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Please cite this publication as follows:

Eynon, M., O'Donnell, C. and Williams, L. (2016) Gaining qualitative insight into the subjective experiences of adherers to an exercise referral scheme: a thematic analysis. *Journal of Health Psychology*, 23 (11). pp. 1476-1487. ISSN 1359-1053.

Link to official URL (if available):

<http://dx.doi.org/10.1177/1359105316656233>

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**Abstract**

Nine adults who had recently completed an exercise referral scheme participated in a semi-structured interview to uncover the key psychological factors associated with adherence to the scheme. Through thematic analysis an exercise identity emerged to be a major factor associated with adherence to the scheme, which was formed of a number of underpinning constructs including: changes in self-esteem, changes in self-efficacy, and changes in self-regulatory strategies. Also, an additional theme of transitions in motivation to exercise was identified, showing participants' motivation to alter from extrinsic to intrinsic reasons to exercise during the scheme.

**Key words:** exercise referral schemes; qualitative research; thematic analysis; motivation; exercise identity.

## **Introduction**

In an attempt to increase physical activity levels and offset numerous health conditions through primary care, health professionals have extensively referred patients who have an existing health condition or at least one known risk-factor (e.g., coronary heart disease, obesity, raised blood pressure), to exercise referral schemes. Given that physical activity has been shown to play a key role in the primary and secondary prevention of chronic diseases (Warburton *et al.* 2006), at-risk patients have the opportunity to exercise regularly at a lower price with the aim of offsetting their preexisting health condition through participating in an exercise referral scheme. However, the effectiveness of the schemes has come into question with adherence to the schemes being observed as a problematic barrier to producing positive health outcomes (Williams *et al.* 2007).

Jones *et al.* (2005) highlighted that adherence to the schemes represents an important barrier to reducing sedentary behaviour among high-risk patient groups. Within the related literature, adherence to exercise referral schemes has been largely poor but also varied; with studies showing 12-58% of participants completing 10-12 week programmes (e.g., Taylor *et al.* 1998, Tobi *et al.* 2012). In order to tailor exercise referral schemes with a view to improve adherence levels, Tobi *et al.* (2012) suggest greater understanding is required of the factors that influence adherence to the schemes, which is what the present study attempts to address through examining adherer's psychological experiences.

Deci and Ryan's (1985, 2000) self-determination theory is the primary theoretical framework that has been employed to explain adherence to exercise referral schemes. The theory makes the distinction between autonomous motivation and controlled motivation. A person with autonomous motivation, or intrinsic motivation, behaves with a full sense of volition, choice and self-endorsement of their actions, thus exercising for the reasons of enjoyment or finding it interesting and intrinsically appealing (Koestner and Losier 2002). Conversely, a person with controlled motivation, or extrinsic motivation, behaves with a sense of pressure, a sense of *having* to engage in actions.

Research in exercise settings has consistently reported an association between self-determined motivation and exercise maintenance (Daley and Duda 2006, Edmunds *et al.* 2006, Landry and Solmon 2002, Mullan and Markland 1997), though findings in exercise referral settings have been less clear. For instance, Morton *et al.* (2008) found that self-determined motivation significantly improved from pre to post scheme (at 6-weeks) for all participants with adherers to the scheme exhibiting significantly higher levels of self-determined motivation than non-adherers, yet Edmunds *et al.* (2007) found no such differences with self-determined motivation remaining the same for all participants throughout the scheme. A later study by Rahman *et al.* (2011) found that increases in self-determined motivation from pre to post scheme significantly predicted greater adherence to the scheme as well as greater sports related physical activity. These

mixed findings reflect the need to further investigate the role of self-determined motivation on exercise referral adherence.

Hardcastle and Taylor (2005) produced one of the few studies to qualitatively assess participants on an exercise referral scheme. Through interviews with older female participants, an exercise identity was found to be developed among participants, which was influenced by a number of psychosocial factors. Further, the authors found participants began the scheme being motivated extrinsically before incorporating more intrinsic reasons for exercise throughout the remainder of the scheme, which served to influence participants' exercise identity. There is a need to expand upon these early qualitative findings using similar methods to enable adherence to exercise referral schemes to be further understood from participants' subjective experiences. Qualitative designs allow for rich detail and deeper meaning, and can be advantageous in adding insight to results obtained from quantitative methods (Creswell 2014). Indeed, it has been acknowledged that those evaluating the effectiveness of exercise referral schemes should incorporate qualitative measures to contribute to the development of a comprehensive evidence base (Dugdill *et al.* 2009, Gidlow *et al.* 2008).

