

# **Self-efficacy, health value and locus of control in diabetes and non-diabetes**

Jane Heffernan

Submitted in partial fulfilment of the requirements of the Bachelor of Arts degree  
(Psychology Specialization) at DBS School of Arts, Dublin.

Supervisor: Dr Chris Gibbons

Head of Department: Dr S. Eccles

April 2013

Department of Psychology

DBS School of Arts

## CONTENTS

Acknowledgements	3
Abstract	4
Chapter	
1. Introduction	5 - 18
2. Methods	19 - 24
I. Participants	
II. Design	
III. Materials	
IV. Procedure	
V. Ethical Considerations	
3. Results	25 - 38
4. Discussion	39 - 44
5. References	45 - 50
6. Appendices	51 - 80

## ACKNOWLEDGEMENTS

I would like to thank all the participants who participated in this research and to Dr Chris Gibbons for all his support and advice which was always available and is much appreciated.

I wish also to thank all the lecturers from the Psychology Department in Dublin Business School, especially Margaret Walsh.

Thank you also to my all my friends and peers for all their support when completing this research project.

Finally, a special thanks to both my sisters for not only their patience and support but also for their financial support.

**Abstract**

This study investigated the association between self-efficacy, age, BMI and the differences in diabetes/non-diabetes, family history of diabetes/no history, and education level in health value, general health, satisfaction with life happiness. 87 participants completed an online questionnaire comprising of the following questionnaires: The General Self-efficacy Scale, the Health Value Scale, Multi-dimensional Health Locus of Control, The General Health Questionnaire, Satisfaction with life and 5 questions from the Quality of Life Index G3. The analyses found correlations between self-efficacy and health value, general health, satisfaction with life and happiness and found differences between diabetes/non-diabetes and education level in levels of health value. Risk factors for T2D and self-efficacy do not influence health behaviour.

## **Introduction**

The absence of a register for diabetes in Ireland means that numbers can only be estimated. According to the publication by The International Diabetes Federation “Diabetes: The Policy Puzzle, Is Europe making Progress? (2012)”, it is estimated that there are 191,380 people in Ireland with Diabetes and this is expected to increase to 278,850 by 2030. Of these 191,380 people approximately between 160,000 and 180,000 have type 2 diabetes (Diabetes Action, 2012).

The World Health Organisation (2012) describes diabetes as a chronic illness that arises by either the pancreas not producing enough insulin or when the body cannot use the insulin it produces effectively. Insulin is a hormone that controls blood sugar and hyperglycaemia (raised blood sugar), is the result of uncontrolled diabetes and over time may lead to serious damage to many of the body’s systems, including the nerves, and blood vessels. Type 2 diabetes results from the body not using insulin effectively and is mainly the result of excess body weight and physical inactivity.

Although type 1 and type 2 diabetes have different causes, there are two factors significant for both, a predisposition to the disease can be inherited and it is then triggered by something in the environment. Type 2 diabetes has a stronger link to family history than type 1. Lifestyle also influences the development of type 2 diabetes. The rise in obesity is considered to be behind the high incidence of diabetes and in today’s society with the combination of abundant food and a sedentary lifestyle, maintaining a healthy weight can be difficult and can result in many being heavier than they should be. Obesity has a tendency to run in families, and families are inclined to have similar eating and exercising habits (American Diabetes Association, 2012). Diabetes Action Ireland (2012) state that poor diet, being overweight, being sedentary, genetics, over the age of 45, belonging to a high-risk ethnic group, as the risk factors associated with developing type 2

diabetes. For women having gestational diabetes or a baby weighing over 9 pounds are additional risks.

The National Institute of Health in the US recently published an online book “The Genetic Landscape of Diabetes” and refers to the escalation of type 2 diabetes as epidemic. Epidemics of infectious diseases increase when there is increased spread of the infectious agent and decrease when the number of victims who are susceptible falls either because they become immune or die. An epidemic of a genetic disease such as type 2 diabetes is similar. The number of cases increases when there is a rise in environmental risk such as an abundance of food and lack of activity, and decreases when the number of susceptible individuals falls due to deaths from the complications of diabetes. Goff and Duncan (2010), also refer to the incidence of type 2 diabetes as epidemic proportions in the western world and is now developing pandemic status as it affects developing countries. Emphasis should now move towards prevention through diet and lifestyle management in order to control the current situation.

The treatment of type 2 diabetes is self-managed and successful management requires changes in a person’s daily routine. The treatment is also complex and in order to maintain control over blood glucose, individuals must take medication such as oral medication or insulin injections or sometimes both, monitor their blood glucose throughout the day, eat an appropriate diet and take regular exercise which can be difficult to incorporate into their existing lifestyles (Mishali, Omer and Heymann, 2010).

An important psychological factor with reference to the practice of health behaviour is a sense of self-efficacy which is the belief that the individual has the ability to carry out a particular behaviour (Bandura, 1991; Murphy et al., 2001 as cited in Taylor, 2007, p. 57). Whether a person practices a particular health behaviour depends on several perceptions, beliefs, and attitudes: the scale of a health threat, the degree to which that person believes that he or she can perform the necessary action to reduce the threat (self-efficacy), and the degree to which the particular health measure advocated is effective, desirable, and easy to put into practice (Taylor, 2007, p. 58).

Sharoni and Wu (2012) investigated the association between self-efficacy and self-care behaviour to establish the degree of self-efficacy and to examine differences in self-efficacy according to patient variables, including state of health in a Malaysian population with type 2 diabetes. The study found that generally the participants tended to have moderately high self-efficacy. Participants with higher education levels had higher self-efficacy scores and were more confident about tasks relating to blood glucose. Participants with a longer history of type 2 diabetes also had high self-efficacy scores, as were those with no other chronic conditions or complications of type 2 diabetes. The study also found that the participants lacked confidence about performing physical exercise and managing a healthy diet. Mishali, Omer and Heymann (2011) found similar results and suggested that taking medication and monitoring blood glucose is less dependent on the feeling of self-efficacy than other measures that require more behavioural change such as physical activity and diet. The Diabetes Attitudes, Wishes, and Needs (DAWN) Study was a cross-sectional international survey initiated by Novo Nordisk in collaboration with the International Diabetes Federation. The purpose of the survey was to identify attitudes, wishes and needs among people with diabetes and care providers to lay a foundation for efforts to improve diabetes care nationally and internationally. Reported rates of self-management behaviours were low especially for diet and exercise. Only 16.2% with type 2 diabetes reported that they carried out all of the recommendations they had been given. Care providers rated patient behaviours

substantially worse estimating that 2.9% of their typical type 2 patient completely followed their recommendations.

Conversely, Dutton et al. (2009), examined whether self-efficacy mediated the relationship between participation in a one month print based physical intervention and improvements in activity levels. This study found changes in self-efficacy were responsible for the improvements in physical activity associated with the intervention and that self-efficacy is an appropriate and important target for promoting physical activity among those with type 2 diabetes. Wu, Lee, Liang, Lu, Wang and Tung (2011) examined the effects of a self-efficacy programme in Taiwan with type 2 diabetes participants. The participants in the intervention group received the standard diabetes education which included a booklet on diet control, physical activity, blood glucose testing, adherence to medication regimen, and foot care. In addition the self-efficacy programme consisted of group efficacy-enhancing counselling sessions. These sessions contained self-efficacy enhancing skills, goal setting and peer support. The study found that the intervention group had higher scores in self-efficacy and self-care behaviour and less usage of health services.

### Health Locus of Control

Perceptions that one's health is under personal control also determine health behaviour, the Health Locus of Control Scale (Wallston and Wallston, 1978) measures the degree to which people perceive themselves to be in control of their health, whether they perceive powerful others to be in control of their health, or regard chance as a the major determinant of their health. Those people who are inclined to see health as under personal control may be more likely to practice good health behaviours than those who regard their health as due to chance factors (Taylor, 2007, p. 48).

O’Hea et al., (2009) tested the interaction of internal locus of control, self-efficacy and outcome expectancies in relation to HbA1c (refers to glycated haemoglobin, which identifies average plasma glucose concentration) in those with type 2 diabetes. The study found that in general participants had relatively strong beliefs in internal locus of control and they also had very high ratings of outcome expectancy and in contrast had lower ratings of self-efficacy. Interestingly, self-efficacy demonstrated the strongest relationship with HbA1c. Grotz, Hapke, Lampert and Beaumeister (2011) examined the relationship between sociodemographic variables and health locus of control (HLC) and also HLC and health behaviour in a German adult population. Older participants, those of low socioeconomic status and migration background had higher HLC score on the powerful others and chance dimension. With regard to health behaviour the chance dimension of HLC showed the most significant relationship with unhealthy behaviours such as less physical activity, less medical teeth protection, less participation in health courses and less systematic information-seeking. Therefore high chance HLC can be regarded as a risk factor concerning adequate health behaviour. Inconsistencies were found among participants with high internal locus of control who smoked more and yet consumed less alcohol than those with those with low internal locus of control. Nevertheless, the overall predictive value of HLC was rather small.

Morowatisharifabad, Mahmoodabad, Baghianimoghadam and Tonekaboni (2010), examined if perceptions of control for overall diabetes management were related to adherence to the diabetes regimen in a sample of diabetes participants in Iran. The study found that participants displayed internal locus of control, followed by powerful others and chance locus of control. The male participants demonstrated more internal locus of control whereas the females displayed evidence of the chance dimension. External locus of control increase with age and internal locus of control increased as educational level increased. There was a positive relationship between internal locus of control and adherence to the diabetes regimen and a negative association between the chance dimension and adherence to the diabetes regimen.

Abella and Heslin (1984), investigated the mediating role of HLC beliefs in the relationship of relevant psychological variables to preventative health behaviour in psychology students. The study found that participants who both value health and has an internal locus of control is more likely to engage in preventative health behaviours. On the other hand, those with an external locus of control and who are exposed to associates with poor health behaviour patterns exhibit lower levels of preventative health behaviour than internals or those exposed to positive health behaviours. Weiss and Larsen (1990), examined both health value and HLC in predicting health protective behaviours and found that both HLC but particularly health value increased the probability that participants engage in more health protective behaviours. For those who had a lower value on health, a more internal HLC appeared to influence the tendency to engage in health protective behaviours only slightly. On the other hand, for those placing a high value on health, a more internal HLC substantially increased the tendency to engage in health protective behaviours. Jackson, Tucker and Herman (2007), examined the roles of health value, social support (family/friends) and health self-efficacy in the health-promoting lifestyles of a population of students. The study found that both health self-efficacy and health value were significant predictors of engagement in a health-promoting lifestyle. However, social support was not found to be a significant predictor suggesting that personal variables such as health value and health self-efficacy are stronger influences than are the external influences of social support.

