

IT Tralee Masters by Research Programme Details

Title of Project: AD-TRANS Project: The Relationship Between Exercise and Adherence to Medical Treatment in Renal Transplant Recipients: A Bio-Psychosocial Study.

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Brief Biography of Principle Supervisor:

Dr. Weekes is a full time lecturer at Tralee Institute of Technology for the last thirteen years, teaching within the Health and Leisure Faculty, primarily in the area of Physical Education.

Karen's research interests are generally focused within the realms of Sport Psychology, exploring cognitive coping methods of elite endurance athletes. An MSc. entitled 'Cognitive Strategies and Motivational Profiles of Ultra-Endurance Athletes' investigated the motivations and strategic mental strategies of Deca-Ironman competitors during competition. The mixed methods approach for gathering data for this study took place during the World Deca Ironman Championships in Mexico. Findings from this MSc.research provided the foundation for a PhD entitled 'Coping Mechanisms of Elite Ultra-Endurance Athletes'. The three, primarily qualitative, studies within the PhD thesis involved elite / world class mountaineers ($N=10$), ultra-distance runners ($N=8$) and a detailed case study of one further ultra-distance runner ($N=1$). Ecological validity was assured as the K2 cohort were interviewed on location, during a K2 climbing expedition in Pakistan. Results highlighted stressors these athletes experienced during training and competition and provided specific insights into how elite athletes mentally and practically cope with the wide ranging stressors they encounter during their ultra-endurance activities. Specific linkages between specific stressors and beneficial coping mechanisms were illuminated. A coping framework was then developed from the findings, for use by sport psychologists and endurance athletes, and tested for rigour using a case study approach.

From a membership / board perspective, Karen is currently an active member of the Physical Education Association of Ireland, PEPAYS (Physical Education, Physical Activity and Youth Sport) and All Ireland All Active (AIAA).

Recent Research Publications:

Weekes, K. Cognitive Strategies of K2 Mountaineers. *Division of Sport & Exercise Psychology Inaugural Conference, 11- Dec -2008 – 12 -Dec -2008, London, England. (presentation).*

Weekes, K., & Woods, C. (2005). Cognitive strategies and motivational profiles of ultra-endurance athletes. *Journal of Sport Sciences, 23, 2, 185-186.*

Weekes, K., Sharp, L., Wallace, E., & McIntyre, T. Coping on K2. *7th International Mountaineering Conference and Outdoor Sports Conference, 20 – Nov – 23 – Nov – 2014, Charles University, Prague, Czech Republic. (presentation).*

Weekes, K., Sharp, L., Wallace, E., & McIntyre, T. Coping mechanisms of elite ultra-endurance athletes. *7th International Mountaineering Conference and Outdoor Sports Conference, 20 – Nov – 23 – Nov – 2014, Charles University, Prague, Czech Republic. (presentation).*

Weekes, K., Sharp, L., Wallace, E., & McIntyre, T. Coping mechanisms of elite ultra-endurance athletes. *18th Annual American Association of Behavioural and Social Sciences, 9 – Feb – 10 – Feb – 2015. Las Vegas, Nevada (presentation).*

Weekes, K., Sharp, L., Wallace, E., & McIntyre, T. (2015). Coping mechanisms of elite ultra-endurance athletes (Abstract). *18th Annual American Association of Behavioural and Social Sciences, Conference Proceedings (pp. 109), Las Vegas, Nevada.*

Research Project Abstract

AD-TRANS Project: The Relationship Between Exercise and Adherence to Medical Treatment in Renal Transplant Recipients: A Bio-Psychosocial Study.

Abstract

The UNESCO Chair, as part of its role in fostering greater awareness of the importance of sport, physical education (PE), and physical activity in the lives of people with a disability, have forged a collaboration with the Irish Kidney Association in order to deliver this project. The project explores how adherence to immunosuppression medication is influenced by physical activity interventions.