Despite quantitative research investigations showing self-determination theory to play a role in explaining some of the contributors to adhering to exercise referral schemes (Morton *et al.* 2008, Rahman *et al.* 2011), there has been no qualitative studies that have used the theory to drive research.

In order to add deeper meaning to the quantitative findings on self-determination theory as well as to understand participants' own experiences of adhering to an exercise referral scheme, a theory-driven qualitative approach is warranted to further understand adherence to an exercise referral scheme. Thus, the present study utilized self-determination theory as a framework to begin and explore the discussion with participants to understand their subjective experiences in adhering to an exercise referral scheme from a motivational perspective, as well as to uncover the key psychological factors associated with adherence to the scheme.

The main objective of the present study was to qualitatively gain an insight into the subjective experiences of adherers to an exercise referral scheme. Specifically, the study sought to uncover the key psychological factors associated with adherence to the scheme based on adherers' subjective experiences, with a particular focus on motivational experiences whilst also taking into account any other pertinent factors driven by the participants.

## **Method**

### ***Participants***

Purposive sampling was used to recruit nine participants (4 males; 5 females) who had completed an exercise referral scheme at selected leisure centres in central Scotland. Participants were aged between 41 and 67 years ( $M = 49.9$ ,  $SD = 8.6$ ). Participants eligible

for participation in the study consisted of those who: (a) adhered to the exercise referral scheme through attending the leisure facility a minimum of 16 times over the 8-week exercise referral period through participating in either gym sessions, classes or swimming; this data was provided by an electronic attendance record utilized by the leisure centres; (b) had completed the exercise referral scheme no longer than a month before the interview took place; and (c) were over 18 years of age. One participant identified as being of an Asian British ethnicity, while the remaining eight identified themselves as White British. Four participants were referred to the exercise referral scheme by their local wellness clinic; two participants by their practice nurse; two participants by their GP; and one participant by their physiotherapist. Three participants were initially referred to the exercise referral scheme to lose weight; two participants to increase their physical activity; two participants to rehabilitate from a serious illness or injury; one participant for depression; and one participant was referred for a number of physiological and psychological issues.

All participants disclosed that they had not exercised for at least two years prior to participating in the exercise referral scheme. Only one participant reflected on being a structured exerciser in their younger years. The remaining participants divulged that they had exercised on occasion in their lives through various physical activities (e.g., swimming, walking, and sports) but not for a prolonged period, nor in a structured manner. Pseudonyms were used in the analysis so as to protect participants' anonymity.

### ***Data collection***

Upon receiving approval from the authors' institutional research ethics board, eligible exercise referral scheme adherers were given verbal and written information about the study by a member of staff at the leisure centre. The first author contacted each potential participant by telephone to provide them with information about the study. Willing participants arranged with the first author a convenient time for the interview. Individual semi-structured interviews took place in a private meeting room at each participant's local leisure centre. Interviews lasted between 19 and 56 minutes ( $M_{length} = 46$  minutes) and were digitally recorded. Written informed consent was obtained at the interview. Participants were debriefed on completion of the interview.

A short list of topic areas using open-ended questions and prompts were developed through a review of the literature by discussion between the authors. Topics included: motivation upon being referred; motivation at the start of and throughout the scheme; how exercise had benefitted participants; and any external factors guided by the participant that may have influenced adherence to the schemes. The list was prepared as a guide for the interviews to ensure that the same topics were covered across all participants, but which still allowed participants to add further individual experiences and observations.



The sample size was determined based on data saturation, with transcripts investigated until no new emergent themes were identified (Glaser 1965). Through using a set of nine interviews, data saturation occurred after eight analysed transcripts, with the final transcript used to further substantiate the themes outlined (Guest *et al.* 2006).

### ***Thematic analysis***

A thematic analysis was selected within a pragmatist methodology, reporting the experiences, meanings and reality of the participants (Braun and Clarke 2006). Thematic analysis has been identified as a useful method for identifying, analyzing and reporting patterns within data through the use of an in-depth description of themes (Attard and Coulson 2012). Thematic analysis was employed utilizing a combined approach of inductive and deductive reasoning, to discover new information and identify themes aligning with theoretical propositions (Patton 2002). In line with Smith's (2004) assertions regarding the importance of an inductive approach, codes and themes were driven by data as opposed to being tied to predetermined categories.