Smith and Wallston (1992), state that the importance of health to an individual is believed to influence their behaviour with respect to their health. More Americans that ever attempting to stop smoking, eating healthier and exercise however, some behaviour indicates a low value of health and one reason for the difficulty in getting people to change their health behaviour is that preserving health may not be society's highest value. Oftedal, Karlsen and Bru (2010), tried to identify life values in adults with type 2 diabetes, and examine how these values may influence self-regulation behaviours. The study found that life values play an important motivational role in relation to self-regulation behaviours however, several of these values may conflict with the

requirements for adequate self-regulation, which in turn may influence the self-regulation. The study revealed that some participants placed such a high value on self-determination that they ignored the health professionals' advice. The study also highlighted the fact that goals related to self-regulation such as diet and exercise were formulated in general rather than specific terms which may lead to low motivation for diabetes regulatory behaviours.

## Prevention

Alibegovic et al. (2009), investigated the impact of nine days of bed rest on insulin secretion, insulin action, and whole-body glucose and fat metabolism in first degree relative and matched control participants. The study found that the nine days of bed rest caused severe whole-body insulin resistance and a compensatory increase of insulin secretion in healthy young men with and without a family history of diabetes. While whole-body insulin resistance converged towards similar levels in both groups during bed rest, hepatic insulin resistance was aggravated in those with a family history of diabetes only in response to bed rest, which in turn may be related to the presence of visceral obesity. Participants with a history of diabetes exhibited reduced insulin secretion when seen in relation to their degree of hepatic insulin resistance. The results highlight the importance of physical activity even for relatively short periods in healthy participants with or without a family history of diabetes.

Moore et al. (2011), evaluated the effectiveness of a six month, group based diabetes prevention programme (The Healthy Living Course) and assessed whether the participation in the programme led to changes in modifiable risk factors for type 2 diabetes among an already at risk pre-diabetic population. Pre-diabetes refers to impaired fasting glucose and/or impaired glucose tolerance at less than diabetes levels and it is widely recognised as an intermediary stage in the development of type 2 diabetes, providing early warning of diabetes onset. The primary aims of

the intervention were to improve diabetes knowledge, dietary intake, activity levels and promote weight loss in participants. Secondary aims were to improve glucose metabolism and other biological indicators of good health (such as BMI, waist circumference, blood pressure, cholesterol and triglycerides), motivation to change, perceived self-efficacy and make lifestyle changes and mood (positive affect, depression and anxiety). The intervention group significantly improved on diabetes knowledge, motivation to change and positive affect, with trends in improvement for self-efficacy. These changes were accompanied by healthier eating and higher activity levels. Better lifestyle practices were in turn accompanied by significantly greater reductions in weight, BMI and waist size and also improved blood pressure and fasting glucose levels. More importantly the intervention group improved their diagnosis and move from pre-diabetes to non-diabetes at almost twice the rate of the control group.

## Prevalence

Hamer, Kengnet, Batty, Cooke and Stamatakis (2011) assessed trends in diabetes prevalence and key risk factors over a 5 year period from 2003 to 2008 in a nationally represented sample in Scotland. Results found that the incidence of diabetes has almost doubled and was closely followed by an increase in obesity levels and a reduction in the quantity of people exercising. Reis et al. (2011) examined how the combination of lifestyle factors related to an eleven year risk in developing diabetes. They found that those with a low-risk lifestyle that included not smoking, regular exercise, a healthy diet, alcohol in moderation and normal body weight dramatically reduced the risk of developing diabetes. They also found that those who were of normal weight, overweight or obese but who otherwise followed a low-risk lifestyle also had a lower risk of developing diabetes. This also applied to those with a family history of diabetes.

## Body Mass Index (BMI)

Body Mass Index (BMI) is a calculation that takes height and weight into consideration and gives a score of one's body fat. A score of 18–24.9 is a healthy weight. If overweight, the score lies within the range to 25–29.9; a score of 30 and above indicates obesity. Milanovic, Pantelic, Trajkovic, Sporis and Aleksandrovic (2012) reviewed twenty papers published between the years of 1998 and 2010 to establish the effects of exercise on the reduction of body weight and composition in those between the age of 40 and 64. Although obesity is associated with many chronic diseases including diabetes, this review found that moderate exercise together with a reduced calorie diet has a positive influence on body fat and weight reduction and those who exercise regularly have a better chance of maintaining or reducing body weight for a longer period than those who relied on a reduced calorie diet alone.

## Psychological Distress

Brandheim, Rantakeisu and Starrin (2013) examined the relationship between BMI and psychological distress in a large sample of Swedish adults. This study found that psychological distress decreased with age regardless of BMI, especially for women. However having a BMI over  $35\text{kg/m}^2$  resulted in higher psychological distress than being normal weight, overweight or obese 1 ( $>30\text{kg/m}^2$ ). Hu et al. (2004) examined the combined association of risk factors such as sedentary lifestyle, obesity and impaired glucose regulation and found that increased exercise can reduce the risk of type 2 diabetes. The protective effects of exercise were observed in those with high BMI and elevated glucose levels. Exercise and weight control are key factors in diabetes prevention in those with normal or impaired blood glucose regulation.

## Family history of diabetes (FHD)

Rodriguez-Moran et al. (2010) examined the relationship between family history of diabetes and impaired fasting glucose (IFG) and if it is independent of BMI in children and adolescents. They found that FHD in a first degree relative is associated with IFG even in the absence of obesity, and the findings suggest that the association of obesity and pre-diabetes is not as strong in children as it is in adults. The researchers also suggest that FHD should be used as a measure for screening for diabetes in children and adolescents.

Wei et al. (2010) also used parental FHD to identify children with risks of T2D and found that children with parental FHD had elevated risk for T2D. The researchers also stress that lifestyle and health behaviours are important factors for both T2D and obesity in both children and adults. As parents usually have a greater influence on children's lifestyle and health behaviours and this may be a reason supporting FHD, BMI and T2D in children. Similarly, Sultana, Muhammad and Mehmood, (2011) also state that family history information can be useful as it reflects both genetic and environmental factors. This study examined FHD and awareness of risk factors in T2D patients. Those with FHD are more aware of the risk of developing diabetes regarding family history, being overweight, lack of exercise and eating an energy rich diet. Those with a FHD monitor their glucose and exercise more and engaged in health protective behaviours such as weight control more than those without FHD.

Forsyth and Goetsch (1997) also examined the perceived threat of illness and health protective behaviours with non-insulin-dependent diabetes (T2D). This study examined three groups. Group one had a parental history of T2D, group two had a parental history of hypertension and the control group consisted of those with no parental history of chronic illness. The study found that those with a FHD were aware of their genetic vulnerability and perceived themselves to be at risk. Weight control was a protective behaviour reportedly engaged in by those with a FHD however, they had a significantly higher BMI than those in the hypertension group and the

researchers suggest that perhaps this is down to the fact that they know they should be engaging in this behaviour. The group also reported engaging in other health behaviours, such as physician screening, diet, and exercise although these behaviours did not occur statistically more often than in the control group. Similarly Pierce, Harding Ridout, Keen and Bradley (2001) also examined FHD, awareness of risk factors and prevention. The study found that 49% recognised a positive parental history of diabetes, but fewer recognised the additional risk factors of being overweight, increasing age, lack of exercise and a sibling history of diabetes. Only 33% of participants believed their own personal risk of developing diabetes was high. The majority of participants 79% considered diabetes as serious with only 54% believing that it was possible to reduce their risk of developing diabetes.

Baptiste-Roberts et al. (2007) examined the relationship between FHD, levels of awareness of the risk factors and health behaviours in a population of African Americans. The results from this study found that participants with a FHD were more likely to be aware of diabetes risk factors such as having a FHD, being overweight, not exercising enough and eating an energy rich diet. However, participants with a FHD tended to be overweight. Whitford, McGee and O'Sullivan (2009) examined reducing health risk in FHD patients with T2D and found that 55% thought their own risk of developing diabetes was not very likely with 63% believing it was unlikely to develop diabetes without a FHD. The study found that although participants were aware of the benefits of a healthy diet and exercise, time and lack of motivation were barriers to exercise and time and inclination were barriers to preparation of low fat foods. Rautio et al. (2011) investigated if FHD was associated with the effectiveness of lifestyle counselling on cardio-metabolic risk factors and glucose tolerance in a one-year follow-up cohort of men and women at risk of T2D. They found that the prevention of T2D is not influenced by FHD. Interestingly they suggest that perhaps those with FHD may have genetic factors such as the DRD2 Taq1A allele, which may be related to overeating and other behavioural problems and these individuals may have had a poorer response

to the intervention. Men without FHD were more successful in responding to lifestyle counselling than those with a FHD. Similar results were not seen in women.

## General Health

Eriksson et al. (2008) examined the role of psychological distress of pre-diabetes and T2D in Swedish middle-aged men and women. The study found that psychological distress including symptoms of anxiety, apathy, depression, fatigue and insomnia, increase the risk of pre-diabetes and T2D in middle-aged men. However, in women, a relationship between psychological distress and onset of T2D was not present, but, there was a relationship between pre-diabetes and total psychological distress. Mommersteeg, Herr, Ziklstra, Schneider and Pouwer, (2012) examined whether those who reported higher levels of psychological distress at baseline and without known diabetes had an increased risk of developing diabetes in an eighteen year follow-up. This study used information from the British Household Panel and the researchers found that there was a 33% increased risk of developing diabetes and suggest that energy levels and health status may have contributed to the relationship.

## Quality of Life

Wikman, Wardle and Steptoe (2011) compared general quality of life (QOL) rather than health quality of life and well being in middle-aged and older people across eight chronic illness including diabetes. The study found that while chronic illnesses is associated with reductions in broader aspects of QOL and affective well being, different conditions vary in their impact. Those with diabetes had significantly lower scores on both the physical and mental components of the SF-36 (Health Survey), as well as somewhat reduced QOL and happiness ratings, and moderately high levels of depressed mood. Mosorovic, Brkic, Nuhbegovic and Pranjic (2012) examined QOL in T2D patients in relation to gender and type of treatment. There were three groups in the study,

group one consisted of patients treated with oral anti-diabetic agents, group two consisted of those on combined therapy (simultaneously receiving insulin and oral anti-diabetic agents) and group three were the control group who were non-diabetic. The study found that T2D had a significant impact on QOL. Those on the combined therapy had statistically worst QOL and men also reported lower QOL in both the total sample and those in combined therapy.