Evidence suggests that non-adherence to immunosuppressive medication is a contributing factor in a high percentage of failed transplants (Nevins and Thomas, 2009). The proposed research hypothesises that renal transplant recipients who are actively engaged in regular sport or fitness programmes are more likely to adhere to a medication programme. Regular involvement in sport requires motivation and commitment and it is considered that this mind-set is conducive to adherence to prescribed medication regimes (Gordon et al, 2009). Furthermore, risk factors of non-adherence and motivational tools required to enhance adherence will be illuminated. The research will also explore to what extent adherence-reinforcing behaviour can be established with the maintenance of a regular exercise regime and specific activity / sports goals.

The Irish Kidney Association has observed that regular involvement in transplant sports can impact positively on adherence to medication regimens, which is supported by research, for example Romano et al. (2010). The social aspects of being part of a transplant sport peer group encourages positive lifestyle behaviour, as people are positively motivated socially through, for example, the desire to remain in the group and maintain friendships, which impacts positively on adhering to prescribed medication regimens. The research will explore how regular involvement in sport, including transplant sports, can be conducive to positive outcomes and prognoses. It is hoped that this research project will provide transplant patients and their medical teams with evidence-based direction on appropriate levels of exercise to promote adherence to medical treatments in post-operative medicine. As part of the research, a comprehensive document will be compiled detailing physical activity guidelines for kidney transplant patients.

The research adopts primarily phenomenological and qualitative approaches. Data gathering processes will examine, through literature and stakeholder interviews, the perspectives of post-operative patients with sedentary and active lifestyles, in relation to their experience of taking immunosuppression medication and views on the role of physical activity on recovery and adherence.

References

Gordon EJ, Prohaska TR, Gallant MP, Sehgal AR, Strogatz D, Yucel R, Conti D, Siminoff, LA. Longitudinal analysis of physical activity, fluid intake, and graft function among kidney transplant recipients. *Transpl Int.* 2009;22:990–998.

Nevins TE, Thomas W. Quantitative patterns of azathioprine adherence after renal transplantation. *Transplantation* 2009; 5: 711–718, 10.

Romano G, Simonella R, Falletti E, Bortolotti N, Deiuri E, Antonutto G, De Vita S, Ferraccioli GF, Montanaro D. Physical training effects in renal transplant recipients. *Clin Transplant*. 2010;24:510–514.

Research Context (Technical Merit & Impact)

Synopsis of initial literature

Adherence is a concept, which when specifically relating to medical conditions and associated treatment programmes, has been an area of significant focus for researchers. Knowledge with regard to the interdependence of factors which impact on adherence to prescribed medication regimes is growing (Midence and Myers, 1998). Still, despite this evidence, clinicians find it difficult to persuade patients to heed the advice and recommendations given to them post-treatment. This research will explore whether or not, this level of adherence is impacted positively by those who are more physically active, and accustomed to complying with sports and exercise regimes. The focus will be on patients who are post-kidney transplant, in order to explore the links between adherence to medical advice and exercise, with a particular focus on the individual's involvement in transplant games. Consequently, research has shown that researchers and clinicians potentially know more about the theoretical, conceptual and methodological issues of adherence compared to the understanding of how patients comprehend their treatments and their decisions to adhere to them (Midence and Myers, 1998).

Firstly, the project will consider the meaning of adherence. In order to do this, the proposed research will initially explore the concept of compliance, which is very much considered the predecessor of adherence. Also, it has been found that the terms can sometimes be used interchangeably. There has been a large amount of research published using both terms but few have engaged with defining the underlying concepts. Compliance was defined by Haynes (1979) as the extent to which a person's behaviour coincides with medical advice. Non-compliance can be seen as a deviant behaviour and is very much a judgemental term. Adherence, however, has been stated to imply a more collaborative and engaged involvement of the patient undergoing treatment, resulting in them working together with the clinician in planning and implementing the treatment regimen (Haynes, 1979; Midence and Meyers, 1998).

The move from compliance to adherence is an important one as it shifts the focus away from orders and obedience to a more patient centred approach. Research has established that low rates of adherence are evident across the entire range of diseases including asthma, diabetes, heart disease, cancer, and kidney disease, even to the extent where it leads to death following organ transplantation (Prihodova et al., 2014). Similar relationships have been identified as concerns when the literature explores adherence with regard to physical therapy and prescribed exercise (Taddeo, Egedy & Frappier, 2008).