To produce a thematic analysis Braun and Clarke outlined six steps that researchers should attend to. First, the interview data was transcribed verbatim by the first author before reading and re-reading the transcripts to allow familiarisation with the content. Second, the same author identified an initial set of codes, which identified particular features of the dataset, writing these codes in the margins of each transcript –

coding was performed manually. Third, preliminary codes were sorted into potential themes and all of the relevant coded data extracts were collated within the identified initial themes. At this stage, the second and third authors also reviewed the coded extracts in relation to initial themes before discussions took place to rename themes with underpinning codes and identify any further themes. Reliability checks were continuously performed as the coding continued, ensuring that coded extracts matched the identified themes in accordance with the agreement between the three authors. Fourth, the coded data were developed into a thematic map considering the alignment of themes and subthemes, with discussion and subsequent consensus from all authors on final allotted themes and subthemes. Fifth, clear and distinct definitions were derived for each theme to further refine labels. The sixth step encompassed selecting compelling extracts and relating these back to the research question.

Criteria were used to establish the quality of this study (Sparkes and Smith 2009). First, purposive sampling was utilized to ensure the experiences of the most appropriate persons' related to the research question were involved in the study (Tracy 2010). Specifically, only adherers to the scheme were sought to take part in the study to gather information regarding factors associated with adherence to an exercise referral scheme. The next strategy involved being transparent about the methods used in this study by outlining the detailed information involved with the data collection and thematic analysis process. The final strategy adopted was through a process of triangulation whereby all

researchers had input into the analysis of transcripts. Themes were discussed among researchers until a consensus had been met on the definitions and use of each theme and subtheme.

### **Findings and discussion**

The following section is organized under a number of interconnected themes that represent the experiences and meanings participants ascribe to adhering to the exercise referral scheme. Themes are discussed with representative quotations from participants reflecting the nature of each theme and are also discussed in relation to relevant theory and literature.

#### *Transitions in motivation to exercise*

Participants' transitions in motivation to exercise emerged as a main theme explaining how participants adhered to the exercise referral scheme. The theme concerns how participants' motivation altered during the exercise referral scheme incorporating both internal and external factors. This main theme comprised two subthemes: identified regulation, and intrinsic motivation.

#### *Identified regulation*

Identified regulation, as part of Deci and Ryan's (1985, 2000) self-determination theory, is a form of autonomous extrinsic motivation where a person consciously values a goal or activity and deems it personally significant but not intrinsically interesting to them (i.e., may not enjoy exercising). Participants had discourse on valuing the benefits of exercising and deemed exercise to be personally significant, resulting in outcomes that they appreciated. Lisa spoke of how she felt exercise could benefit her personally, 'I feel it's important for myself to get fit so I got, you know, a healthy heart, to alleviate any kinda problems I might have later on down the line.' Whilst David reflected, 'end of the day it's gonna benefit me. It's not gonna benefit anyone else, I'm the one that's tryna build myself back up.' To follow on from this, participants reflected on how exercise had actually benefitted them and their consequent motivation:

I was motivated in terms of... I was intrigued to see whether it would help me, but as I progressed further into going and the weeks progressed I was motivated to keep coming along and to make sure that I wasn't working away as much so that I could, you know, have that run of going because I could see the benefits.

(Penny)

Thus, being aware of and feeling the benefits of exercise acted as a motivator for participants, which are the components of identified regulation (Deci and Ryan 1985,

2000). Participants regulated their motivation by valuing exercise and the benefits it brings, then shaping their behaviours to match their beliefs, hence supporting previous findings showing identified regulation to predict initial/short-term adoption of exercise (Teixeira *et al.* 2012). Further, these findings lend support to Hardcastle and Taylor's (2005) qualitative findings showing participants to be more extrinsically motivated in the early stages of an exercise referral scheme. Some participants regulated their motivation through the value placed on exercise and the benefits it brings throughout the scheme, however, most participants incorporated more internal reasons for continuing to exercise.

#### *Intrinsic motivation*

Intrinsic motivation is the most autonomous form of motivation, representing people's interest in the activity itself (Koestner and Losier 2002). It was apparent that intrinsic motivation did not occur instantly in the majority of participants as they exercised initially through the valuing of exercise (identification) before they were able to speak of enjoying it and wanting to do it freely.

David spoke about looking forward to exercising, he said, 'it gave me something to look forward to, you know. And also, you know the, it's a sense of satisfaction having done that'. One of the other factors involved with intrinsic motivation was the inherent interest that participants had in exercising. Lisa divulged that exercise was some time for herself, she reflected, 'I was having a chunk of my life for me, you know. And I was

doing something good with my time...This is claiming back a bit of my life...it's important to me to have a bit of me time.' Thus, she recognized the significance exercise was playing in her life and that is why she continued to exercise. Gordon reflected how he enjoyed the specific exercise, 'well I just do the, I love the treadmill cos it gives yourself a chance to sort of push yourself a bit you know', whilst Hannah spoke of enjoying the exercise and especially what comes with exercising, 'I just enjoy feeling good. I enjoy getting the exercise done, coming away at the end of it and feeling really good. I feel as though I've done something.' This shows how the enjoyment of feeling the benefits that exercise brings (e.g., being fit, feeling healthy) and the exercise itself plays a role in motivating people to exercise throughout the scheme.