There has been much research on T2D and adherence to the treatment and self-efficacy plays an important role in the health behaviour of those with T2D. There has been numerous research on the role family history plays in the behaviour of those who are high risk of developing diabetes. There appears to be different levels of awareness for those with family history and there also appears to be a sense of inevitability when research has show that diet can sometime prevent but definitely delay the onset of T2D. Once those at high risk approach their 40s there should be alarm bells ringing because as research has shown obesity is the driving force of T2D and the onset for T2D is slow. On average 12 years between the onset and the diagnosis of T2D.

The aim of this study is to:

1. Investigate the relationships between risk factors relating to developing T2D and health value, general health, satisfaction with life and happiness.
2. Investigate differences in levels of health value, general health, satisfaction with life and happiness in diabetes/non-diabetes, those with a family history of diabetes/no history and level of education.
3. To develop a separate model that could predict health value, general health, satisfaction with life and happiness.

Hypotheses

1. It is predicted that there will be a relationship between BMI and health value, general health, satisfaction with life and happiness.

2. It is predicated that there will be a relationship between age and health value, general health, satisfaction with life and happiness.
3. It is predicted that there will be a relationship between self-efficacy and health value, general health, satisfaction with life and happiness
4. It is predicted that there will be a difference in levels of health value, general health, satisfaction with life and happiness in those with a family history of diabetes and those with no family history.
5. It is predicted that there will be a difference in levels of health value, general health, satisfaction with life and happiness in diabetes and non-diabetes.
6. It is predicted that there will be a difference in levels of health value, general health, satisfaction with life, happiness and level of education.

## **Method**

### **Participants**

A total of 87 participants in this study of which 23 (26.4%) were male and 64 (73.6%) were female, with a mean of 1.71 (SD = .444). The age of the participants ranged from 18 to 77, with a mean age of 37.93 (SD = 13.49). There were 23 (26.4%) participants with diabetes and 64 (73.6%) were non-diabetes with a mean of 1.26 (SD = .444). Of the 87 participants, 33 (37.9%) had a family history of diabetes and 54 (62.1%) had not, mean of 1.62 (SD = .488). The sample was one of convenience and the survey consisted of two questionnaires, one for those with diabetes and one for those without diabetes and participants were invited to complete the relevant questionnaire which was posted on facebook. They were also encouraged to share the questionnaire with their friends and family. Missing values on some items resulted in the response rate for some parts of the questionnaire being less than 87.

### **Design**

The study was an anonymous online cross-sectional survey. It was of mixed design as both correlations and differences were examined. It was quasi-experimental and between groups. The predictor variables used in correlations in this study are age, BMI, education, self-efficacy, internal locus of control, chance locus of control, and length of time since diagnosis of diabetes. Predictor variables used in between groups were diabetes/non-diabetes, gender, type of diabetes and family history of diabetes. The outcome variables were health value, general health, satisfaction and happiness.

## Materials

The questionnaires consisted of demographic questions designed by the researcher to obtain information on gender, age, nationality, height, weight, education if they had diabetes and if there was a family history of diabetes. A further four questions were included for those with diabetes to obtain information on type of diabetes, length of time since diagnosis, any other chronic conditions and any diabetes complications. In addition the respondents were asked to complete a series of questionnaires including the General Self-efficacy Scale (GSE: Schwarzer and Jerusalem, 1995), the Health Value Scale (Lau, Harman and Ware, 1986), the Multi-dimensional Health Locus of Control (MHLC: Wallston, Wallston and De Vellis, 1978), Form A was used with those without diabetes and Form C was used with those who had diabetes, the General Health Questionnaire (GHQ-12: Goldberg, 1992), the Satisfaction with Life Scale (SWLS: Diener, Emmons, Larsen and Griffin, 1985). Five questions were used from the Quality of Life Index, Generic Version III (QLI-GIII: Ferans and Powers, 1998).

### The General Self-efficacy Scale

The General Self-efficacy Scale is a 10-item scale designed to measure optimistic self-belief and is usually self-administered. This self-belief is the personal belief that a person can perform difficult tasks and cope with adversity in the demands of daily life. The responses range from 1 to 4 (1=not at all true to 4=exactly true) with higher scores indicating higher beliefs in self-efficacy. Questions include “I can solve most problems if I invest the necessary effort” and “I can usually handle whatever comes my way”. Higher scores on the General Self-efficacy Scale indicate higher levels of self-efficacy. The internal consistency as measured by Cronbach’s alpha ranges from 0.76 to 0.90 with no information available on the test-retest however, the scale is used widely and has been translated into 33 languages.

## The Health Value Scale

The Health Value Scale is a 4-item scale designed to measure the value a person places on their health. The responses range from 1 to 7 (1= strongly agree to 7=strongly disagree) with higher scores indicating higher value attached to the individual's health. Questions include "There is nothing more important than good health" and "There are many things I care about more than my health". Once again higher scores on this scale indicates a higher value attached to health. The internal consistency as measured by Cronbach's alpha is 0.67 and the test-retest reliability is 0.78.

## The Multi-dimensional Health Locus of Control Scale

The Multi-dimensional Health Locus of Control is an 18 item self-administered questionnaire designed to measure the control a person believes they have over their health. Form A is designed for use in the general population and contains three 6-item subscales, internality, chance externality and powerful externality. Form C is designed for use in those with an existing health/medical condition and contains two 6-item subscales, internality and chance externality but instead of a single 6-item powerful others sub-scale, it has two independent 3-item subscales doctors and other people. The responses range from 1 to 6 (1=strongly disagree to 6=strongly agree). The scores on the subscales are independent of one another and high scores on the internality subscale indicate high internal control. There is no total score for the MHLC. Questions on Form A include "I am in control of my health" and "If it's meant to be, I will stay healthy". Questions on Form C include "Most things that affect my condition happen to me by chance" and "Following doctor's orders to the letter is the best way to keep my condition from getting any worse". The internal consistency as measured by Cronbach's alpha is 0.60 to 0.70 and the test-retest ranges from 0.60 to 0.70.

## The General Health Questionnaire (GHQ-12)

The General Health Questionnaire (GHQ-12) is a 12 item self-administered questionnaire. It is designed to identify cases of non-psychotic psychiatric disorder in people in the community and medical settings as well as measuring degree of disorder. The responses range from 1 to 4 (1=not at all to 4= much more than usual) and is scored 0,1,2, and 3 respectively and gives scores ranging from 0 to 12 which is appropriate for detecting cases. Higher scores indicate the probability of a clinical disorder. The internal consistency as measured by Cronbach's alpha, ranges from 0.82 to 0.92 and the test-retest reliability is 0.73.

#### The Satisfaction with Life Scale (SWLS)

The Satisfaction with Life Scale is a 5-item self-administered questionnaire designed to measure a person's satisfaction with their life. The responses range from 1 to 7 (1=strongly disagree to 7=strongly agree). Questions include "The conditions of my life are excellent" and "If I could live my life over, I would change almost nothing". The higher scores indicate satisfaction with life. The internal consistency as measured by Cronbach's alpha, is 0.87 and the test-retest is 0.82.

#### The Quality of Life Index – Generic Version III (QLI-G)

The Quality of Life Index – Generic Version III is a 66-item questionnaire. It was designed to measure a person's sense of well-being that stems from satisfaction or dissatisfaction in areas of life that are important to an individual. The questions are divided into two parts, the first 33 questions relate to general satisfaction and the second 33 questions relate to the values such as importance of family. Five questions were used from the first 33 questions and these corresponded to fun and happiness. The responses range from 1 to 6 (1= very dissatisfied to 6= very satisfied). For the purpose of this study the total of the five questions were calculated and a high score indicated high levels of happiness. Questions included "How satisfied are you with your chances

for a happy future?” and “How satisfied are you with your happiness in general?” The internal consistency as measured by Cronbach’s alpha ranges from 0.73 to 0.99 and the test-retest reliability is 0.87.

## **Procedure**

Two questionnaires were compiled using Google Docs Forms, one for those with diabetes and one for those without diabetes. Both questionnaires were posted on facebook at the beginning of March and data was collected over a three week period. Friends on facebook were invited to answer the questionnaire relevant to them and were encouraged to share them with their family and friends. Participants were informed that the questionnaires related to a final year research project and would be submitted for examination and the research would explore self-efficacy and locus of control and how they may influence health value, satisfaction with life and quality of life. The questionnaires took approximately 10 minutes to complete. The participants were asked to complete all questions and that there were no right or wrong answers and thanked for their participation. The responses to the questionnaires were recorded automatically into a Google Docs Spreadsheet and stored on a password protected computer. Body Mass Index (BMI) was calculated using the metric formula ( $\text{Weight in kilograms} / (\text{Height in metres} \times \text{Height in metres})$ ). Analysis was carried out using SPSS Version 18.

## **Ethical Considerations**

The study received approval by the Dublin Business School Ethics Committee. Only those over 18 were invited to answer the questionnaires. Participants were informed that the online survey was anonymous, and once responses were submitted they could not be attributed to any one individual. Participation was voluntary and participants were informed that they had the right to

withdraw at any time by simply exiting out of the questionnaire. Responses were stored on a password protected computer until analysis.

## Results

### Descriptive Statistics

There were a total of 87 participants in this study of which 23 (26.4%) were male and 64 (73.6%) were female, with a mean of 1.71 (SD = .444). The age of the participants ranged from 18 to 77, with a mean age of 37.93 (SD = 13.49). Of the 87 participants, 33 (37.9%) had a family history of diabetes and 54 (62.1%) had not, mean of 1.62 (SD = .488). There were 23 (26.4%) participants with diabetes and 64 (73.6%) were non-diabetes with a mean of 1.26 (SD = .444).

Table 1 shows the mean, standard deviation, highest and lowest scores of the data collected from the questionnaires used in this study which were the Health Value Scale, the General Health GHQ-12, Satisfaction with Life, Quality of Life/Happiness, the General Self-efficacy Scale and the two subscales Internal Locus of control and Chance Locus of control from the Multi-dimensional Health Locus of control Scale.

