

Intervention to increase exercise levels of diabetes patient



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An intervention to increase the participation levels of Physical Activity in patients diagnosed with Type II diabetes

Background

Physical activity is an increasingly important health issue with physical inactivity being associated with many chronic diseases. Physical inactivity has been identified as the fourth biggest risk factor for mortality, accounting for 6% of deaths globally ^[1]. However, despite strong evidence in support of the health benefits of physical activity, few people actually meet the recommended guideline level ^[2]. In 2008, less than 20% of adults aged 65-74 met the recommended level of physical activity ^[3].

Diabetes is the fifth most common cause of death in the world ^[4] affecting around 250 million people worldwide, a figure expected to increase to over 336 million by 2030 ^[5]. Type II diabetes is widespread amongst 90% of diabetic patients, found to be more common in older adults ^[6]. Obesity accounts for 80-85% of Type II diabetics, making it the most potent risk factor ^[7]. Research has shown that regular physical activity has positive benefits for Type II diabetes in that it improves body's sensitivity to insulin and helps manage blood glucose levels ^[8], as well as improving an individual's physical and mental well-being. This indicates that physical activity is vital in both preventing and treating Type II diabetes, as well as preventing further chronic health conditions.

Literature Review

Self-determination theory (SDT) ^[9] accounts for the processes that facilitate motivational development and how the social environment can enhance or diminish self-motivation. SDT is a popular social-cognitive theory, which maintains and has provided support for the proposition that all human beings have fundamental psychological needs: competence, autonomy, and relatedness. Satisfaction of these basic psychological needs (BPN) leads to intrinsic or extrinsic motivation which influences the level of self-determined motivation an individual possesses, whereas preventing these needs promotes controlled motivation or amotivation ^[10].

Motivational interviewing (MI) is a scientifically tested counselling method, viewed as a useful intervention strategy in the treatment of lifestyle problems and disease. The concept of MI evolved from the experience of treating alcoholism, first described by Miller in 1983 ^[11]. Miller and Rollnick defined MI as ‘a directive, client-centred counselling style for eliciting behaviour change, by helping clients to explore and resolve ambivalence’ ^[12]. MI is a particular way of helping clients recognise and do something about their current or potential problems. It is viewed as being particularly useful for clients who are reluctant or hesitant about changing their behaviour.

A systematic review and meta-analysis ^[13] of 72 randomised controlled trials shows that MI in a scientific setting outperforms traditional advice giving in the treatment of a range of behavioural problems and diseases. It also shows that MI had a significant effect in approximately three out of four studies,

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with an equal effect on physiological (72%) and psychological (75%) diseases [13]. Large-scale studies are now needed to prove that it can be implemented into daily clinical work in primary and secondary health care.

Research [14] has shown MI to be an effective intervention for weight loss and improving glycaemic control. Patients with Type II diabetes were randomly allocated to an MI group, a Cognitive Behavioural Group Training (CBGT) or a control group and tested before and after each intervention. The findings of this study showed that in MI and CBGT, mean Body Mass Index (BMI) was significantly lower than the control group, indicating MI and CBGT is a useful intervention in helping adults with type II diabetes lose weight [14].

MI has been criticised for lacking a coherent theoretical framework for understanding its process and efficacy. It is believed that SDT can offer such a framework [15]. MI and SDT are based on the assumption that humans have an innate tendency for personal growth toward psychological integration, and that MI provides the social-environmental facilitating factors suggested by SDT to promote this tendency [15].

Aim

To evaluate the effectiveness of using motivational interviewing to increase the level of physical activity of older adults diagnosed with type II diabetes, through satisfying their basic psychological needs.

Design

A randomised control trial design will be used, to establish a cause and effect relationship between the intervention – MI, and the outcome – increase in physical activity. A control group will be used to compare against the intervention group, allowing the researcher to see if MI has a specific effect on the intended behaviour change (increase in physical activity). It also allows any potential ‘ other factors’, away from the attention of the intervention which may contribute to an increase in physical activity to be identified. The participants, to prevent selection bias, will be randomly allocated to a group using a computer.

Sample

Participants need to be classified as physically inactive (participate in less than 30 minutes of moderate-intensity exercise, 3 times a week), diagnosed with Type II diabetes and aged 65+. Participants will be recruited through letters sent out via General Practitioners (GPs) to patients and through advertisements in health centres and doctors surgeries. Although currently classified as physically inactive the participant must be willing to engage in physical activity, and therefore must gain medical clearance, from their GP, to participate in the study. The recruitment of participants will be done throughout England in order to gain a large, reliable sample which can be generalised to the wider population.

Intervention

Miller and Rollnick ^[12] suggested that MI is based on the following principles: express empathy, develop discrepancy, avoid argumentation, roll with

resistance, and support self-efficacy ^[12]. The strategies of MI are more persuasive than forced, more supportive than argumentative, and the overall goal is to increase the client's intrinsic motivation so that change arises from within ^[15]. The practitioner should aim to produce a social environment satisfying participants BPN, which should promote their motivation to participate in physical activity. The structure provided by the practitioner, such as helping the client develop appropriate goals and providing positive feedback, targets the psychological need for competence. The provision of autonomy support by using client-centred strategies like rolling with resistance, exploring options, and letting the client make decisions, all support the need for autonomy. The involvement of the client by the practitioner in terms of expressing empathy, demonstrating an understanding and avoiding criticism support the need for relatedness ^[16].

To increase the likelihood of physical activity participants can chose whether their MI sessions are at their local leisure centre or hospital, or via telephone calls. The intervention program will last for 18months. In the first three months the participants will receive weekly sessions, then from month three to six they will have fortnightly sessions, and for the final 12months they will receive one session per month. A follow up study will also be completed 24months after the intervention started. It is important that practitioners provide the participants with knowledge, guidance and support to enable them to make decisions. The control group will have social phone calls and meetings like the intervention group but no MI in the sessions they will just be encouraged to maintain their current physical activity level.

Assessment

The outcome of the intervention will be measured at intervals: baseline, 3 months, 6 months, 12 months and 18 months. A follow up study will also be completed 24 months after the intervention started. The study will adopt three measures. The first is a general questionnaire measure to obtain demographic information, such as participants' age, sex and current physical activity levels. The second measure is the Physical Activity Scale for the Elderly (PASE) ^[17]. PASE is a valid, brief and easy scored survey designed specifically to assess physical activity in epidemiologic studies of persons age 65 years and older ^[17]. The final measure used will be the Basic Need Satisfaction Scale ^[18]. This will assess the extent to which the participant felt their practitioner was satisfying their BPN. All these measures have been found to be valid and reliable. The same measures will be used at each interval to assess changes/improvements, as well as being used in the follow up to see if their behaviour change has been sustained.

Limitations

There are a few limitations to consider. Firstly, the study aims to recruit a large sample of participants for a long period of time; it will be hard for the researcher to keep all the participants for the duration, resulting in a high dropout rate, making the result unreliable and un-generalizable. Secondly, the intervention requires time, especially at the start when the participant is required to attend weekly meetings. If the participant(s) has a lack of time then they are not going to be able to attend weekly meetings as well as completing the physical activity.

In term of the intervention used, MI is based on the idea that a client must be willing to work with a professional to change behaviours, a client in denial will be unaffected by MI questions and advice. Also, outside influences maybe stronger, meaning that in a clinical setting the participant is motivated to change but when they return home they may return back to original behaviour.