Intrinsic motivation as previous research dictates, is the type of motivation desired to enhance adherence behaviour, which supports previous findings showing self-determined motivation to be the advantageous form of motivation when adhering to exercise referral schemes (Hardcastle and Taylor 2005, Morton *et al.* 2008). It was interesting to find that participants were not initially intrinsically motivated in the present study. Indeed, whilst identified regulation has been shown to be important in the short-term adoption and maintenance of exercise, intrinsic motivation has been highlighted as being imperative for long-term exercise adherence (Teixeira *et al.* 2012). That participants may have been both extrinsically and intrinsically motivated during the scheme is also pertinent as Vallerand (1997, 2001) suggested that describing individuals

as simply being one or the other is not appropriate because both types of motivation can coexist within individuals to varying degrees. Participants transitioned their motivation from being extrinsically driven at the start of the scheme to more intrinsic towards the end of the scheme, a finding consistent with previous qualitative research in the field (Hardcastle and Taylor).

### *Changes in self-esteem*

This changes in self-esteem construct is contextualized as a change in the emotional evaluation of what exercise means to the self and the emotional impact it has on oneself, thus taking into account both global self-esteem, which refers to the overall aggregated opinion of oneself at any one time on a scale between negative and positive (Harter 1993); and domain specific self-esteem, which relates to one's self-esteem in regard to a particular area (i.e., exercise). Participants spoke about how exercise made them feel and their relationship with exercise in comparison to how they viewed themselves prior to starting the scheme. Hannah reflected on a number of negative thoughts when being referred to the scheme, she said, 'Just who wants to look at me? Why would Ben [husband] wanna be with me? Why would any man wanna be with me? Lots of things like that you know. Felt really self-despondent, you know?' Recognizing the impact of regular exercise, Hannah noticed the change in her emotions and cognitions as a result. She said: 'I'm not so teary anymore either, I used to be dead teary about myself because

I was so overweight and just oh God...I'm cheering myself up by coming to the gym. You know, so emotionally I'm not a wreck.' Another participant surmised what exercise meant to her, she said:

It's just a feel good factor. Erm, it makes me feel alive. Basically, just makes me feel alive...On an emotional level I'm a more calm person. It's sort of a paradox really, because it relaxes me and also on the other hand I feel this buzz. (Lisa)

Reflections by participants show how they attended to their self-esteem motive by recognising the impact exercise had on them and making sure they continued to feel that benefit by continuing to exercise. Previous research has found self-esteem to play a role in exercise, with exercise programmes being shown to have a positive influence on self-esteem levels (Fox 2000, Joyce *et al.*, 2010). The present analysis extends previous research by showing self-esteem to form part of an exercise identity and act as a motive for exercise, thus contributing to adhering to the schemes.

#### *Changes in self-efficacy*

Changes in self-efficacy concerns a participant's improvements in competence to perform an exercise task based on their ability, fitness, and confidence (Bandura 1986). Self-efficacy levels among participants were decidedly low at the start of the scheme, however,



this increased throughout the scheme and may have had a positive influence on their motivation to exercise. Participants spoke about the change in their self-efficacy levels:

I used to give things up: “No, can’t do that, too hard”. No confidence. I was reluctant to go into a place on my own. I wouldn’t go swimming myself and I wouldn’t even dream of going near a gym...Before getting into exercise I was listless. I had no energy, no muscle strength. Nothing. But now I feel that this has had a beneficial effect on me. I’ve got dumbbells and everything down the road [at home]. (Lisa)

This highlights a problem with confidence to start exercising as well as a physical fitness issue as participants felt that they did not have the physical capabilities to exercise effectively but this appeared to change as a consequence of exercising during the exercise referral scheme. Indeed, other participants reflected how much they had increased their levels of self-efficacy:

I’m quite confident going in now...I’m building it up gradually in the gym so I’m doing more and more in them. When I first came I was lucky if I could do more than ten minutes on the treadmill. Now I’m doing half an hour. (Hannah)

So, participants continued to exercise despite their low self-efficacy levels to begin with, which consequently resulted in increased self-efficacy to exercise. Indeed, this increase in self-efficacy reflected how this construct became helpful as opposed to being a hindrance. That self-efficacy played a role in participants adhering to the schemes is not surprising given that self-efficacy has been found to be one of the largest overall correlates with physical activity (Spence *et al.* 2006) and has shown to improve over the course of an exercise referral scheme (Edmunds *et al.* 2007, Jones *et al.* 2005). Yet, self-efficacy as a component of participants' exercise identity provides further explanation as to how a person's competence and improvements in, is associated with adherence to an exercise referral scheme.