Table 1 – *Descriptive Statistics on mean score comparisons*

	N	Minimum	Maximum	Mean	Std. Deviation
Health Value	87	9	22	13.1	2.64
General Health	87	0	10	.84	1.98
Satisfaction with Life	87	9	35	23.23	6.15
Happiness	87	5	29	20.82	5.88
Self-efficacy	87	11	40	30.36	4.33
Internal LOC	87	14	36	25.49	4.35
Chance LOC	87	6	30	16.55	5.83

## **Inferential Statistics**

The second aim of this study was to investigate differences in levels of health value, general health, satisfaction with life and happiness in diabetes/non-diabetes, family history of diabetes/no history and level of education.

Hypothesis 5 stated that there will be a difference in levels of health value, general health, satisfaction with life and happiness between those with diabetes and non-diabetes.

An independent samples t-test found that there was a statistically significant difference in health value levels of non-diabetes and diabetes ( $t(85) = -9.155$ ,  $p < 0.05$ , 2-tailed). Diabetes (mean = 16.09, SD = 2.655) were found to have higher levels of health value than non-diabetes (mean = 11.90, SD = 1.522).

An independent samples t-test found that there was no statistically significant difference in general health levels of diabetes and non-diabetes ( $t(52) = .281$ ,  $p > 0.05$ , 2-tailed). Non-diabetes (mean = .88, SD = 2.020) and diabetes (mean = .74, SD = 1.888).

An independent samples t-test found that there was no statistically significant difference in satisfaction levels of non-diabetes and diabetes ( $t(85) = 1.241$ ,  $p > 0.05$ , 2-tailed). Non-diabetes (mean = 23.72, SD = 5.870) and diabetes (mean = 21.87, SD = 6.824).

An independent samples t-test found that there was no statistically significant difference in satisfaction levels of non-diabetes and diabetes ( $t(85) = -.092$ ,  $p > 0.05$ , 2-tailed). Diabetes (mean = 20.91, SD = 6.193) and non-diabetes (mean = 20.78, SD = 5.810).

Hypothesis 6 stated that there will be a difference in levels of health value, general health, satisfaction with life, happiness and level of education.

A one-way analysis of variance showed that levels of health value differed significantly between the three levels of education ( $F(2,84) = 3.457$ ,  $p < 0.05$ ). The group other had levels of health value (mean = 14.25, SD = 3.686), than secondary school (mean = 13.58, SD = 2.432), followed by third level (mean = 12.44, SD = 2.247).

A one-way analysis of variance showed that levels of general health did not differ significantly between the three levels of education ( $F(2,84) = 1.062, p > 0.01$ ). Secondary school (mean = .71, SD = 1.953), Third level (mean = 1.06, SD = 2.200) and other (mean = 21, SD = .579).

A one-way analysis of variance showed that levels of satisfaction with life did not differ significantly between the three levels of education ( $F(2,84) = .187, p > 0.01$ ). Secondary school (mean = 23.95, SD = 7.221), Third level (mean = 23.00, SD = 6.155) and other (mean = 23.00, SD = 4.506).

A one-way analysis of variance showed that levels of happiness did not differ significantly between the three levels of education ( $F(2,84) = 2.195, p > 0.01$ ). Secondary school (mean = 22.29, SD = 5.605), Third level (mean = 19.75, SD = 6.401) and other (mean = 22.57, SD = 2.848).

Hypothesis 4 stated that there will be a difference in levels of health value, general health, satisfaction with life and happiness in those with a family history of diabetes and those with no history.

An independent samples t- test found that there was no statistically significant difference in health value levels of those with a family history of diabetes and those with no history ( $t(85) = .318, p > 0.05, 2$ -tailed). Those with a family history of diabetes (mean = 13.12, SD = 2.189) and those with no history (mean = 12.94, SD = 2.894).

An independent samples t-test found that there was no statistically significant difference in general health levels of those with a family history of diabetes and those with no history ( $t(85) = -1.428, p > 0.05, 2$ -tailed). Those with no family history of diabetes (mean = 1.07, SD = 2.281) and those with a family history of diabetes (mean = .45, SD = 1.277).

An independent samples t-test found that there was no statistically significant difference in satisfaction levels of those with a family history and those with no family history of diabetes ( $t(85) = .587, p > 0.05, 2$ -tailed). Those with a family history (mean = 23.73, SD = 5.981) and those no family of diabetes (mean = 22.93, SD = 6.288).

An independent samples t-test found that there was no statistically significant difference in happiness levels of those with a family history of diabetes and those with no history ( $t(85) = .980$ ,  $p > 0.05$ , 2-tailed). Those with a family history of diabetes (mean = 21.61, SD = 5.771) and those with no history (mean = 20.33, SD = 5.943).

The first aim of this study was to investigate the relationship between risk factors associated with developing T2D and health value, general health, satisfaction with life and happiness.

Hypothesis 1 stated that there will be a relationship between BMI and health value, general health, satisfaction with life and happiness.

The mean scores for health value was 13.01 (SD = 2.637) and for BMI was 28.40 (SD = 10.137). A person correlation coefficient found that there was no significant relationship between health value and BMI ( $r = -.101$ ,  $p > 0.05$ , 2-tailed).

The mean scores for general health was .84 (SD = 1.976) and for BMI was 28.40 (SD = 10.137). A pearson correlation coefficient found that there was no significant relationship between general health and BMI ( $r = .055$ ,  $p > 0.05$ , 2-tailed).

The mean scores for satisfaction with life was 23.23 (SD = 6.151) and for BMI was 28.40 (SD = 10.137). A pearson correlation coefficient found that there was no significant relationship between satisfaction with life and BMI ( $r = -.096$ ,  $p > 0.05$ , 2-tailed).

The mean scores for happiness was 20.82 (SD = 5.878) and for BMI was 28.40 (SD = 10.137). A pearson correlation coefficient found that there was no significant relationship between happiness and BMI ( $r = -.045$ ,  $p > 0.05$ , 2-tailed).

Hypothesis 2 stated that there will be a relationship between age and health value, general health, satisfaction with life and happiness.

The mean scores for health value was 13.01 (SD = 2.637) and for age was 37.93 (SD = 13.487). A pearson correlation coefficient found that there was no significant relationship between health value and age ( $r = -.098$ ,  $p > 0.05$ , 2-tailed).

The mean scores for general health was .84 (SD = 1.976) and for age was 37.93 (SD =

13.487). A Pearson correlation coefficient found there was no significant relationship between general health and age ( $r = -.134$ ,  $p > 0.05$ , 2-tailed).

The mean scores for satisfaction with life was 23.23 (SD = 6.151) and for age was 37.93 (SD = 13.487). A Pearson correlation coefficient found that there was no significant relationship between satisfaction with life and age ( $r = .013$ ,  $p > 0.05$ , 2-tailed).

The mean scores for happiness was 20.82 (SD = 5.878) and for age was 37.93 (SD = 13.487). A Pearson correlation coefficient found that there was no significant relationship between happiness and age ( $r = .183$ ,  $p > 0.05$ , 2-tailed).

Hypothesis 3 stated that there will be a relationship between self-efficacy and health value, general health, satisfaction with life and happiness.

The mean scores for health value was 13.01 (SD = 2.637) and for self-efficacy was 30.36 (SD = 4.332). A Pearson correlation coefficient found that there was a moderate positive significant relationship between health value and self-efficacy ( $r = .269$ ,  $p < 0.05$ , 2-tailed).

The mean scores for general health was .84 (SD = 1.976) and for self-efficacy was 30.36 (SD = 4.332). A Pearson correlation coefficient found that there was a weak negative significant relationship between general health and self-efficacy ( $r = -.221$ ,  $p < 0.05$ , 2-tailed).

The mean scores for satisfaction with life was 23.23 (SD = 6.151) and for self-efficacy was 30.36 (SD = 4.323). A Pearson correlation coefficient found that there was a moderate positive significant relationship between satisfaction with life and self-efficacy ( $r = .333$ ,  $p < 0.05$ , 2-tailed).

The mean scores for happiness was 20.82 (SD = 5.878) and for self-efficacy was 30.36 (SD = 4.332). A Pearson correlation coefficient found that there was a moderate positive significant relationship between happiness and self-efficacy ( $r = .345$ ,  $p < 0.05$ , 2-tailed).

Tables 1 to 4 display the results of the Independent samples t-test.

Table 1: *An Independent Samples T-test displaying difference between Diabetes and Non-diabetes for General Health, Satisfaction, Happiness and Health Value*

Variables	Groups	Mean	SD	t	df	P
General Health	Non Diabetes	.88	2.020	.281	85	.779
	Diabetes	.74	1.888			
Satisfaction	Non Diabetes	23.72	5.870	1.24	85	.218
	Diabetes	21.87	6.824			
Happiness	Non Diabetes	20.78	5.810	-0.92	85	.927
	Diabetes	20.91	6.193			
Health Value	Non Diabetes	11.90	1.522	-9.16	85	.000*
	Diabetes	16.09	2.655			

\*p significant at 0.05 level.

Table 2: *An Independent Samples T-test displaying difference between Males and Females for General Health, Satisfaction, Happiness and Health Value*

Variables	Groups	Mean	SD	t	df	P
General Health	Males	.70	1.396	-.404	85	.687
	Females	.89	2.154			
Satisfaction	Males	22.43	6.366	-.721	85	.463
	Females	23.52	6.197			
Happiness	Males	20.65	6.087	-.155	85	.877
	Females	20.88	5.849			
Health Value	Males	12.70	2.384	-.655	85	.514
	Females	13.12	2.711			

\*p significant at 0.05 level.

Table 3: *An Independent Samples T-test displaying difference between Type 1 and Type 2 Diabetes for General Health, Satisfaction, Happiness and Health Value*

Variables	Groups	Mean	SD	t	df	P
General Health	Type 1	.31	6.30	-1.27	21	.219
	Type 2	1.30	2.751			
Satisfaction	Type 1	22.62	5.767	.589	21	.562
	Type 2	20.90	8.225			
Happiness	Type 1	21.23	5.703	.275	21	.786
	Type 2	20.50	7.075			
Health Value	Type 1	17.27	2.438	2.78	21	.011*
	Type 2	14.55	2.160			

\*p significant at 0.05 level.

Table 4: *An Independent Samples T-test displaying difference between Family History of Diabetes and no history for General Health, Satisfaction, Happiness and Health Value*

Variables	Groups	Mean	SD	t	df	P
General Health	FHD	.45	1.277	-1.43	85	.157
	NO FHD	1.07	2.281			
Satisfaction	FHD	23.73	5.981	.587	85	.558
	NO FHD	22.93	6.288			
Happiness	FHD	21.61	5.771	.980	85	.330
	NO FHD	20.33	5.943			
Health Value	FHD	13.12	2.189	.318	82	.752
	NO FHD	12.94	2.894			

\*p significant at 0.05 level.

