategy for Māori: Consultation. Making Education work for Māori*. <http://www.minedu.govt.nz/Māori/ReportConsultation/newsletter.html>.
- United States Department of Health and Human Services. (2001). *The Surgeon General's call to action to prevent and decrease overweight and obesity*. Washington: U.S. Department of Health and Human Services.