#### *Changes in self-regulatory strategies*

Participants spoke about incorporating a number of self-regulatory strategies, which concerned acting in the long-term best interest of themselves with regard to exercise and their health, consistent with previous findings regarding self-regulation in exercise referral participants (Hardcastle and Taylor 2005). There were a number of facets that contributed to participant's self-regulation whilst exercising on the referral scheme such as scheduling exercise, setting goals, monitoring health, and making appropriate lifestyle changes. Jane spoke of the need to plan exercise into her life otherwise it would have been difficult to fit exercise in:

I'll organise my day around it. To the extent of putting my, you know my, my fitness gear and my keys in my bag and whatever it is I'm taking to work and arranging my kids and my daughter to not come home 'til a later time and things like that. Carefully planned...I need to plan it around work and I need to plan it around my kids. (Jane)

David paid particular tribute to the role of setting goals and its effect on his motivation. He reflected:

I set goals when I got out of hospital – and one of the things was to walk to the gym...the goal was to get back to work and I knew I had to do something about it so this is one of the reasons why I'd gone for the gym. (David)

Participants also started to actively monitor their health and acknowledged the impact exercise was having on their health, and as a consequence, they made conscious decisions to further enhance their health.

When I was doing the exercise I would go and get regular blood checks [for kidney impairment and diabetes]. I think the benefits that I achieved through going to the

gym I was not only going to the gym, I was watching my lifestyle as well, watching the eating habits and that sort of had a knock on benefit to the rest of my health. (Barry)

Participants also made mindful decisions to add more physical activity to their lifestyles as a supplement to their structured exercise during the scheme. For example, Hannah highlighted making a concerted effort to walk more, ‘I’m not parking my car as close to work as I used to. I’m parking a bit further away and walking...just to give me that wee bit more of exercise.’

Previous research has shown lifestyle changes, such as dietary changes, to be a result of physical activity participation (Kano and Tucker 1993, Tucker and Reicks 2002). Specifically, being able to schedule exercise, set-goals, monitoring one’s own health and making subsequent healthier lifestyle changes appeared to have a positive impact on participants and their ability to exercise, whereas prior to the scheme these may not have been established. It is these factors that contribute to self-regulation being a motive for exercise and being an integral part of an individual’s exercise identity as Abrams (1992) summarized that responses to the activation and attending to of an exercise identity are deliberate and self-regulated.

### ***Exercise identity***

As a consequence of the themes outlined, a major theme that emerged was that adherers' to the scheme developed an exercise identity, with themes discussed contributing to the formation of an exercise identity. An identity concerns a person categorizing the self as an occupant of a particular role and incorporating meanings and expectations associated with that role and its performance into the self (Burke and Tully 1977). According to Stets and Burke's (2000) identity theory, it is these expectations and meanings that form a set of standards that guide behaviour.

Participants spoke of how exercise was part of their life, through making it part of their routine. David said, 'I got into a routine where I do my three days a week so once I was in my routine I tried my hardest to get there.' It is this routine that participants talk about which serves part of the mirroring process between their exercise beliefs and exercise behaviours (Stets and Burke 2000). Other participants talked about striving to make up for missed sessions so as to maintain an affiliation with exercise. Hannah highlighted, 'I never made it so I came on the Sunday instead. So I try to work out if I never come and then I'll make it on the weekend if I have to. I came on the Sunday morning instead.' This also shows the amount of thought participants were putting into exercise. In summing up an observable relationship that had been developed between exercise and the self, Barry summarised:

The eight weeks [of the exercise referral programme] I knew that I wouldn't achieve all my targets, I knew it's a longer process. Not only I knew, my wife and I recognised it's a longer process and actually, erm, it's a commitment to I suppose... a life commitment to regular exercise while we can. (Barry)

These extracts illustrate the thought processes participants put into their exercise habits, thus attending to their exercise identity by actively thinking about how often they believe they should be and how often they actually are exercising so as to mirror their beliefs and behaviours (Stets and Burke 2000). Exercise identity is a concept that has shown prominence in exercise settings (e.g., Strachan *et al.* 2013, Vlachopoulos *et al.* 2011), although not as extensively in understanding adherence to exercise referral schemes. When applied to exercise, an individual may take on an exercise identity, thus perceiving him or herself as an exerciser and being part of that particular social group (Storer *et al.* 1997, Strachan and Brawley 2008). Thus, in the present analysis, participants reflected on a number of beliefs and meanings they attached to exercise, which contributed to them exercising throughout the scheme. This lends support to previous work showing an exercise identity to play a role in participants adhering to exercise referral schemes (Hardcastle and Taylor 2005).