Table 5 displays the results of the anova.

Table 5: ANOVA table displaying difference between Educational Level and Health Value

Variable	Groups	Mean	SD	F	df	P
Heath Value	Secondary	13.58	2.432	3.457	2	0.36*
	Third Level	12.44	2.247		84	
	Other	14.25	3.686			
General Health	Secondary	.71	1.953	1.062	2	.350
	Third Level	1.06	2.200		84	
	Other	.21	.579			
Satisfaction	Secondary	23.95	7.221	.187	2	.829
	Third Level	23.00	6.155		84	
	Other	23.00	4.506			
Happiness	Secondary	22.29	5.605	2.195	2	.118
	Third Level	19.75	6.401		84	
	Other	22.57	2.848			

\*p significant at 0.05 level.

Tables 6 and 7 display the results of the Pearson correlations.

Table 6: *Correlation table displaying Health Value, General Health, Satisfaction, Happiness and Age, BMI and Length of time diagnosed with Diabetes*

Var.	HV	GHQ	SWL	HAP	AGE	BMI	TIME
HV							
GHQ	-.155						
SWL	-.021	-.308**					
HAP	.190	-.388**	.427**				
AGE	.098	-.134	.013	.183			
BMI	-.101	.055	-.096	-.045	.197		
TIME	.205	.089	.295*	.089	.187	-.126	

\*p significant at 0.05 level. \*\*p significant at 0.01 level.

Table 7: *Correlation table displaying Health Value, General Health, Satisfaction, Happiness and Self-efficacy, Internal Locus of Control and Chance Locus of Control.*

Var	HV	GHQ	SWL	HAP	GSE	I LOC	C LOC
HV							
GHQ	-.155						
SWL	-.021	-.308**					
HAP	.190	-.388**	.427**				
GSE	.269*	-.221*	.333**	.345**			
I LOC	.145	.106	.189	-.003	.212*		
C LOC	-.282**	.059	.001	-.085	-.383**	-.341**	

\*p significant at 0.05 level. \*\*p significant at 0.01 level.

The third aim of this study was to develop a separate model that could predict health value, general health, satisfaction with life and happiness. The second aim of the research investigated the differences in levels of health value, general health, satisfaction with life, happiness diabetes/non-diabetes, family history of diabetes/no history and levels of education. The first aim of the research investigated the relationships between risk factors for T2D and health value, general health, satisfaction with life and happiness. One other correlation was found to have significant results and one independent samples t-test.

An independent samples t-test found that there was a statistically significant difference in health value levels of type 1 and type 2 diabetes ( $t(21) = 2.783, p < 0.05, 2\text{-tailed}$ ). Type 1 were found to have higher levels of health value (mean = 17.27, SD = 2.438) than type 2 (mean = 14.55, SD = 2.160).

The mean scores for health value was 13.01 (SD = 5.828) and for chance locus of control was 16.55 (SD = 5.828). A pearson correlation coefficient found that there was a weak negative significant relationship between health value and chance locus of control ( $r = -.282, p < 0.05, 2\text{-tailed}$ ).

Type 1 and type 2 diabetes, education level and chance locus of control was used in the final regression model to predict health value. The results of the variables are shown in table 8. The prediction model was not statistically significant however the model does explain 36.8% of the variance in health value scores. The largest predictor on health value was education level (beta = .362,  $p > 0.05$ ), so as educational increased so did health value. This was followed by type of diabetes (beta = -.300,  $p > 0.05$ ), as type of diabetes went up negatively (from type 1 to type 2) health value decreased. Chance Locus of control (beta = -.087,  $p > 0.05$ ), as chance locus of control went up negatively health value decreased.

R squared explained 36.8% of the variance on scores in health value.

Table 8: *Final Regression on Health Value*

	Unstandardised		Standardised		Collinearity		
	Coefficients		Coefficients		Statistics		
1 (Constant)	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
	16.50	2.449		6.880	.000		
Type of Diabetes	-1.573	1.261	-.300	-1.248	.227	.575	1.741
Education Level	1.188	.693	.362	1.713	.103	.743	1.345
Chance LOC	-.40	.098	-.087	-.413	.684	.743	1.346

R squared = .368, Adjusted R squared = .268

Non significant results found:

An independent samples t- test found that there was no statistically significant difference in health value levels of males and females ( $t(85) = -.655, p > 0.05, 2\text{-tailed}$ ). Females (mean = 13.12, SD = 2.731) and males (mean = 12.70, SD = 2.384).

An independent samples t-test found that there was no statistically significant difference in general health levels of males and females ( $t(85) = -.404, p > 0.05, 2\text{-tailed}$ ). Females (mean = .89, SD = 2.154) and males (mean = .70, SD = 1.396).

An independent samples t-test found that there was no statistically significant difference in general health levels of type 1 and type 2 diabetes ( $t(21) = -1.266, p > 0.05, 2\text{-tailed}$ ). Type 2 (mean = 1.30, SD = 2.751) and type 1 (mean = .31, SD = .630).

An independent samples t-test found that there was no statistically significant difference in satisfaction levels of males and females ( $t(85) = -.721, p > 0.05, 2\text{-tailed}$ ). Females (mean = 23.52, SD = 6.197) and males (mean = 22.43, SD = 6.366).

An independent samples t-test found that there was no statistically significant difference in satisfaction levels of type 1 and type 2 ( $t(21) = .589, p > 0.05, 2\text{-tailed}$ ). Type 1 (mean = 22.62, SD = 5.767) and type 2 (mean = 20.90, SD = 8.225).

An independent samples t-test found that there was no statistically significant difference in happiness levels of males and females ( $t(85) = -.155, p > 0.05, 2\text{-tailed}$ ). Females (mean = 20.88, SD = 5.849) and males (mean = 20.65, SD = 6.087).

An independent samples t-test found that there was no statistically significant difference in happiness levels of type 1 and type 2 ( $t(21) = .275, p > 0.05, 2\text{-tailed}$ ). Type 1 (mean = 21.23, SD = 5.703) and type 2 (mean = 20.50, SD = 7.075).

The mean scores for health value was 13.01 (SD = 2.637) and for length of time since diagnosed with diabetes was 3.83 and (SD = 1.614). A pearson correlation coefficient found that there was no

significant relationship between health value and length of time since diagnosed with diabetes ( $r = .205, p > 0.05, 2\text{-tailed}$ ).

The mean scores for health value was 13.01 (SD = 2.637) and for internal locus of control was 25.49 (SD = 4.345). A Pearson correlation coefficient found that there was no significant relationship between health value and internal locus of control ( $r = .145, p > 0.05, 2\text{-tailed}$ ).

The mean scores for general health was .84 (SD = 1.976) and for length of time since diagnosed with diabetes was 3.83 (SD = 1.614). A Pearson correlation coefficient found that there was no significant relationship between general health and length of time since diagnosed with diabetes ( $r = .089, p > 0.05, 2\text{-tailed}$ ).

The mean scores for general health was .84 (SD = 1.976) and for internal locus of control was 25.29 (SD = 4.345). A Pearson correlation coefficient found that there was no significant relationship between general health and internal locus of control ( $r = .106, p > 0.05, 2\text{-tailed}$ ).

The mean scores for general health was .84 (SD = 1.976) and for chance locus of control was 16.55 (SD = 5.828). A Pearson correlation coefficient found that there was no significant relationship between general health and chance locus of control ( $r = .059, p > 0.05, 2\text{-tailed}$ ).

The mean scores for satisfaction with life was 23.23 (SD = 6.151) and for length of time since diagnosed with diabetes was 3.83 (SD = 1.614). A Pearson correlation coefficient found that there was no significant relationship between satisfaction with life and length of time since diagnosed with diabetes ( $r = .295, p > 0.05, 2\text{-tailed}$ ).

The mean scores for satisfaction with life was 23.23 (SD = 6.151) and for internal locus of control was 25.49 (SD = 4.345). A Pearson correlation coefficient found that there was no significant relationship between satisfaction with life and internal locus of control ( $r = .189, p > 0.05, 2\text{-tailed}$ ).

The mean scores for satisfaction with life was 23.23 (SD = 6.151) and for chance locus of control was 16.55 (SD = 5.828). A pearson correlation coefficient found that there was no significant relationship between satisfaction with life and chance locus of control

( $r = .001, p > 0.05, 2\text{-tailed}$ ).

The mean scores for happiness was 20.82 (SD = 5.878) and for length of time since diagnosed with diabetes was 3.83 (SD = 1.614). A pearson correlation coefficient found that there was no significant relationship between happiness and length of time since diagnosed with diabetes ( $r = .089, p > 0.05, 2\text{-tailed}$ ).

The mean scores for happiness was 20.82 (SD = 5.878) and for internal locus of control was 25.49 (SD = 4.345). A pearson correlation coefficient found that was no significant relationship between happiness and internal locus of control ( $r = -.003, p > 0.05, 2\text{-tailed}$ ).

The mean scores for happiness was 20.82 (SD=5.878) and for chance locus of control was 16.55 (SD = 5.828). A pearson correlation coefficient found that there was no significant relationship between happiness and chance locus of control ( $r = -.085, p > 0.05, 2\text{-tailed}$ ).

## Discussion

The first aim of this study was to investigate the relationship between risk factors for T2D and health value, general health, satisfaction with life and happiness. The second aim was to investigate differences in levels of health value, general health, satisfaction with life, happiness in diabetes/non-diabetes, and level of education. The third aim was to develop a separate model that could predict health value, general health, satisfaction with life and happiness.

This study found a relationship between self-efficacy and health value, general health, satisfaction with life and happiness. A relationship between chance locus of control and health value was also to be significant. No relationship was found between age and BMI in levels of health value, general health, satisfaction with life and happiness. It also found no difference in levels of health value, general health, satisfaction with life, happiness between those with a family history of diabetes and those with no history. No differences were found in levels of general health, satisfaction with life and happiness between those with diabetes and non-diabetes, but differences in health values were found in those with diabetes and non-diabetes. Those with diabetes were found to have higher levels of health value than non-diabetes. Those with type 1 diabetes were also found to have higher levels of health value than type 2. The study also found no difference in levels of general health, satisfaction with life, happiness and level of education, however it did find a difference in level of health value and level of education. As education level went up so did health value. A regression model was developed to predict health value and although the prediction model was not statistically significant it does explain 36.8% of the variance in health value scores.