Patients with serious medical conditions and procedures, have been found to be just as likely non-adherent to taking medicine relating to their conditions, as those suffering from less life-threatening conditions, even though in these more severe cases non-adherence to medication can lead to organ failure or death. Didlake *et al.*, (1988) reported that non-adherence was the third leading cause of renal transplant rejection. Kiley *et al.*, (1993) conducted a study on post-operative kidney and renal patients, to assess their levels of compliance to immunosuppression medications. The study examined levels of the immunosuppressant found to be in the blood and also surveyed adherence to a recommended post-operative diet. The study did report some limitations, but ultimately provided figures relating to the relationship between non-compliance and death. Three months after the transplant operation, 91% of the 18% of respondents not adhering to taking immunosuppressant medication, had died. Furthermore, non-

adherence has been found to result in treatment failures, re-emergence of drug resistant organisms (Gibbons 1992), costs to drug companies, and in some cases, death (Kiley et al., 1993).

There has been discussion surrounding what might cause successful adherence in patients and the concept 'adherence paradox', has been recognised by researchers such as Jacke, Albert & Kalder (2015). The adherence paradox has been found to appear in virtually every domain of medicine, even in terms of simply finishing a course of routine antibiotics. The adherence paradox relates to how a patient may fail to adhere and why. It is based on two schools of thought - namely a failure to encode, to hear or understand the medical advice and benefits of adherence or the failure of retrospective or prospective memory, which results in patients forgetting to adhere when in another context, for example when the individual leaves hospital and returns home. This paradox will be considered as part of the focus of this study.

The bio-psychosocial model

This research will involve examining the perspectives of the person themselves, in keeping with the bio-psychosocial model of disability (Engels, 1977). Engels bio-psychosocial model offers a more holistic approach to health and illness than its predecessor the bio-medical model according to Havelka, Lucanin and Lucanin (2009). It signals a move from more traditional approaches, focusing on whether someone is ill or not, to a model that encapsulates all aspects which could impact on a patient. The bio-psychosocial model therefore adopts a more systems-based approach rather than being focused solely on medicines or treatments.

Therefore, "the bio-psychosocial model is both a philosophy of clinical care and a practical clinical guide" (Borrell-Carrio, Suchmann & Epstein, 2004; p. 576). It is a way of considering how disease, illness or disability are affected by, and interact with, multiple external forces from both society and the individual themselves. Considering all of these elements results, a move from a relative de-humanisation of treatment (found in the medical model) to a more holistic, person centred approach, proved more beneficial. This approach resulted in a more complete understanding of both the illness/disability in question and the person themselves. Biological factors in this instance can include aspects such as age and gender, while psychology relates to attitudes and modes. Social elements can be understood as family, relationships and support with environmental factors including the work place, local fabric and available services. This research fits this model well, as the aim is to explore the relationship between an environmental and social factor of sport and its interaction with the person themselves.

Originality

The issue of lack of adherence to immunosuppression medication has been highlighted in the literature (Dobbels et al., 2005). However, much less attention has been afforded to the impact that regular sport and physical activity can have on adherence to medication programmes. Traditionally, sport or physical activity would not have been considered in treatment approaches. However, with the advent of the bio-psychosocial model and an overall shift in perspective surrounding health and wellness all types of physical activity are now considered beneficial to wellness, and are gaining increased recognition as valid treatment modalities. For example, some countries such as France have recently taken the decision to allow physicians prescribe physical activity and exercise as treatment rather than antibiotics, further highlighting the timely importance of this research.

Much has been written about increased physical activity positively improving individuals exercise capacity following transplant operations. The benefits of physical activity and exercise have been heralded in many fields of enquiry (e.g. Fletcher et al., 1996). Research has discussed the many benefits and how they impact on both mental and physical wellbeing (e.g. Penedo and Dahn, 2005).

Physical *inactivity* has been found to play a key role in the development of chronic disease and early death (Warburton, Nicol & Bredin, 2006). It cannot be refuted that there are clear benefits to physical

activity, and when it comes to health, Those that are more active have a greater chance of living a life free of disease. “There appears to be a linear relation between physical activity and health status, such that a further increase in physical activity and fitness will lead to additional improvements in health status” (Warburton, Nicol & Bredin, 2006; p.1).