## **Summary and conclusions**

The current study is the first to use self-determination theory to qualitatively examine the subjective experiences of adherers to an exercise referral scheme. Using thematic analysis, a number of themes emerged as factors associated with adherence to the schemes. Firstly, participants' motivation transitioned from being extrinsic to intrinsic during the scheme, which lends support to Hardcastle and Taylor's (2005) earlier qualitative work. Next, a number of themes including changes in self-esteem, self-efficacy and self-regulatory strategies were apparent among participants, which contributed to participants remaining engaged with the 8-week exercise referral scheme. Third, and most significant, an emergent exercise identity was identified among participants, which was influenced by the themes discussed. These findings provide further insight into the psychological factors associated with adherence to an exercise referral scheme, with a richness of data uncovering participants' personal experiences that has scarcely been shown previously in exercise referral settings.

Just one study investigating exercise referral schemes has shown an exercise identity to be prevalent among exercise referral participants (Hardcastle and Taylor 2005). The present study goes beyond these earlier findings by: (a) conceptualising an exercise referral adherer's exercise identity as being formed of motives to exercise, in line with Stets and Burkes (2000) identity theory; and (b) showing an exercise identity to be all encompassing, with other identified themes, such as self-determined motivation, to form part of an exercise identity. Associations have previously been observed between

self-determined motivation and exercise identity in exercise settings (e.g., Strachan et al. 2013, Vlachopoulos et al. 2011). Thus, the complementary use of exercise identity and self-determination theory may be used to provide an explanation of adherence to exercise referral schemes.

The findings from this qualitative study provide useful information regarding the important psychological constructs prevalent among adherers to an exercise referral scheme. However, some methodological limitations remain. Firstly, the interview schedule and subsequent thematic analysis were guided by self-determination theory with the intention of the study to provide some clarification on the role of this theory in explaining adherence to an exercise referral scheme. Despite findings emerging concerning the role of self-determination theory as well as other factors that influence adherence to an exercise referral scheme, it may be beneficial for future qualitative research to not impose an outsider view with respect to theory in order to discover and describe adherence to an exercise referral scheme from the explicit views of an adherer. Indeed, this may also capture any social and/ or environmental factors that may play a role in adhering to an exercise referral scheme. Secondly, given the qualitative nature of the study as well as the variability within the sample (i.e., range of presenting conditions), the findings may not be applicable to all participants entering an exercise referral scheme. Similar to previous studies (e.g., Edmunds *et al.* 2007), researchers may want to focus on a particular demographic (i.e., only obese participants) within exercise referral patients



so findings can be appropriately generalizable. Finally, the views and experiences of non-adherers to the scheme were not investigated in the present study. The examination of non-adherers would provide a holistic understanding of the psychological experiences of both adherers and non-adherers to the schemes.

Future research may look to pay close attention to the motivational experiences of participants and seek to establish mechanisms to which participants can value the benefits of exercise early on in the scheme and enjoy exercising freely throughout exercise referral schemes. In addition, exercise identity could be incorporated alongside self-determination theory in future investigations to acquire greater understanding as to how these constructs may be interrelated and consequently influence adherence to the schemes. Furthermore, exercise identity alone could be examined within exercise referral settings given its importance among adherer's to the scheme in the present study. This additional knowledge could help to foster intervention strategies to enhance exercise adherence and possibly help to offset participants' preexisting health conditions.

The findings from the present study provide implications for exercise referral scheme practitioners to alter their schemes to facilitate greater adherence levels. The constructs identified within a participant's exercise identity (i.e., self-esteem, self-efficacy, and self-regulatory strategies) could be developed throughout an exercise referral scheme in order for participants to nurture an identity with exercise. This could be achieved through a combination of instructor-led sessions. Also, towards the latter

stages of the scheme, participants should be taken through a process of acknowledging the relationship they have built with exercise as a result of initially exercising on the scheme and identifying how they can regulate their exercise identity to enable them to continue to exercise for the remainder of the scheme and beyond.