The findings from this study failed to support the hypothesis that there would be a relationship between BMI and health value, general health, satisfaction with life and happiness. The findings failed to support the hypothesis that there would be a relationship between age and

health value, general health, satisfaction with life and happiness. The findings supported the hypothesis that there would be a relationship between self-efficacy and health value, general health, satisfaction with life and happiness. The findings also failed to support the hypothesis that there would be a difference in levels of health value, general health, satisfaction with life, and happiness in those with a family history of diabetes and those with no history. The findings partly supported the hypothesis that there would be a difference in levels of health value, general health, satisfaction with life and happiness between those with diabetes and non-diabetes. Those with diabetes were found to have higher levels of health value than non-diabetes. Those with type 1 diabetes were also found to have higher levels of health value than those with type 2. The findings also partly supported the hypothesis that there would be a difference in levels of health value, general health, satisfaction with life, happiness and level of education. Those with higher level of health value had higher level of education. The third aim of the study was to develop a separate model to predict health value, however this model was not significant but does explain the variance in health value.

Self-efficacy is the belief in one's own ability to carry out a particular behaviour (Bandura, 1991 as cited in Taylor, 2007, p. 57). Research has shown that high levels of self-efficacy contributes to better self care in those with T2D relating to blood glucose however this did not extend to eating a healthy diet and exercising (Sharoni et al., 2012). Mishali et al. (2011) found similar results. The DAWN study (Funnell, 2006) also reported that rates of self-management regarding diet and exercise were especially low. However Dutton et al. (2009) found that in an intervention study as self-efficacy increased so did improvements in exercise. So although self-efficacy was found to have a relationship with health value this did not appear to influence the relationship between BMI and health value. According to Diabetes Action Ireland (2012) some of the risk factors associated with developing T2D are poor diet, being overweight, and being sedentary. Body mass index calculates the amount of one's body fat and is indicative of lifestyle. A healthy BMI can be maintained by eating a healthy diet and exercising regularly. Genetics as in

family history of diabetes cannot be changed and the clock cannot be turned back but eating healthier and exercising regularly can be changed. Smith et al., (1992) suggested that perhaps one of the difficulties in getting people to change their behaviour was down to the simple fact that maybe health is not valued that highly. However, this study found that those with diabetes had higher levels of health value than non-diabetes.

Forsyth et al. (1997) found that those with a family history of diabetes were aware of their genetic vulnerability and although reported in engaging in health protective behaviours they had a higher BMI than those in the other two groups. Baptiste-Roberts et al. (2007) found similar result regarding awareness and BMI. Whitford et al. (2009) found that although the participants were aware of the benefits of diet and exercise time, motivation and inclination were barriers to exercise and preparation of low fat foods. 55% thought that their own risk of developing diabetes was not very likely. Even though this study did not investigate awareness regarding family history of diabetes, it could be that the participants in this study were not aware of the risk factors involved in family history of diabetes. However, Rautio et al. (2011) found in a prevention study that the prevention of T2D is not influenced by family history of diabetes and suggest genetic factors such as the DRD2 Taq1A allele, which may be related to overeating and other behavioural problems.

This is contrary to other research that states that diabetes can be prevented or at least delayed. Alibegovic et al. (2009) investigated the impact of nine days of bed rest on those with a family history of diabetes and a control group and highlighted the importance of exercise even for short periods in both those with a family history of diabetes and those with no history. Moore et al. (2011), evaluated the effectiveness of a six month, group based diabetes prevention programme and found that the intervention group improved their diagnosis and moved from pre-diabetes to non-diabetes at almost twice the rate of the control group.

Research has found that psychological distress can increase the risk of pre-diabetes and T2D in middle-aged men (Eriksson et al., 2008). Similarly, Mommersteeg et al. (2012) found that those who reported higher levels of psychological distress at baseline had an increased risk of developing diabetes of 33%. Brandheim et al. (2013) examined the relationship of stress in Swedish adults and found that psychological distress decreased with age regardless of BMI but being classified as obese 2 resulted in higher levels of psychological distress than normal weight or obese 1. However this study found no relationship between BMI and psychological distress as measured by the GHQ 12.

Wikman et al. (2011) examined general quality of life (QOL) and well-being in middle-aged and older people and found that those with diabetes had significantly lower scores on both the physical and mental components of the SF-36 (Health Survey), as well as somewhat reduced (QOL) and happiness ratings, and moderately high levels of depressed mood. This study does not support these findings as there were no differences in levels of general health and happiness.

The Multi-dimensional Health Locus of Control measures the degree to which a person sees themselves to be in control of their health. Those who have an internal locus of control are more likely to practice good health behaviours than those who regard their health due to chance factors. Research has found that females displayed evidence of chance locus of control whereas males demonstrated more internal locus of control and there is a negative relationship between the chance dimension and adherence to diabetes treatment (Morowatisharifad et al., 2010). Baptiste-Roberts et al. (2007) also suggests that some people may have fatalistic attitudes, believing that diabetes is inevitable regardless of what they do. However this research is in contrast to most of the research already discussed. Diet and exercise can delay and sometimes even prevent the onset of T2D.

One limitation of the study was the small sample of those with diabetes, 23 in total and this could be down to the fact that this study consisted of an online survey which means that only those computer literate could complete the survey. However, the online survey provided access to people from different social backgrounds. Although T2D is prevalent, T2D are not easy to target as a group unless permission can be sought from either a diabetes clinic or a diabetes association. The age range of the participants was 18 to 77, with a mean age of 37.93 and 37.9% of the participants had a family history of diabetes which is reflective of the prevalence of T2D and this group would be the perfect group to target with an intervention programme. Another limitation of the study was the questionnaire was self-administered and this could have lead to participants not answering truthfully, or not understanding the question or statement.

The results of this research provide a background for future research in risk factors for developing diabetes and prevention. Future research needs to investigate further Rautio et al. (2011) findings that T2D is not influenced by family history of diabetes. This study also found no indication that FHD influences health behaviour. Future research also needs to investigate why alarms bells are not ringing for those who are the age of 40, overweight or obese and have a family history of diabetes. Diabetes UK, have an online calculator on their website which can be used to enter an email address, details about age, height, weight, waist measurement, family history of diabetes. Details are calculated and an automated email is sent back giving details of your chances of having diabetes now and in 10 years time. This could be a very useful tool in Ireland as part of a public health campaign to prevent the increasing numbers of those with diabetes. Future research might also look at the moderating effects of self-efficacy on health behaviour in those at high risk of developing T2D.

This research is important from the point of view of investigating risk factors involved in developing T2D which numerous studies has shown is preventable with lifestyle changes regarding

diet and exercise. Milanovic et al. (2012) states that although obesity is associated with many chronic diseases including diabetes, moderate exercise and a reduced calorie diet has a positive influence on body fat and weight reduction and furthermore, those who exercise regularly have a better chance of maintaining or reducing weight for a longer period than those who relied solely on a reduced calorie diet. In addition, those with diabetes had higher levels of health value than those without diabetes so it may be the case that those who have a chronic disease value life more than those who do not.

## Conclusion

This study found a relationship between self-efficacy and health value, general health, satisfaction with life and happiness. A relationship between chance locus of control was also found to be significant. The study also found a difference in levels of health value in those with diabetes and non-diabetes, those with diabetes were found to have higher levels of health value than those without diabetes. Those with type 1 diabetes were also found to have higher levels of health value than those with type 2 diabetes. Also those with higher levels of education had higher levels of health value. However no relationship was found between age and BMI in levels of health value, general health, satisfaction with life and happiness and there were no difference in levels of health value, general health, satisfaction with life, happiness between those with a family history of diabetes and those with no history. No differences were found in levels of general health, satisfaction with life and happiness between those with diabetes and those without diabetes. Finally, there were no differences found in levels of general health, satisfaction with life and happiness and level of education. Although there was a relationship between self-efficacy and levels of health value, general health, satisfaction with life and happiness it did not have a moderating effect on health behaviour. The separate model developed to predict health value was found not to be significant but does explain a sizeable variance in health value.

## References:

- Abella, R., & Heslin, R. (1984). Health, Locus of Control, Values, and the Behaviour of Family and Friends: An Integrated Approach to Understanding Preventative Health Behaviour. *Basic and Applied Social Psychology*, 1984, 5(4) 283-293.
- Alibegovic, A. C., Hojbjerg, L., Sonne, M. P., van Hall, G., Stallknecht, B., Dela, F., & Vagg, A. (2009). Impact of 9 Days of Bed Rest on Hepatic and Peripheral Insulin Action, Insulin Secretion, and Whole-Body Lipolysis in Healthy Young Male Offspring of Patients With Type 2 Diabetes. *Diabetes (2009) Vol. 58*. DOI: 10.2337/db09-0369
- American Diabetes Association (2012, November 3). Genetics of Diabetes. Retrieved from <http://www.diabetes.org/diabetes-basics/genetics-of-diabetes.html>
- Baptiste-Roberts, K., Gary, T. L., Beckies, G. L. A., Gregg, E. W., Owens, M., Porterfield, D., & Engeigau, M. M. (2007). American Journal of Public Health. 2007;97:907-912. DOI:10.2.2105/AJPH.2005.077.32
- Brandheim, S., Rantakeisu, U., & Starrin, B. (2013). BMI and psychological distress in 68,000 Swedish adults: a weak association when controlling for an age-gender combination. *BMC Public Health* 2013 13:68. DOI: 10.1186/1471-2458-13-68
- Dean, L., & McEntyre, J. (2004). The Genetic Landscape of Diabetes. Retrieved from <http://www.diabetes.org/diabetes-basics/genetics-of-diabetes.html>
- Diabetes Action (2012, November 9). Diabetes in Ireland. Retrieved from <http://www.diabetesaction.ie/diabetes-in-ireland>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49, 71-75