The current research offers an innovative study as it examines how a positive attitude developed when partaking in regular exercise, can impact positively on adherence behaviours post-transplant. Furthermore it illuminates effective motivational tools for exercise and medical requirement adherence.

Feasibility

The project team agree that the technical feasibility of this project is very much achievable. The timeline sets out attainable milestones for the successful researcher and the professional network will add continued support to ensure the project gets completed in a timely manner and to a high standard.

Ethical Issues

Minimal Risk Approval was sought and this project is deemed to be above minimal risk level.

The queries which deemed further clarification are discussed very briefly below. All of these will be addressed fully in the complete Ethical Approval to be submitted June 2016.

1. The feasibility of IKA to act as a Gatekeeper for participants who are engaged with healthcare services in post-transplant care and how gatekeeper/ethical approval will be obtained in these instances

Response: This research project will be conducted in accordance with the Institutes Research Ethics and integrity codes, Policies and Procedures (ITT, 2012). Any ethical procedures set down by the Irish Kidney Association, its partner network or any institution where the research interviews take place will also be strictly adhered to. This ethical approval will be sought when the successful student is appointed.

2. Interaction with a healthcare professional regarding issues related to medication adherence in people post-transplant

Response: Interaction with healthcare professionals will be incorporated into the design as advised

3. How 'likelihood of adherence' will be measured

Response: A matrix will be developed, following the completion of the literature review by the appointed researcher which will engage with research and themes relating to adherence. Levels of adherence will be assessed on the basis of this matrix.

4. How access to 'medical statistics' / 'medical procedure' can be accurately obtained

Response: This relates to the self-reporting of patients on their own condition and procedure, as the study focuses on the lived experiences of participants.

Study aims and objectives

The aims of this project are two-fold: Firstly it seeks to evaluate the relationships between physical activity and adherence levels to immunosuppression medication programmes amongst post kidney transplant patients. Secondly it aims to identify the effective motivational strategies used by individuals who adhere to exercise and medicine, and establish are the progressive motivational tools potentially transferrable to other transplant patients.

Objectives:

1. To complete a comprehensive review of the literature pertaining to transplant, adherence to immunosuppressants, motivational categories, physical activity and transplant success rates. The literature review will be systematic in approach and will involve providing a concise overview of the debates in the currently available publications.
2. To understand the role of adherence to immunosuppression medication in transplant survival.
3. To establish what relationship exists between physical activity and positive recuperation following transplant operations
4. To determine if active patients are more likely to adhere to medication and consequently have more successful transplant outcomes.
5. To establish effective motivational approaches used by individuals who adhere to exercise and required medical programmes.
6. To contribute Internationally to the literature in this field.
7. To allow for the development of a researcher who has an in-depth understanding of multiple fields of literature, concepts and research techniques.

Research Methodology

Research Design and Methodology

This project adopts a mixed method approach to data collection. Interpretive phenomenology guided by grounded theory will be employed throughout the research. Quantitative data will be collected with regard to the procedure under-gone, patient statistics and where relevant the activity/exercise level of the participants will be established. Qualitative data will be collected through face to face, semi-structured interviews of approximately 1 hour in duration or via online modes of the same duration, for example Skype, thereby gleaning insightful and detailed information.

Participant groups and sampling

The supervisors, together with the successful researcher and contacts within the Irish Kidney association, will identify appropriate groups from which the research sample will be drawn. The partner network of both UNESCO and The Irish Kidney Association will also be engaged in this process. Following relevant ethical clearance and gatekeeper engagement, purposeful sampling will be used to identify the research participants. The Irish Kidney Association has direct involvement with the European and World Transplant games Steering Committees and it is envisaged that these will also be gatekeepers.

Data analysis:

Data analysis will involve two separate work packages, firstly quantitative data will be analysed using SPSS while qualitative data will be analysed using word table analysis and / or NVIVO. Thematic coding will commence the qualitative aspect of the analysis, developing, and then clarifying, general dimensional themes which emerge throughout the interview process.