The present study identified key psychological constructs involved in adhering to an exercise referral scheme. Specifically, the altering of participants' motivation during the scheme may provide a basis in understanding how adherers to the scheme regulate their motivation beyond what has been found in the quantitative literature. Of particular importance is the finding of a participant's exercise identity, which is a concept that has only been investigated on one occasion in the exercise referral literature to date (Hardcastle and Taylor 2005). It was found that an exercise identity consisted of a number of motives to exercise that could contribute to a participant remaining active during an exercise referral scheme. Such findings provide additional understanding to the nuanced factors involved with previously inactive patients becoming regular exercisers and adhering to an exercise referral scheme.

### **Reference list**

Abrams, D., 1992. *Processes of Social Identification*. In: Breakwell, G. M. (Ed.) *The Social Psychology of Identity and the Self Concept*, London: Academic Press/Surrey University Press.

- Attard, A. and Coulson, N.S., 2012. A thematic analysis of patient communication in Parkinson's disease online support group discussion forums. *Computers in Human Behaviour* **28** (2), pp 500-506.
- Bandura, A., 1986. *Social foundations of thought and action*. Upper Saddle River, N.J.: Prentice Hall.
- Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* **3** (2), pp 77-101.
- Braun, V. and Clarke, V., 2013. *Successful qualitative research: A practical guide for beginners*. London: Sage.
- Burke, P.J., and Tully, J.C., 1977. The Measurement of Role Identity. *Social Forces* **55** (4) pp 881-897.
- Creswell, J.W., 2014. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th edition). Thousand Oaks, CA: SAGE Publications.
- Daley, A. and Duda, J.L., 2006. Self-determination, stage of readiness to change for exercise, and frequency of physical activity in young people. *European Journal of Sport Science* **6** (4), pp 231-243.
- Deci, E.L. and Ryan, R.M., 1985. *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.
- Deci, E.L. and Ryan, R.M., 2000. The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry* **11** (4), p 227-268.

- Dugdill, L., Stratton, G.S., and Watson, P.M., 2009. Developing the evidence base for physical activity interventions. In: Dugdill L, Crone D, Murphy R, eds. *Physical activity and health promotion: evidence-based approaches to practice*. Oxford: Wiley-Blackwell (pp 60–81).
- Edmunds, J., Ntoumanis, N., and Duda, J.L., 2006. A test of self-determination theory in the exercise domain. *Journal of Applied Social Psychology* **36** (9), pp 2240–2265.
- Edmunds, J., Ntoumanis, N., and Duda, J.L., 2007. Adherence and well-being in overweight and obese patients referred to an exercise on prescription scheme: A self-determination theory perspective. *Psychology of Sport and Exercise* **8** (5), pp 722-740.
- Fox, K.R., 2000. Self-esteem, self-perceptions and exercise. *International Journal of Sport Psychology* **31** (2), pp 228–240.
- Gidlow, C., Johnston, L.H., Crone, D., and James, D.V.B., 2008. Methods of evaluation: issues and implications for Physical Activity Referral Schemes. *American Journal of Lifestyle Medicine* **2** (1), pp 46-50.
- Glaser, B., 1965. The constant comparative method of qualitative analysis. *Social Problems* **12** (4), pp 436–445.
- Guest, G., Bunce, A., and Johnson, L., 2006. How many interviews are enough?: An experiment with data saturation and variability. *Field Methods* **18** (1), pp 59–82.

- Hardcastle, S. and Taylor, A.H., 2005. Finding an exercise identity in an older body: “It’s redefining yourself and working out who you are.” *Psychology of Sport and Exercise* **6** (2), pp 173–88.
- Harter, S., 1993. Causes and consequences of low self-esteem in children and adolescents. In R.F. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 87-116). New York: Plenum.
- Jones, F., Harris, P., Waller, H., and Coggins, A., 2005. Adherence to an exercise prescription scheme: The role of expectations, self-efficacy, stage of change and psychological well-being. *British Journal of Health Psychology* **10** (3), pp 359-378.
- Joyce, K.E., Smith, K.E., Henderson, G., Greig, G., and Bamba, C., 2010. Patient perspectives of Condition Management Programmes as a route to better health, wellbeing and employability. *Family Practice* **27** (1), pp 101–109.
- Kano, M. and Tucker, L., 1993. The relationship between aerobic fitness and dietary intake in adult females. *Medicine, Exercise, Nutrition and Health* **2**, pp 155-161.
- Koestner, R. and Losier, G.F., 2002. Distinguishing three ways of being highly motivated: A closer look at introjection, identification, and intrinsic motivation. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 101-121). Rochester, NY: University of Rochester Press.