- Dutton, G. R., Tan, F., Provost B. C., Sorenson, J. L., Allen B., & Smith D. (2009). Relationship between self-efficacy and physical activity among patients with Type 2 diabetes. *Journal of Behavioural Medicine* (2009) 32:270-277. DOI: 10.1007/s10865-009-9200-0
- Eriksson, A. -K, Ekblom, A., Granath, F., Hilding, A., Efendic, S., & Ostenson, C. -G. (2008). Psychological distress and risk of pre-diabetes and Type 2 diabetes in a prospective study of Swedish middle-aged men and women. *Diabetic Medicine*, 25, 834-842. DOI: 10.1111/j.1464-5491.2008.02463x
- Ferrans, C. E., Powers, M. J. Quality of life index: development and psychometric properties. *ANS Adv Nurs Sci* (1985) Oct; 8(1):15-24
- Forsyth, L., H., & Goetsch, V. L. (1997). Perceived Threat of Illness and Health Protective Behaviours in Offspring of Adults with Non-Insulin-Dependent Diabetes Mellitus. *Behavioural Medicine*, 08964289, Fall1997, Vol.23, Issue 3. Retrieved from Academic Research Library database.
- Funnel, M. M. (2006). The Diabetes Attitudes, Wishes, and Needs (DAWN) Study. *Clinical Diabetes* (2006) 24: 154-155. DOI: 10.2337/diaclin.24.4.154
- Goff, L. M., & Duncan, A. (2010). Diet and lifestyle in the prevention of the rising diabetes pandemic. *Journal of Human Nutrition and Dietetics* 23, 333-335
- Goldberg, D. (1992). *General Health Questionnaire (GHQ-12)*. Windsor: NFER-NELSON.
- Grotz, M., Hapke, U., Lampart, T., & Baumeister H. (2011). Health locus of control and health behaviour: Results from a nationally representative survey. *Journal of Psychology, Health and Medicine*, 16, 129-140. DOI: 10.1080/13548506.2010.521570
- Hamer, M., Kengnet, A. P., Batty, G. D., Cooke, D., & Stamatakis, E. (2011). Temporal trends in diabetes prevalence and key diabetes risk factors in Scotland, 2003-2008. *Diabetic Medicine*, 28,595-598. DOI: 10.1111/j.1464-5491.2011.03254.x

Hu, G., Lindstrom, J., Valle, T. T., Eriksson, J. G., Jousilahti, P., Silventoinen, K.,...Tuomilehto, J. (2004). Physical Activity, Body Mass Index, and Risk of Type 2 Diabetes in Patients With Normal or Impaired Glucose Regulation. *Arch Intern Med/Vol. 164*, Apr 26,2004. Retrieved from

<http://archinte.jamanetwork.com>

Jackson, E. S., Tucker C. M., & Herman K. C. (2007). Health Value, Perceived Social Support, and Health Self-Efficacy as Factors in a Health-Promoting Lifestyle. *Journal of American College Health*, Vol. 56, NO. 1

Lau, R. R., Hartman, K. A., and Ware, J. E. (1986). Health as a value: methodological and theoretical considerations, *Health Psychology*, 5 (1), 25-43

Milanovic, A., Pantelic, S., Trajkovic, N., Sporis, G., & Aleksandrovic, M. (2012). The Effects of Physical Exercise on Reducing Body Weight and Body Composition of Obese Middle Aged People. A Systematic review. *Journal of Society for development in new net environment in B&H. HealthMED*, Vol 6/No. 6/2012

Mishali, M., Omer, H., & Heymann, A., D. (2011). The importance of measuring self-efficacy in patients with diabetes. *Journal of Family Practice*. 2011; 28:82-87. DOI: 10.1093/fampra/cm086

Mommerteeg, P, M, C., Herr, R., Zijlstra, W, P., Schneider, S., & Pouwer, F. (2012). Higher levels of psychological distress are associated with a higher risk of incident diabetes during 18 year follow-up: results from the British household panel survey. *BMC Public Health* 2012 12:1109. DOI: 10.1186/1471-2458-12-1109

Moore, S. M., Hardie, E. A., Hackworth, N. J., Critchely C. R., Kyrios, M., Buzwell S. A., & Crafti N. A. (2011). Can the onset of type 2 diabetes be delayed by a group-based lifestyle intervention? A randomised control trial. *Journal of Psychology and Health*, 26, 4, 485-499. DOI: 10.1080/08870440903548749

- Morowatisharifabad, M. A., Mahmoodabad, S. S. M., Baghianimoghadam, M. H., & Tonekaboni, N. R. (2010). Relationships between locus of control and adherence to diabetes regimen in a sample of Iranians. *International Journal of Diabetes Developing Countries (2010) Vol. 30, NO. 1*. DOI: 10.4103/0973-3930.60009
- Mosorovic, N., Brkic, S., Nuhbegovic, S., & Panjic, N. (2012). Quality of life of people with Diabetes Mellitus type 2. *Journal of Society for development in new net environment in B&H. HealthMED, Vol 6/No. 3/2012*
- Oftedal, B., Karlsen, B., & Bru, E. (2010). Life values and self-regulation behaviours among adults with type 2 diabetes. *Journal of Clinical Nursing, 19, 2548-2556*.  
DOI: 10.1111/j.1365-2702.2010.03243
- O’Hea, E. L., Moon, S., Grothe, K., Boudreaux, E., Bodenlos, J. S., Wallston, K., & Brantley, P. J. (2009). The interaction of locus of control, self-efficacy, and outcome expectancy in relation to HbA1c in medically underserved individuals with type 2 diabetes. *Journal of Behavioural Medicine (2009) 32, 106-117*. DOI: 10.1007/s10865-008-9188-x
- Pierce, M., Harding, D., Ridout, D., Keen, H., & Bradley, C. (2001). Risk and Prevention of type II diabetes: offspring’s views. *British Journal of General Practice, 2001, 51, 194-199*.
- Rautio, N., Jokelainen, J., Oksa, H., Saaristo, T., Peltonen, M., Puolijoki, H.,...& Keinanen-Kiukaanniemi, S. (2012). *Diabetic Medicine, 29, 207-211*. DOI: 10.1111/j.1464-5491.2011.03388.x
- Reis, J. P., Loria, C. M., Sorlie, P. D., Yikyung, P., Hollenbeck, A., & Schatzkin, A. (2011). Lifestyle Factors and Risk for New-Onset Diabetes. *Annals of Internal Medicine, 2011;155:292-299*.

- Rodrigues-Moran, M., Guerrero-Romero, F., Aradillas-Garcia, R., Simental-Mendia, L. E., Monreal-Escalante, E., & de la Cruz Mendoza, E. (2010). Obesity and family history of diabetes as risk factors of impaired fasting glucose: implications for the early detection of prediabetes. *Pediatric Diabetes* 2010: 11: 331-336. DOI: 10.1111/j.1399-5448.2009.00590.x
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In Weinman, J., Wright, S., and Johnston, M. *Measures in health psychology: A user's portfolio. Causal and control beliefs* (p. 35 -37). Windsor, UK: NFER-NELSON.
- Sharoni, S. K. A & Wu, S. F. (2012). Self-efficacy and self-care behaviour of Malaysian patients with type 2 diabetes: a cross sectional survey. *Journal of Nursing and Health Sciences* (2012), 14, 38-45. DOI: 10.1111/j.1442-2018.2011.00658.x
- Smith & Wallston, (1992). How to measure the value of health. *Health Education Research* (1992), Vol.7 (1), 129-135
- Sultana, R., Muhammad, T., & Mehmood, R. Family history of diabetes and awareness of risk factors in type 2 diabetic patients. *Gomal Journal of Medical Sciences January-June 2011*, Vol. 9, No. 1.
- Taylor, S. E. (2009). *Health Psychology* (7<sup>th</sup> ed.) Singapore: McGraw-Hill Education (Asia).
- Wallston, K. A., Wallston, B. S., & De Vellis, R. (1978). Development of the multi-dimensional health locus of control (MHLC) Scales. *Health Education Monographs*, 6, 160-170
- Wei, J-N., Li, H-Y, Wang, Y-C., Chuang, L-M., Lin, M-S., Lin, C-H., & Sung, F-C. (2010). Detailed family history of diabetes identified children at risk of type 2 diabetes: a population-based case-control study. *Pediatric Diabetes* 2010: 11: 258-264.  
DOI: 10.1111/j.1399-5448.2009.00564.x

- Weiss G. L., and &, D. L. (1990). Health Value, Health Locus of Control, and the Prediction of Health Protective behaviours. *Journal of Social Behaviour and Personality (1990) 18 (1)*, 121-136)
- Whitford, D. L., McGee, H., & O'Sullivan, B. (2009). Reducing health risk in family members of patients with type 2 diabetes: view of first degree relatives. *BMC Public Health 2009, 9:455*. DOI: 10.1186/1471-2458-9-455
- Wikman, A., Wardle, J., & Steptoe, A. (2011). Quality of Life and Affective Well-Being in Middle-Aged and Older People with Chronic Medical Illnesses: A Cross-Sectional Population Based Study. *PLoS ONE 6(4): e18952*. DOI: 10.1371/journal.pone.0018952
- World Health Organisation. (2012, November 9). Diabetes Fact Sheet No312. Retrieved from <http://www.who.int/mediacentre/factsheet/fs312/en/index.html>
- Wu, S. F., Lee, M., Liang, S., Lu, Y., Wang, T., & Tung, H. (2011). Effectiveness of a self-efficacy programme for persons with diabetes: A randomised controlled trial. *Journal of Nursing and Health Sciences (2011), 13*. 335-343. DOI: 10.1111/j.1442-2018.2011.00625.x

## Appendices

# Questionnaire

My name is Jane Heffernan and I am a final year psychology student at Dublin Business School. A requirement of my final year involves the completion of a research project, which will be submitted for examination. This project will explore self-efficacy and locus of control in those with diabetes and non-diabetes and how they may influence health values, life satisfaction and quality of life.

You are invited to take part in this study by completing the attached anonymous survey. Only those over 18 should complete the questionnaire. Participation is completely voluntary and you may withdraw at any stage by simply exiting the questionnaire. Anonymity is guaranteed as responses are sent directly to a Google Docs file and cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been submitted.

To ensure privacy all data from the questionnaires will be securely stored on a password protected computer. Thank you for your participation, which is greatly appreciated.

---

**Age in years**

**Please answer all questions, there are no right or wrong answers.**

- Male
- Female

**Nationality**

**Height in metres**

**Weight in kilogrammes**

**Education Level**

- Secondary School
- Third Level
- Other

**Family history of Diabetes**

Is there any history of diabetes in your immediate family such as parent, brother or sister?

- Yes
- No

Continue »

Powered by 

This content is neither created nor endorsed by Google.

[Report Abuse-Terms of Service-Additional Terms](#)

# Questionnaire

---

## Self-efficacy

Please answer all questions, there are no right or wrong answers.