- Landry, J.B. and Solmon, M.A., 2002. Self-determination theory as an organizing framework to investigate women's physical activity behavior. *Quest* **54** (4), pp 332-354.
- Morton, K.L., Biddle, S.J.H., and Beauchamp, M.R., 2008. Changes in self-determination during an exercise referral scheme. *Public Health* **122** (11), pp 1257-1260.
- Mullan, E. and Markland, D., 1997. Variations in self-determination across the stages of change for exercise in adults. *Motivation & Emotion* **21** (4), pp 349-362.
- Patton, M.Q., 2002. *Qualitative evaluation and research methods (3rd ed.)*. Thousand Oaks, CA: Sage.
- Rahman, J.R., Thogersen-Ntoumani, C., Thatcher, J., and Doust, J., 2011. Changes in need satisfaction and motivation orientation as predictors of psychological and behavioural outcomes in exercise referral. *Psychology & Health* **26** (11), pp 1521-1539.
- Ryan, R.M. and Deci, E.L., 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist* **55** (1), pp 68-78.
- Smith, J.A., 2004. Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. *Qualitative Research in Psychology* **1**, (1) pp 39-54.

- Sparkes, A.C. and Smith, B., 2009. Judging the quality of qualitative inquiry: criteriology and relativism in action. *Journal of Sport and Exercise* **10** (5), pp 491-497.
- Spence, J.C., Burgess, J.A., Cutumisu, N., Lee, J. G., Moylan, B., Taylor, L. *et al.*, 2006. Self-efficacy and physical activity: A quantitative review. *Journal of Sport and Exercise Psychology* **28**, pp 172-173.
- Stets, J.E. and Burke, P.J., 2000. Identity theory and social identity theory. *Social Psychology Quarterly* **63**, pp 224-237.
- Storer, J.H., Cychosz, C.M., and Anderson, D.F., 1997. Wellness behaviors, social identities, and health promotion. *American Journal of Health Behavior* **21** (4), pp 260-268.
- Strachan, S.M. and Brawley, L.R., 2008. Reactions to a perceived challenge to identity: A focus on exercise and healthy eating. *Journal of Health Psychology* **13** (5), pp 575-588.
- Strachan, S.M., Fortier, M.S., Perras, M.G.M., and Lugg, C., 2013. Understanding variations in exercise identity strength through identity theory and self-determination theory. *International Journal of Sport and Exercise Psychology* **11** (3), pp 273-285.
- Taylor, A.H., Doust, J., and Webborn, N., 1998. Randomised controlled trial to examine the effects of a GP exercise referral programme in Hailsham, East Sussex, on

- modifiable coronary heart disease risk factors. *Journal of Epidemiology and Community Health* **52** (9), pp 595–601.
- Teixeira, P.J., Carraça, E.V., Markland, D.A., Silva, M.N., and Ryan, R.M., 2012. Exercise, physical activity, and self-determination theory: A systematic review. *Journal of Behavioral Nutrition and Physical Activity* **9**, p 78.
- Tobi, P., Estacio, E.V., Renton, A., Yu, G., and Foster, N., 2012. Who stays, who drops out? Biosocial predictors of adherence in participants attending a longer term exercise referral scheme in the UK. *BMC Public Health* **12**, p 347.
- Tracy, S.J., 2010. Qualitative quality: eight “big tent” criteria for excellent qualitative research. *Qualitative Inquiry* **16**, pp 837–851.
- Tucker, M. and Reicks, M., 2002. Exercise as a gateway behavior for healthful eating among older adults: An exploratory study. *Journal of Nutrition Education and Behavior* **34** (1), pp 14-19.
- Vallerand, R.J., 1997. Toward a hierarchical model of intrinsic and extrinsic motivation. In M.P. Zanna (Ed.), *Advances in experimental social psychology: Vol 29* (pp. 271-360). New York: Academic Press.
- Vallerand, R.J., 2001. A hierarchical model of intrinsic and extrinsic motivation in sport and exercise. In G.C. Roberts (Ed.), *Advances in motivation in sport and exercise* (pp. 263-320). Champaign, IL: Human Kinetics.



Vlachopoulos, S.P., Kaperoni, M., and Moustaka, F.C., 2011. The relationship of self-determination theory variables to exercise identity. *Psychology of Sport and Exercise* **12** (3), pp 265-272.

Warburton, D.E.R., Nicol, C.W., and Bredin, S.S.D., 2006. Health benefits of physical activity: the evidence. *Canadian Medical Association Journal* **174** (6), pp 801–809.

Williams, N.H., Hendry, M., France, B., Lewis, R., and Wilkinson, C., 2007. Effectiveness of exercise-referral schemes to promote physical activity in adults: systematic review. *British Journal of General Practice* **57** (545), pp 979-86.