**I can always manage to solve difficult problems if I try hard enough.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**If someone opposes me, I can find the means and ways to get what I want.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**It is easy for me to stick to my aims and accomplish my goals.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I am confident that I could deal efficiently with unexpected events.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**Thanks to my resourcefulness, I know how to handle unforeseen situations.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I can solve most problems if I invest the necessary effort.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I can remain calm when facing difficulties because I can rely on my coping abilities.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**When I am confronted with a problem, I can usually find several solutions.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**If I am in trouble, I can usually think of a solution.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I can usually handle whatever comes my way.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

« Back

Continue »

# Questionnaire

---

## Health Value

Please answer all questions, there are no right or wrong answers.

	Strongly agree	Somewhat strongly agree	Moderately agree	Unsure	Moderately disagree	Somewhat strongly disagree	Strongly disagree
<p>There is nothing more <input type="radio"/> important than <input type="radio"/> good health.</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Good health is only of minor <input type="radio"/> importance in <input type="radio"/> a happy life.</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>If you don't have your health, you <input type="radio"/> don't have anything</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>There are many things I <input type="radio"/> care about <input type="radio"/> more than my health.</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

[« Back](#)[Continue »](#)

# Questionnaire

---

## Health locus of control

Please answer all questions, there are no right or wrong answers.

**If I get sick, it is my own behaviour which determines how soon I will get well again.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**No matter what I do, if I am going to get sick, I will get sick.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Having regular contact with my physician is the best way for me to avoid illness.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Most things that affect my health happen to me by accident.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Whenever I don't feel well, I should consult a medically trained professional.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**I am in control of my health.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**My family has a lot to do with my becoming sick or staying healthy.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**When I get sick, I am to blame.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

« Back

Continue »

# Questionnaire

---

## Health locus of control

Please answer all questions, there are no right or wrong answers.

**Luck plays a big part in determining how soon I will recover from an illness.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Health professionals control my health.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**My good health is largely a matter of good fortune.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**The main thing which affects my health is what I myself do.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**If I take care of myself, I can avoid illness.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Whenever I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**No matter what I do, I'm likely to get sick.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**If it's meant to be, I will stay healthy.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**If I take the right actions, I can stay healthy.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Regarding my health, I can only do what my doctor tells me to do.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

« Back

Continue »

## Questionnaire

---

### General health

Please answer all questions, there are no right or wrong answers.

**Have you recently been able to concentrate on whatever you're doing?**

- Better than usual
- Same as usual
- Less than usual
- Much less than usual

**Have you recently lost much sleep over worry?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently felt that you are playing a useful part in things?**

- More so than usual
- Same as usual
- Less useful than usual
- Much less useful

**Have you recently felt capable of making decisions about things?**

- More so than usual
- Same as usual
- Less so than usual
- Much less capable

**Have you recently felt constantly under strain?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently felt that you couldn't overcome your difficulties?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

« Back

Continue »

---

# Questionnaire

---

## General health

Please answer all questions, there are no right or wrong answers.

**Have you recently been able to enjoy your normal day-to-day activities?**

- More so than usual
- Same as usual
- Less so than usual
- Much less than usual

**Have you recently been able to face up to your problems?**

- More so than usual
- Same as usual
- Less able than usual
- Much less able than usual

**Have you recently been feeling unhappy and depressed?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently been loosing confidence in yourself?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently been thinking of yourself as a worthless person?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently been feeling reasonably happy, all thing considered?**

- More so than usual
- About same as usual
- Less so than usual
- Much less than usual

« Back

Continue »

---

# Questionnaire

---

## Satisfaction with Life

Please answer all questions, there are no right or wrong answers.

	Strongly agree	Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree	Strongly disagree
In most ways my life is close <input type="radio"/> to my ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are <input type="radio"/> excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied <input type="radio"/> with my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far I have gotten the important <input type="radio"/> things I want out of life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could live my life over, I would change <input type="radio"/> almost nothing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

# Questionnaire

---

## Quality of life

Please answer all questions, there are no right or wrong answers.

Very dissatisfied    Moderately dissatisfied    Slightly dissatisfied    Slightly satisfied    Moderately satisfied    Very satisfied

---

How satisfied

are you with

the things you

do for fun?

---

How satisfied

are you with

yours chances

for a happy

future?

---

How satisfied

are you with

your

happiness in

general?

---

How satisfied

are you with

your life in

general

---

How satisfied

are you with

yourself in

general?

---

« Back

Submit

# Diabetes Questionnaire

My name is Jane Heffernan and I am a final year psychology student at Dublin Business School. A requirement of my final year involves the completion of a research project, which will be submitted for examination. This project will explore self-efficacy and locus of control in those with diabetes and non-diabetes and how they may influence health values, life satisfaction and quality of life.

You are invited to take part in this study by completing the attached anonymous survey. Only those over 18 should complete the questionnaire. Participation is completely voluntary and you may withdraw at any stage by simply exiting the questionnaire. Anonymity is guaranteed as responses are sent directly to a Google Docs file and cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been submitted.

To ensure privacy all data from the questionnaires will be securely stored on a password protected computer. Thank you for your participation, which is greatly appreciated.

---

**Please answer all questions, there are no right or wrong answers.**

- Male
- Female

**Age in years**

**Nationality**

**Height in metres**

**Weight in kilogrammes**

**Education Level**

- Secondary School
- Third Level
- Other

**Family history of Diabetes**

Is there any history of diabetes in your immediate family such as parent, brother or sister?

- Yes
- No

**What type of diabetes do you have?**

- Type 1
- Type 2

**How long have you had Diabetes?**

**Have you any other chronic conditions in addition to diabetes?**

- Yes
- No

**Have you any other complications related to your diabetes?**

- Yes
- No

Continue »

Powered by  Google Drive

This content is neither created nor endorsed by Google.

[Report Abuse-Terms of Service-Additional Terms](#)

# Diabetes Questionnaire

---

## Self-efficacy

Please answer all questions, there are no right or wrong answers.

**I can always manage to solve difficult problems if I try hard enough.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**If someone opposes me, I can find the means and ways to get what I want.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**It is easy for me to stick to my aims and accomplish my goals.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I am confident that I could deal efficiently with unexpected events.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**Thanks to my resourcefulness, I know how to handle unforeseen situations.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I can solve most problems if I invest the necessary effort.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I can remain calm when facing difficulties because I can rely on my coping abilities.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**When I am confronted with a problem, I can usually find several solutions.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**If I am in trouble, I can usually think of a solution.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

**I can usually handle whatever comes my way.**

- Not at all true
- Hardly true
- Moderately true
- Exactly true

« Back

Continue »

# Diabetes Questionnaire

---

## Health Value

Please answer all questions, there are no right or wrong answers.

	Strongly agree	Somewhat strongly agree	Moderately agree	Unsure	Moderately disagree	Somewhat strongly disagree	Strongly disagree
There is nothing more important than good health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Good health is only of minor importance in a happy life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
If you don't have your health, you don't have anything	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
There are many things I care about more than my health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

---

[« Back](#)[Continue »](#)

# Diabetes Questionnaire

---

## Health locus of control

Please answer all questions, there are no right or wrong answers.

**If my condition worsens, it is my own behaviour which determines how soon I will feel better again.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**As to my condition, what will be will be.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**If I see my doctor regularly, I am less likely to have problems with my condition.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Most things that affect my condition happen to me by chance.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Whenever my condition worsens, I should consult a medically trained professional.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**I am directly responsible for my condition getting better or worse.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Other people play a big role in whether my condition improves, stays the same, or gets worse.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Whatever goes wrong with my condition is my own fault.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Luck plays a big part in determining how my condition improves.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

« Back

Continue »

---

## Diabetes Questionnaire

---

### Health locus of control

Please answer all questions, there are no right or wrong answers.

**In order for my condition to improve, it is up to other people to see that the right things happen.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Whatever improvement occurs with my condition is largely a matter of good fortune.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**The main thing which affects my condition is what I myself do.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**I deserve the credit when my condition improves and the blame when it gets worse.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**Following doctor's orders to the letter is the best way to keep my condition from getting any worse.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**If my condition worsens, it's a matter of fate.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**If I am lucky, my condition will get better.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**If my condition takes a turn for the worse, it is because I have not been taking proper care of myself.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

**The type of help I receive from other people determines how soon my condition improves.**

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

« Back

Continue »

---

# Diabetes Questionnaire

---

## General health

Please answer all questions, there are no right or wrong answers.

**Have you recently been able to concentrate on whatever you're doing?**

- Better than usual
- Same as usual
- Less than usual
- Much less than usual

**Have you recently lost much sleep over worry?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently felt that you are playing a useful part in things?**

- More so than usual
- Same as usual
- Less useful than usual
- Much less useful

**Have you recently felt capable of making decisions about things?**

- More so than usual
- Same as usual
- Less so than usual
- Much less capable

**Have you recently felt constantly under strain?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently felt that you couldn't overcome your difficulties?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

« Back

Continue »

---

## Diabetes Questionnaire

---

### General health

Please answer all questions, there are no right or wrong answers.

**Have you recently been able to enjoy your normal day-to-day activities?**

- More so than usual
- Same as usual
- Less so than usual
- Much less than usual

**Have you recently been able to face up to your problems?**

- More so than usual
- Same as usual
- Less able than usual
- Much less able than usual

**Have you recently been feeling unhappy and depressed?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently been losing confidence in yourself?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently been thinking of yourself as a worthless person?**

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

**Have you recently been feeling reasonably happy, all things considered?**

- More so than usual
- About same as usual
- Less so than usual
- Much less than usual

« Back

---

## Diabetes Questionnaire

---

### Satisfaction with Life

Please answer all questions, there are no right or wrong answers.

	Strongly agree	Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree	Strongly disagree
In most ways my life is close <input type="radio"/> to my ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are <input type="radio"/> excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied <input type="radio"/> with my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far I have gotten the important <input type="radio"/> things I want out of life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could live my life over, I would change <input type="radio"/> almost nothing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

« Back

Continue »

# Diabetes Questionnaire

---

## Quality of life

Please answer all questions, there are no right or wrong answers.

Very dissatisfied      Moderately dissatisfied      Slightly dissatisfied      Slightly satisfied      Moderately satisfied      Very satisfied

---

How satisfied

are you with  
 the things you  
 do for  
 fun?

                      

---

How  
 satisfied  
 are you  
 with  
 yours chances  
  
 for a  
 happy  
 fut  
 ure  
 ?

                      

---

How  
 satisfied  
 are you  
 with  
 your  
  
 happines  
 s in  
 gene  
 ral?

                      

---

How  
 satisfied  
 are you with  
 your life in  
 gen  
 eral

                      

---

How

satisfied

are you with

yourself in

gene  
ral?

---

« Back

Submit

---